FIRST THINGS

GOD AND EVOLUTION

by
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During the second half of the nineteenth century, it became common to speak of a war between science and religion. But over the course of the twentieth century, that hostility gradually subsided. Following in the footsteps of the Second Vatican Council, John Paul II at the beginning of his pontificate established a commission to review and correct the condemnation of Galileo at his trial of 1633. In 1983 he held a conference celebrating the 350th anniversary of the publication of Galileo's *Dialogues Concerning Two New Sciences*, at which he remarked that the experience of the Galileo case had led the Church "to a more mature attitude and a more accurate grasp of the authority proper to her," enabling her better to distinguish between "essentials of the faith" and the "scientific systems of a given age."

From September 21 to 26, 1987, the pope sponsored a week of study on science and religion at Castel Gandolfo. On June 1, 1988, reflecting on the results of his conference, he sent a positive and encouraging letter to the director of the Vatican Observatory, steering a middle course between a separation and a fusion of the disciplines. He recommended a program of dialogue and interaction, in which science and religion would seek neither to supplant each other nor to ignore each other. They should search together for a more thorough understanding of one another's competencies and limitations, and they should look especially for common ground. Science should not try to become religion, nor should religion seek to take the place of science. Science can purify religion

from error and superstition, while religion purifies science from idolatry and false absolutes. Each discipline should therefore retain its integrity and yet be open to the insights and discoveries of the other.

In a widely noticed message on evolution to the Pontifical Academy of Sciences, sent on October 22, 1996, John Paul II noted that, while there are several theories of evolution, the fact of the evolution of the human body from lower forms of life is "more than a hypothesis." But human life, he insisted, was separated from all that is less than human by an "ontological difference." The spiritual soul, said the pope, does not simply emerge from the forces of living matter nor is it a mere epiphenomenon of matter. Faith enables us to affirm that the human soul is immediately created by God.

The pope was interpreted in some circles as having accepted the neo-Darwinian view that evolution is sufficiently explained by random mutations and natural selection (or "survival of the fittest") without any kind of governing purpose or finality. Seeking to offset this misreading, Christoph Cardinal Schönborn, the archbishop of Vienna, published on July 7, 2005, an op-ed in the *New York Times* , in which he quoted a series of pronouncements of John Paul II to the contrary. For example, the pope declared at a General Audience of July 19, 1985: "The evolution of human beings, of which science seeks to determine the stages and discern the mechanism, presents an internal finality which arouses admiration. This finality, which directs beings in a direction for which they are not responsible, obliges one to suppose a Mind which is its inventor, its creator." In this connection, the pope said that to ascribe human evolution to sheer chance would be an abdication of human intelligence.

Cardinal Schönborn was also able to cite Pope Benedict XVI, who stated in his inauguration Mass as pope on April 24, 2005: "We are not some casual and meaningless product of evolution. Each of us is the result of a thought of God. Each of us is willed, each of us is loved, each of us is necessary."

Cardinal Schönborn's article was interpreted by many readers as a rejection of evolution. Some letters to the editor accused him of favoring a retrograde form of creationism and of contradicting John Paul II. They seemed unable to grasp the fact that he was speaking the language of classical philosophy and was not opting for any particular scientific position. His critique was directed against those neo-Darwinists who pronounced on philosophical and theological questions by the methods of natural science.

Several authorities on these questions, such as Kenneth R. Miller and Stephen M. Barr, in their replies to Schönborn, insisted that one could be a neo-Darwinist in science and an orthodox Christian believer. Distinguishing different levels of knowledge, they contended that what is random from a scientific point of view is included in God's eternal plan. God, so to speak, rolls the dice but is able by his comprehensive knowledge to foresee the result from all eternity.

This combination of Darwinism in science and theism in theology may be sustainable, but it is not the position Schönborn intended to attack. As he made clear in a subsequent article in First Things (January 2006), he was taking exception only to those neo-Darwinists—and they are many—who maintain that no valid investigation of nature could be conducted except in the reductive mode of mechanism, which seeks to explain everything in terms of quantity, matter, and motion, excluding specific differences and purpose in nature. He quoted one such neo-Darwinist as stating: "Modern science directly implies that the world is organized strictly in accordance with deterministic principles or chance. There are no purposive principles whatsoever in nature. There are no gods and no designing forces rationally detectable."

Cardinal Schönborn shrewdly observes that positivistic scientists begin by methodically excluding formal and final causes. Having then described natural processes in terms of merely efficient and material causality, they turn around and reject every other kind of explanation. They simply disallow the questions about why anything (including human life) exists, how we differ in nature from irrational animals, and how we ought to conduct our lives.

During the past few years, there has been a new burst of atheistic literature that claims the authority of science, and especially Darwinist theories of evolution, to demonstrate that it is irrational to believe in God. The titles of some of these books are revealing: *The End of Faith* by Sam Harris, *Breaking the Spell: Religion as a Natural Phenomenon* by Daniel Dennett, *The God Delusion* by Richard Dawkins, and *God: The Failed Hypothesis* by Victor J. Stenger. The new atheists are writing with the enthusiasm of evangelists propagating the gospel of atheism and irreligion.

These writers generally agree in holding that evidence, understood in the scientific sense, is the only valid ground for belief. Science performs objective observations by eye and by instrument; it builds models or hypotheses to account for the observed phenomena. It then tests the hypotheses by deducing consequences and seeing whether they can be verified or falsified by experiment. All worldly phenomena are presumed to be explicable by reference to inner-worldly bodies and forces. Unless God were a verifiable hypothesis tested by scientific method, they hold, there would be no ground for religious belief.

Richard Dawkins, a leading spokesman for this new anti-religion, may be taken as representative of the class. The proofs for the existence of God, he believes, are all invalid, since among other defects they leave unanswered the question "Who made God?" "Faith," he writes, "is the great cop-out, the great excuse to evade the need to think and evaluate evidence . . . . Faith, being belief that isn't based on evidence, is the principal vice in any religion." Carried away by his own ideology, he speaks of "the fatuousness of the religiously indoctrinated mind." He makes the boast that, in the quest to explain the nature of human life and of the universe in which we find ourselves, religion "is now completely superseded by science."

Dawkins' understanding of religious faith as an irrational commitment strikes the Catholic as strange. The First Vatican Council condemned fideism, the doctrine that faith is irrational. It insisted that faith is and must be in harmony with reason. John Paul II developed the same idea in his encyclical on *Faith and Reason*, and Benedict XVI in his Regensburg academic lecture of September 12, 2006, insisted on the necessary harmony between faith and reason. In that context,

he called for a recovery of reason in its full range, offsetting the tendency of modern science to limit reason to the empirically verifiable.

Catholics who are expert in the biological sciences take several different positions on evolution. As I have indicated, one group, while explaining evolution in terms of random mutations and survival of the fittest, accepts the Darwinist account as accurate on the scientific level but rejects Darwinism as a philosophical system. This first group holds that God, eternally foreseeing all the products of evolution, uses the natural process of evolution to work out his creative plan. Following Fred Hoyle, some members of this group speak of the "anthropic principle," meaning that the universe was "fine-tuned" from the first moment of creation to allow the emergence of human life.

A recent example of this point of view may be found in Francis S. Collins' 2006 book, *The Language of God*. Collins, a world-renowned expert on genetics and microbiology, was reared without any religious belief and became a Christian after finishing his education in chemistry, biology, and medicine. His professional knowledge in these fields convinced him that the beauty and symmetry of human genes and genomes strongly testifies in favor of a wise and loving Creator. But God, he believes, does not need to intervene in the process of bodily evolution. Collins holds for a theory of theistic evolutionism that he designates as the BioLogos position.

Although Collins is not a Catholic, he approvingly refers to the views of John Paul II on evolution in the 1996 message to the Pontifical Academy of Sciences. He builds on the work of the Anglican priest Arthur Peacock, who has written a book with the title *Evolution: The Disguised Friend of Faith*. He quotes with satisfaction the words of President Bill Clinton, who declared at a White House celebration of the Human Genome Project in June 2000: "Today we are learning the language in which God created life. We are gaining ever more awe for the complexity, the beauty, and the wonder of God's most divine and sacred gift."

Theistic evolutionism, like classical Darwinism, refrains from asserting any divine intervention in the process of evolution. It concedes that the emergence of living bodies, including the human, can be accounted for on the empirical level by random mutations and survival of the fittest.

But theistic evolutionism rejects the atheistic conclusions of Dawkins and his cohorts. The physical sciences, it maintains, are not the sole acceptable source of truth and certitude. Science has a real though limited competence. It can tell us a great deal about the processes that can be observed or controlled by the senses and by instruments, but it has no way of answering deeper questions involving reality as a whole. Far from being able to replace religion, it cannot begin to tell us what brought the world into existence, nor why the world exists, nor what our ultimate destiny is, nor how we should act in order to be the kind of persons we ought to be.

Viewed as a scientific system, Darwinism has some attractive features. Its great advantage is its simplicity. Ignoring the specific differences between different types of being and the purposes for which they act, Darwinism of this type reduces the whole process of evolution to matter and motion. On its own level it produces plausible explanations that seem to satisfy many practicing scientists.

Notwithstanding these advantages, Darwinism has not entirely triumphed, even in the scientific field. An important school of scientists supports a theory known as Intelligent Design. Michael Behe, a professor at Lehigh University, contends that certain organs of living beings are "irreducibly complex." Their formation could not take place by small random mutations, because something that had only some but not all the features of the new organ would have no reason for existence and no advantage for survival. It would make no sense, for example, for the pupil of the eye to evolve if there were no retina to accompany it, and it would be nonsensical for there to be a retina with no pupil. As a showcase example of a complex organ all of whose parts are interdependent, Behe proposes the bacterial flagellum, a marvelous swimming device used by some bacteria.

At this point we get into a technical dispute among microbiologists that I will not attempt to adjudicate. In favor of Behe and his school, we may say that the possibility of sudden major changes effected by a higher intelligence should not be antecedently ruled out. But we may take it as a sound principle that God does not intervene in the created order without necessity. If the production of organs such as the bacterial flagellum can be explained by the gradual accumulation of minor random variations, the Darwinist explanation should be preferred. As a matter of policy, it is imprudent to build one's case for faith on what science has not yet explained, because tomorrow it may be able to explain what it cannot explain today. History teaches us that the "God of the gaps" often proves to be an illusion.

Darwinism is criticized by yet a third school of critics, one which includes philosophers such as Michael Polanyi, who build on the work of Henri Bergson and Teilhard de Chardin. Philosophers of this orientation, notwithstanding their mutual differences, agree that biological organisms cannot be understood by the laws of mechanics alone. The laws of biology, without in any way contradicting those of physics and chemistry, are more complex. The behavior of living organisms cannot be explained without taking into account their striving for life and growth. Plants, by reaching out for sunlight and nourishment, betray an intrinsic aspiration to live and grow. This internal finality makes them capable of success and failure in ways that stones and minerals are not. Because of the ontological gap that separates the living from the nonliving, the emergence of life cannot be accounted for on the basis of purely mechanical principles.

In tune with this school of thought, the English mathematical physicist John Polkinghorne holds that Darwinism is incapable of explaining why multicellular plants and animals arise when single cellular organisms seem to cope with the environment quite successfully. There must be in the universe a thrust toward higher and more-complex forms. The Georgetown professor John F. Haught, in a recent defense of the same point of view, notes that natural science achieves exact results by restricting itself to measurable phenomena, ignoring deeper questions about meaning and purpose. By its method, it filters out subjectivity, feeling, and striving, all of which are essential

to a full theory of cognition. Materialistic Darwinism is incapable of explaining why the universe gives rise to subjectivity, feeling, and striving.

The Thomist philosopher Etienne Gilson vigorously contended in his 1971 book *From Aristotle to Darwin and Back Again* that Francis Bacon and others perpetrated a philosophical error when they eliminated two of Aristotle's four causes from the purview of science. They sought to explain everything in mechanistic terms, referring only to material and efficient causes and discarding formal and final causality.

Without the form, or the formal cause, it would be impossible to account for the unity and specific identity of any substance. In the human composite the form is the spiritual soul, which makes the organism a single entity and gives it its human character. Once the form is lost, the material elements decompose, and the body ceases to be human. It would be futile, therefore, to try to define human beings in terms of their bodily components alone.

Final causality is particularly important in the realm of living organisms. The organs of the animal or human body are not intelligible except in terms of their purpose or finality. The brain is not intelligible without reference to the faculty of thinking that is its purpose, nor is the eye intelligible without reference to the function of seeing.

These three schools of thought are all sustainable in a Christian philosophy of nature. Although I incline toward the third, I recognize that some well-qualified experts profess theistic Darwinism and Intelligent Design. All three of these Christian perspectives on evolution affirm that God plays an essential role in the process, but they conceive of God's role in different ways. According to theistic Darwinism, God initiates the process by producing from the first instant of creation (the Big Bang) the matter and energies that will gradually develop into vegetable, animal, and eventually human life on this earth and perhaps elsewhere. According to Intelligent Design, the development does not occur without divine intervention at certain stages, producing irreducibly complex organs. According to the teleological view, the forward thrust of evolution and

its breakthroughs into higher grades of being depend upon the dynamic presence of God to his creation. Many adherents of this school would say that the transition from physicochemical existence to biological life, and the further transitions to animal and human life, require an additional input of divine creative energy.

Much of the scientific community seems to be fiercely opposed to any theory that would bring God actively into the process of evolution, as the second and third theories do. Christian Darwinists run the risk of conceding too much to their atheistic colleagues. They may be over-inclined to grant that the whole process of emergence takes place without the involvement of any higher agency. Theologians must ask whether it is acceptable to banish God from his creation in this fashion.

Several centuries ago, a group of philosophers known as Deists held the theory that God had created the universe and ceased at that point to have any further influence. Most Christians firmly disagreed, holding that God continues to act in history. In the course of centuries, he gave revelations to his prophets; he worked miracles; he sent his own Son to become a man; he raised Jesus from the dead. If God is so active in the supernatural order, producing effects that are publicly observable, it is difficult to rule out on principle all interventions in the process of evolution. Why should God be capable of creating the world from nothing but incapable of acting within the world he has made? The tendency today is to say that creation was not complete at the origins of the universe but continues as the universe develops in complexity.

Phillip E. Johnson, a leader in the Intelligent Design movement, has accused the Christian Darwinists of falling into an updated Deism, exiling God "to the shadowy realm before the Big Bang," where he "must do nothing that might cause trouble between theists and scientific naturalists."

The Catholic Church has consistently maintained that the human soul is not a product of any biological cause but is immediately created by God. This doctrine raises the question whether God

is not necessarily involved in the fashioning of the human body, since the human body comes to be when the soul is infused. The advent of the human soul makes the body correlative with it and therefore human. Even though it may be difficult for the scientist to detect the point at which the evolving body passes from the anthropoid to the human, it would be absurd for a brute animal—say, a chimpanzee—to possess a body perfectly identical with the human.

Atheistic scientists often write as though the only valid manner of reasoning is that current in modern science: to make precise observations and measurements of phenomena, to frame hypotheses to account for the evidence, and to confirm or disconfirm the hypotheses by experiments. I find it hard to imagine anyone coming to belief in God by this route.

It is true, of course, that the beauty and order of nature has often moved people to believe in God as creator. The eternal power and majesty of God, says St. Paul, is manifest to all from the things God has made. To the people of Lystra, Paul proclaimed that God has never left himself without witness, "for he did good and gave you from heaven rains and fruitful seasons, satisfying your hearts with food and gladness." Christian philosophers have fashioned rigorous proofs based on these spontaneous insights. But these deductive proofs do not rely upon modern scientific method.

It may be of interest that the scientist Francis Collins came to believe in God not so much from contemplating the beauty and order of creation—impressive though it is—but as the result of moral and religious experience. His reading of C.S. Lewis convinced him that there is a higher moral law to which we are unconditionally subject and that the only possible source of that law is a personal God. Lewis also taught him to trust the natural instinct by which the human heart reaches out ineluctably to the infinite and the divine. Every other natural appetite—such as those for food, sex, and knowledge—has a real object. Why, then, should the yearning for God be the exception?

To believe in God is natural, and the belief can be confirmed by philosophical proofs. Yet Christians generally believe in God, I suspect, not because of these proofs but rather because they

revere the person of Jesus, who teaches us about God by his words and actions. It would not be possible to be a follower of Jesus and be an atheist.

Scientists such as Dawkins, Harris, and Stenger seem to know very little of the spiritual experience of believers. As Terry Eagleton wrote in his review of Dawkins' *The God Delusion* : "Imagine someone holding forth on biology whose only knowledge is *The Book of British Birds*, and you have a rough idea of what it feels like to read Richard Dawkins on theology . . . . If card-carrying rationalists like Dawkins [were asked] to pass judgment on the geopolitics of South Africa, they would no doubt bone up on the question as assiduously as they could. When it comes to theology, however, any shoddy old travesty will pass muster."

Some contemporary scientific atheists are so caught up in the methodology of their discipline that they imagine it must be the only method for solving every problem. But other methods are needed for grappling with questions of another order. Science and technology (science's offspring) are totally inadequate in the field of morality. While science and technology vastly increase human power, power is ambivalent. It can accomplish good or evil; the same inventions can be constructive or destructive.

The tendency of science, when it gains the upper hand, is to do whatever lies within its capacity, without regard for moral constraints. As we have experienced in recent generations, technology uncontrolled by moral standards has visited untold horrors on the world. To distinguish between the right and wrong use of power, and to motivate human beings to do what is right even when it does not suit their convenience, requires recourse to moral and religious norms. The biddings of conscience make it clear that we are inescapably under a higher law that requires us to behave in certain ways and that judges us guilty if we disobey it. We would turn in vain to scientists to inform us about this higher law.

Some evolutionists contend that morality and religion arise, evolve, and persist according to Darwinian principles. Religion, they say, has survival value for individuals and

communities. But this alleged survival value, even if it be real, tells us nothing about the truth or falsity of any moral or religious system. Since questions of this higher order cannot be answered by science, philosophy and theology still have an essential role to play.

Justin Barrett, an evolutionary psychologist now at Oxford, is also a practicing Christian. He believes that an all-knowing, all-powerful, and perfectly good God crafted human beings to be in loving relationship with him and with one another. "Why wouldn't God," he asks, "design us in such a way as to find belief in divinity quite natural?" Even if these mental phenomena can be explained scientifically, the psychological explanation does not mean that we should stop believing. "Suppose that science produces a convincing account for why I think my wife loves me," he writes. "Should I then stop believing that she does?"

A metaphysics of knowledge can take us further in the quest for religious truth. It can give reasons for thinking that the natural tendency to believe in God, manifest among all peoples, does not exist in vain. Biology and psychology can examine the phenomena from below. But theology sees them from above, as the work of God calling us to himself in the depths of our being. We are, so to speak, programmed to seek eternal life in union with God, the personal source and goal of everything that is true and good. This natural desire to gaze upon him, while it may be suppressed for a time, cannot be eradicated.

Science can cast a brilliant light on the processes of nature and can vastly increase human power over the environment. Rightly used, it can notably improve the conditions of life here on earth. Future scientific discoveries about evolution will presumably enrich religion and theology, since God reveals himself through the book of nature as well as through redemptive history. Science, however, performs a disservice when it claims to be the only valid form of knowledge, displacing the aesthetic, the interpersonal, the philosophical, and the religious.

The recent outburst of atheistic scientism is an ominous sign. If unchecked, this arrogance could lead to a resumption of the senseless warfare that raged in the nineteenth century, thus

undermining the harmony of different levels of knowledge that has been foundational to our Western civilization. By contrast, the kind of dialogue between evolutionary science and theology proposed by John Paul II can overcome the alienation and lead to authentic progress both for science and for religion.

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