

Alas, Poor Darwin

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and Steven Rose**

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When Harvard University entomologist Edward O. Wilson first learned about evolution, he experienced, in his words, an "epiphany." He describes the experience: "Suddenly - that is not too strong a word - I saw the world in a wholly new way. . . A tumbler fell somewhere in my mind, and a door opened to a new world. I was enthralled, couldn't stop thinking about the implications evolution has. . . for just about every thing."

Wilson, who was raised as a southern Baptist, believes in the power of revelation. Though he drifted away from the Church, he maintained his religious feeling. "Perhaps science is a continuation on new and better tested ground to attain the same end. If so, then, in that sense science is religion liberated and writ large.

Religion has been defined as a belief system that includes the idea of the existence of "an eternal principle. . . that has created the world, that governs it, that controls its destinies or that intervenes in the natural course of its history." Believers understand this eternal principle - whether a God or a powerful idea - to be the key to all knowledge, the explanation of history, and the guide to the conduct of everyday behavior.

According to a statement by the American Association for the Advancement of Science (AAAS), the differences between science and religion have to do with the kind of questions asked: "Science is about causes, religion about meaning. Science deals with how things happen in nature, religion with why there is anything rather than nothing. Science answers specific questions about the workings of nature, religion addresses the ultimate ground of nature.

Yet scientists who call themselves evolutionary psychologists, including those from the related disciplines of sociobiology and behavioral genetics, are addressing questions about meaning, about why things happen, about the ultimate ground of nature. Their explanations are based on the principle that human nature and human behavior are governed by the evolutionary process of natural selection. According to this principle, people behave in ways that confer the greatest "Darwinian fitness" for their offspring, that is, for the perpetuation of their genes.

Edward O. Wilson developed the all-encompassing dimensions of this

principle in several books, including *Sociobiology* (1975), *On Human Nature* (1978) and *Consilience: The Unity of Knowledge* (1998). He claims that individual and cultural practices, including kin selection, parental investment, mating strategy, status seeking, territorial expansion and defense, and contractual agreements are all determined by the impulse to confer Darwinian advantage to the genes. The eternal principle of natural selection, he believes, shapes our behavior, moral impulses, human relationships and cultural norms.

He and other scientists have promoted this model of human nature in popular books and magazines with missionary fervor, aiming to convert the unenlightened. So ardent are their efforts, it is almost as if they aspire to assure the Darwinian fitness of the theory - to assure its survival in the world of cosmic ideas. Their claims, their language and their style have striking religious overtones.

In this chapter I do not attempt to evaluate the scientific validity of the ideas promulgated by evolutionary psychologists or sociobiologists. Others, not least in this volume, have done this well. Rather, I examine various ways in which these theories and the style of promoting them are motivated by a religious impulse. To be sure, their theories do not rely on a God or Divine Mover. Some sociobiologists like Richard Dawkins pride themselves on being materialist, reductionist and overtly antireligious. But they offer theories proclaiming the evolutionary basis of human behavior as explanations for virtually everything and as the basis for the unification of knowledge. Scientists promoting genetic explanations use a language replete with religious metaphors and concepts such as immortality and essentialism - indeed, the gene appears as a kind of sacred "soul." And as missionaries bringing truth to the unenlightened, they claim their theories are guides to moral action and policy agendas. They are, I argue, part of a current cultural move to blur the boundaries between science and religion.

Biologists have long sought to unify knowledge through the elucidation of the fundamental properties of life. In the 1930s in Britain and the United States, this effort took the form of the "evolutionary synthesis," which seemed to reconcile Darwinism and Mendelism - selection and genetics - theories that were apparently contradictory. The architects of the synthesis promoted the idea that biological change through time - that is, evolution - could serve as the intellectual centerpiece for the study of life. In the 1950s the rise of molecular biology promised to explain life at its most fundamental physicochemical level, the double helix of DNA.

Sociobiology and evolutionary psychology are but the latest efforts to develop a unifying theory that will explain the meaning of "Life itself." In 1975 Wilson announced a "new synthesis" that drew on both evolutionary biology and molecular biology to explain the human social order in

biological terms. In subsequent years DNA, the so-called "secret of life," became the most important entity in the search for an essential biological principle - reflected in the international efforts to map the human genome.

Molecular biologists have focused their work more on genetic diseases than on behavior, but they are also exploring the genetic bases of mental illness, obesity and homosexuality, and some are pursuing genes that might lead to a propensity to violence. For the most part, however, they have left the complex and controversial terrain of human behavior to psychologists who draw inferences about the heritability of behavior from studies of identical twins, or to sociobiologists and evolutionary psychologists who are developing theoretical arguments about the influence of natural selection on the human condition.

The theory of natural selection, they claim, explains why individuals engage in such complex behaviors as love, jealousy, risk-taking, infidelity, rape, status-seeking, violence and addiction. The desire for evolutionary fitness also lies at the root of cultural differences in gender distinctions and social relationships; and it defines our concepts of good and evil. Natural selection to evolutionary psychologists is a "theory of everything," an eternal principle that explains why we behave the way we do and what makes us what we are; it defines the very meaning of human existence.

Though concerned about genes, evolutionary psychologists are no longer addressing the old debate about the relative influence of nature or nurture on human behavior: they are firmly convinced of the biological basis of human nature and culture as well. They are rather seeking universal explanations - the cosmic truth that underlies life, death, culture and faith. This truth lies in natural selection as "the consistent guiding force." The need to maximize "evolutionary fitness" governs the world, controls destiny, intervenes in history and guides the conduct of human behavior.

Reviewing the field of evolutionary psychology, journalist Robert Wright's *The Moral Animal* - revealingly subtitled *Why We Are the Way* - concludes that all our behavior reflects the need to maximize genetic inheritance. Robin Baker in *The Sperm Wars* offers evolutionary explanations of human sexuality: all sexual behavior is driven by the need to pass on genes and sperm compete to maximize the genetic potential of offspring. Richard Dawkins in one of the earliest books on sociobiology, *The Selfish Gene*, reduces people to the status of "robot vehicles" programmed to perpetuate genes. Frans de Waal, applying his research on chimpanzees to human behavior, seeks to integrate and unify all the sciences according to evolutionary principles. Wilson, trying to discern "a deeper unity within the species," describes his theory of consilience as a metaphysical world view: "Science offers the boldest metaphysics of the age. . . there is a general explanation of the human condition proceeding from the deep history of

genetic evolution."

Such beliefs are not theistic; they are not necessarily based on the existence of God or a spiritual entity. But they do follow a religious mindset that sees the world in terms of cosmic principles, ultimate purpose and design. Dawkins, who has been called the "chief gladiator against religion," insists that anyone who believes in a creator, God, is "scientifically illiterate." "Only the scientifically illiterate accept the why question where living creatures are concerned." He argues that the idea of higher purpose is an illusion and religion a dead issue. Yet Dawkins does find ultimate purpose in human existence - the propagation of genes.

Wilson explicitly incorporates notions of purpose and design when he describes sociobiology as a science of systems design: "If the theory of natural selection is really correct, an evolving species can be metaphorized as a communications engineer who tries to assemble as perfect a transmission device as the materials at hand permit." In *Consilience* he refers to people as "adaptation executers." Their adaptations are "designed to maximize fitness, to exploit the local environment in the name of genetic self interest."

Though once a theist brought up to believe in God, Wilson now calls himself a deist, "willing to buy the idea that some creative force determined the parameters of the universe when it began. . . It would mean that human existence really is exalted and that immortality is a prospect." Though this force is not a God, Wilson's evolutionary epic purports to explain how the world works "without surrendering the mystery of the Almighty and the need for communal liturgy."

Evolutionary psychologists have built their credibility on the success of molecular biologists in isolating disease genes. Convinced of the centrality of the genes, they believe that the mind will ultimately be reduced to material properties, that genetics has set the stage for understanding the still more complex systems of mind and behavior.

The language used by geneticists to describe the genes is permeated with biblical imagery. Geneticists call the genome the "Bible," the "Book of Man" and the "Holy Grail." They convey an image of this molecular structure as more than a powerful biological entity: It is also a mystical force that defines the natural and moral order. And they project an idea of genetic essentialism, suggesting that by deciphering and decoding the molecular text they will be able to reconstruct the essence of human beings, unlock the key to human nature. As the geneticist Walter Gilbert put it, understanding our genetic composition is the ultimate answer to the commandment "know thyself." Gilbert introduces his lectures on gene sequencing by pulling a compact disc from his pocket and announcing to his audience, "This is you." Former director of the Human Genome Project and Nobel Prize-winner James

Watson has proclaimed in public interviews that DNA is "what makes us human," and that "in large measure, our fate is in our genes." And a student, writing in *The Pharos*, a medical journal, speculates, "Given [its] essential roles in the origin, evolution and maintenance of life, it is tempting to wonder if this twisted sugar string of purine and pyrimidine base beads is, in fact, God."

Such images fuel popular narratives of genetic essentialism - a picture of the gene as the essence of the person, the locus of good and evil, the key to the "secret of life." At one level, the gene is a biological entity, the unit of heredity, a sequence of DNA that specifies the composition of a protein carrying the information that forms the tissues and cells. But it has also become a cultural icon, invested with social meaning and spiritual significance.

The biblical references that geneticists use to describe DNA have buttressed the claims of evolutionary psychologists, who seek to move beyond molecular biology to reveal the "hidden history of the prescriptive DNA stretched across countless generations." They too endow the gene with spiritual importance as a powerful and sacred object - an essential and immortal entity through which human life, history and fate can be explained and understood. They too elevate genes by treating them as a way to explore fundamental questions about human life, to define the essence of human existence and to imagine immortality.

Dawkins's extreme reductionism, in which DNA appears as immortal and the individual body as ultimately irrelevant, is in many ways a theological narrative: The things of this world (the body) do not matter, while the soul (DNA) lasts forever. And Wilson says, "you get a sense of immortality" as genes move on to future generations. Like the sacred texts of revealed religion, the "evolutionary epic" explains our place in the world, our relationships, behavior, morality and fate. It is indeed of truly epic proportions.

Evolutionary psychologists are missionaries, advocating a set of principles that define the meaning of life and seeking to convert others to their beliefs. They are convinced they have insights into the human condition that must be accepted as truth. And their insights often come through revelations. Describing his conversion experience, Wilson notes that his biggest ideas happened "within minutes. . . Those moments don't happen very often in a career, but they're climactic and exhilarating." He believes he is privy to "new revelations of great moral importance," that from science "new intimations of immortality can be drawn and a new mythos evolved." Convinced that evolutionary explanations should prevail over all other beliefs, he seeks conversions.

Missionaries, inspired by their revelations, often place limited value on empirical evidence. Holistic narratives become more important than detailed logical structure, for theories follow from a kind of revealed truth.

Evolutionary psychologists admit there is a paucity of examples for behavioral genetics. And they acknowledge the great difficulty in showing the empirical basis of epigenetic rules-the hereditary regularities in the development process-as applied to human behavior. The theory of genetic fitness, writes Wilson, is supported by "a scarcity of information" and "the epigenetic rules that guide behavioral development are largely unexplored." He admits that these shortcomings are conceptual, technical and deep, "but they are ultimately solvable." Trust, he says, is wisely placed in the "natural consilience of the disciplines now addressing the connection between heredity and culture, even if support for it is accumulating slowly in bits and pieces." For it is "better to steer by a lodestar than to drift across a meaningless sea."

Missionaries also tend to dismiss their critics. Evolutionary psychologists reject all postmodern thought, a category in which they include Afrocentrism, constructive social anthropology, eco-feminism, deep ecology, Neomarxism and New Age holism. They label nonbelievers unenlightened, misguided, ignorant, unwilling to learn the truth, deluded, ideological or politically correct. They regard their critics as hostile forces, an image held over from the robustly belligerent response to sociobiology when Wilson first promulgated his ideas in the 1970s - a period less receptive to biological explanations of behavior. These days, however, theories about the biological bases of human behavior enjoy greater public and media support. But evolutionary psychologists are still frustrated by the reluctance of social scientists to adopt their models, and accuse them of "tribal devotion to past masters and ideological commitments," of having a "left wing political axe to grind." Deluded and unenlightened beliefs about human behavior, they believe, are more than a theoretical problem; they obstruct effective and moral social action.

Evolutionary psychology is not only a new science, it is a vision of morality and social order, a guide to moral behavior and policy agendas. By attributing human behavior to the occult operations of the cell, evolutionary explanations lift behavior out of the social context, denying the influence of human agency. And by defining behavior as "natural" - the consequence of evolutionary adaptations - these explanations convey a message about appropriate social policies. Evolutionary psychologists call for "realism" based on the principle that behavior is mediated by evolutionary forces.

Robert Wright argues, for example, that the idea of moral responsibility underlying the current legal system is outmoded and obsolete. Assumptions about moral responsibility are historically grounded in the premise that most individuals can choose freely how they will behave. But individuals cannot

control what they do if they are driven to act by biological predispositions. Blame, then, becomes an unrealistic and intellectually groundless notion. And, Wright says, arguments about intention, human agency and free will are also meaningless when behavior is reducible to evolutionary impulse. Policies must change accordingly: "Tortured legal doctrines that defy. . . our emerging comprehension of human nature... are unlikely to withstand the test of time."

Evolutionary psychologists explain international violence in terms of evolutionary pressures among males. Warfare, they claim, can be understood as an adaptive strategy for acquiring the resources to mate and produce offspring that will carry on their genetic endowment. Evolutionary theories, they say, yield tools for identifying regions ripe for conflict before trouble actually breaks out.

Evolutionary psychologists also apply their theories to the explanation of gender differences and to prescriptions about appropriate moral behavior. Robin Baker believes that moral evaluations and realistic policies must take into account the differences between males and females which have evolved from the need to ensure that the fittest genes are carried to the next generation. Women's natural abilities will lead them to prefer childcare to work outside the home. Richard Dawkins takes this idea further, to claim that women have a disproportionate stake in children because of their "biological investment" of both time and cytoplasm (the egg is larger than the sperm). Differences follow from the "abstract forces of evolution."

Such arguments dealing with popular stereotypes quickly reach the public through the mass media. In 1995 ABC aired a news special called "Boys and Girls are Different" to announce the scientific evidence demonstrating the genetic differences between the sexes. Men have better spatial and directional abilities; women are better nurturers; men are better at math; women have better verbal skills. These differences in intellectual and emotional skills, claimed the television host, had developed to assure evolutionary advantage. He concluded that the failure of women to achieve economic and professional parity with men was a consequence of these genetic differences rather than social and political forces.

Evolutionary explanations combine the credibility of science with the certainty of religion. They are especially convenient at a time when governments faced with cost constraints are seeking to dismantle the welfare state. Why support job training, welfare or childcare programs when those targeted are biologically incapable of benefiting from the effort? Theories about the evolutionary basis of status distinctions are a way to explain persistent poverty and social inequalities. Attaining status, so the argument goes, enables people to attract mates and to pass on their genes. Richard Herrnstein and Charles Murray developed the policy implications of this

theory in *The Bell Curve*, in which they argued that economic inequities are a ratification of "genetic justice." Similarly, J. Philippe Rushton presents a theory of racial differences in brain and genital size, which he claims are based on evolutionary adaptations. Racial variation in skills, he says, is a consequence of evolutionary pressures.

Those seeking to restrict immigration have found such theories useful. Some have claimed in policy debates that evolutionary pressures have led to the biological inferiority of some races and even nations. Cultural traits, they say, reflect genetic differences developed through evolutionary and adaptive changes. For example, Peter Brimelow in *Alien Nation* writes that the process by which nations are created "is not merely cultural but to a considerable extent biological." The policy message, received and promulgated in the mass media, is clear: "Moral codes and policy prescriptions that don't acknowledge human nature are doomed to fail."

Nigel Nicholson, a professor at the London Business School and an evolutionary psychologist, has applied the evolutionary principle to organizational behavior. He says in an interview in *Fortune* that he can show that certain companies are more successful than others because they have followed a model "for which we were designed." And a *Business Week* writer attributes the ascension of Newt Gingrich to a position of political influence to his interest in the Dutch primatologist Frans de Waal, who studies power within a community of chimpanzees. Gingrich was an avid follower of this work on evolutionary behavior and strategically applied its principles in the political arena. But clearly there were deeper political forces which ultimately sealed Newt's fate.

The appeal of evolutionary psychology is, in part, politically driven. Evolutionary principles imply genetic destiny. They de-emphasize the influence of social circumstances, for there are natural limits constraining individuals. The moral? No possible social system, educational or nurturing plan can change the status quo. Evolution, defined as an eternal principle "writ large," becomes a way to justify existing social categories and to deflect critical examination of the powers underlying social policy.

More than a scientific theory, evolutionary psychology is a quasireligious narrative, providing a simple and compelling answer to complex and enduring questions concerning the cause of good and evil, the basis of moral responsibility and age-old questions about the nature of human nature. While represented as a scientific theory, evolutionary psychology is rooted in a religious impulse to explain the meaning of life.

Scientists have long argued that science and religion are separate and distinct spheres of life and that the appropriate relationship is one of mutual tolerance. Individuals, after all, are able to operate comfortably in both

domains, even if their beliefs are philosophically in contradiction. Indeed, many scientists hold devout religious beliefs in their personal lives yet remain active in their laboratories. An oft-cited example is Francis Collins, director of the Human Genome Project. He is an evangelical Christian who finds no conflict between religion and science; they simply operate in different spheres. He does find religious implications in his work which he feels gives him a kind of privileged entry into divine knowledge. When something new is revealed about the human genome, "I experience a sense of awe at the realization that humanity now knows something only God knew before. It is a deeply moving sensation that helps me appreciate the spiritual side of life." Collins sees no conflict between scientific understanding of evolution and the idea of a creator God: "Why couldn't God have used the mechanism of evolution to create?"

The "no-conflict" theory is rejected by some historians. William Provine, historian of biology from Cornell, argues that the conflict between science and religion is fundamental and profound, and that the traditional truce between science and religion, based on the assumption that they deal with distinct domains, has been a convenient but unrealistic myth.

Historian David Noble, in his book *The Religion of Technology*, takes issue with the very distinction between religion and science, demonstrating that science and technology have long been driven by "spiritual yearnings for supernatural redemption." Early science was a religious endeavor devoted to bringing man closer to the Divine Being. As "handmaiden to revelation and prophecy," it is invested with spiritual significance. Today the religious impulse appears to be reviving. Having cut off the dialogue between science and the humanities through the "science wars," many scientists are seeking to create a dialogue between science and religion. The fervent claims of evolutionary psychologists, their search for ultimate meaning through their theories, are not unique. God-talk has come into vogue among scientists who are using explicit religious metaphors to project the meaning and power of their work. A spate of recent books blurs the traditional boundaries between science and religion when their authors claim, with nearly religious conviction and clearly religious language, that they have found the ultimate unifying principle which will reveal the most fundamental truths.

Science popularizations are full of all-encompassing explanations and spiritual claims. Science books have cosmic titles: *The Web of Life*, *The Physics of Immortality*, *The God Particle*, *Dreams of a Final Theory*, *The Sacred Depths of Nature*, *The Science of God*, *The End of Reason: The Seat of the Soul*, *The Astonishing Hypothesis: The Scientific Search for the Soul*, *Nature's Mind*, *Evolution and the Meaning of Life*, *The Biology of Morality*.

Physicists were the first to describe their work in such cosmic terms. Leon Lederman, Nobel-Prize-winning physicist, has named the subatomic entity

which he believes determines everything the "God particle." Nobel-Prize-winner Steven Weinberg, in *Dreams of a Final Theory*, searches for the final principles that would explain all the laws of nature. Stephen Hawking, in *A Brief History of Time*, proclaims that scientists reveal "the mind of God." Physicist George Smoot has compared the big bang theory to "the driving mechanism for the universe, and isn't that what God is?" Indeed, some cosmologists and physicists - and now evolutionary psychologists - sound like theologians seeking final answers to ultimate mysteries.

Meanwhile, organizations such as the John Templeton Foundation and the Center for Theology and the Natural Sciences (CTNS) have been formed to reconcile differences between science and religion and to foster "mutual interaction." In June 1998 the Templeton Foundation organized a conference called "Science and the Spiritual Quest" to explore the common ground between science and religion.

The CTNS has over five hundred members. According to spokesman Charles Townes, who shared the 1964 Nobel Prize for discovering the principles underlying the laser, the members sense a growing sympathy for religion within the scientific community: Scientists have a "growing tolerance for . . . a hierarchy of explanations in the world of the natural sciences." They believe it is a time for increased dialogue between religion and science. But many CTNS members also insist that contemporary science demonstrates there must be an ultimate purpose, a cosmic deity: "Evolution occurs because all of nature is being grasped by the future that we call 'God.'" A *Newsweek* interviewer describes their belief: "The achievements of science offer support for spirituality and hints of the very nature of God.

In the mid-1990s, the ideas of evolutionary psychology spawned a quasi-religious organization called The Epic of Evolution Society, attracting scientists, theologians and others concerned about spiritual values in the scientific age. Its mission is to activate awareness of the "evolutionary narrative of the universe, life and humanity." In its Website newsletter members describe evolutionary theory as "a sacred story" with "spiritual meanings," "a tool for spiritual grounding," "Darwin's great gift to theology," and "a source of spiritual vitality in the world of consumer tech." The editor claims that many members of the society have reidentified themselves as theists, "bonded to the story of creation in spiritual ways."

Efforts to create a dialogue between religion and science, especially those sponsored by scientific organizations such as the American Association for the Advancement of Science (AAAS), in part reflect concerns about the influence of religious critics on the future of scientific research. Scientific creationists and other antievolution forces, seeking equal time for creation theory in the science curriculum of U.S. public schools, have had significant influence on high school classrooms and biology textbooks. Scientists also

face the concern of religious groups that research in genetics and especially genetic engineering is desacralizing the body, that scientists are "tampering" with genes. Antiabortion groups have succeeded in blocking federal funding for fetal and embryo research.

Reasoned debate has not mitigated the perennial struggles between science and religion. The religious impulse among scientists - the God talk, the cosmic claims, the organizations for dialogue and reconciliation - may, to use their own favored metaphor, be an adaptive strategy, a way to minimize the distance between science and religion. It is also, as evolutionary psychologists and their publishers have found out, a way to market books and ideas to a broader, nonscientific public in a society, notably the U.S.A., where religion plays a powerful role.

In this context, it may be no coincidence that the depictions of genes in evolutionary narratives draw on powerful images of Christianity. Like the physicists engaged in God-talk, geneticists and evolutionary psychologists are borrowing the compelling concepts of one belief system to meet the needs of another, in an effort to attract converts - to convince the public and skeptics from other disciplines of the centrality and power of their ideas. But as scientists move from investigating how the world works to exploring questions of why - addressing age-old questions of what it means to be human, the nature of good and evil - they may only exacerbate the tensions between science and religion. Religious groups may seek a dialogue with science, but they are not about to step aside and leave it all to the quasi-religious narrative of evolutionary psychology.

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