

Commentary

NOVEMBER 1988 RELIGION

Evolution and the Bible

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by **Leon R. Kass**

WESTERN CIVILIZATION WOULD NOT BE WESTERN CIVILIZATION WERE IT not for biblical religion, which reveres and trusts in the one God, Who has made known what He wants of human beings through what is called His revelation, i.e., through Scripture. Western civilization would not be Western civilization were it not also for science, which extols and trusts in human reason to disclose the workings of nature and to use the knowledge gained to improve human life. These twin sources of Western civilization—religion and science (or, before it, philosophy), divine revelation and human reason—are, to say the least, not easily harmonized. One might even say that Western civilization would not be Western civilization without the continuing dialectical tension between the claims of biblical religion and the cultivation of autonomous human reason.

These tensions between science and religion, never absent yet recently grown strong, nowadays focus mainly on the subject of evolution and its meaning for the Bible. This is, of course, an old story: ever since the publication of *The Origin of Species* in 1859, Darwinism's challenge to the doctrine of creation outlined in Genesis has been advanced, countered, and argued in many arenas. In Darwin's own introduction to that book, the alternatives regarding the origin of species were starkly posed: either descent with modification, mainly through natural selection, or design by the Creator. One might have thought that over a hundred years of

discussion, in the face of massive evidence to support the thesis of evolution, would have settled matters—or at least left the disputers with little new to say. Yet, today, the controversy is perhaps more heated than ever, not only among scholars, but also in the political arena.

There are, to be sure, people who see no difficulty. Some practicing biologists—even evolutionary biologists—continue to profess themselves believing Christians or Jews; they reconcile the seemingly opposed teachings of Darwinism and the Bible by regarding the early chapters in Genesis as metaphorical or by holding that God could create equally well through the evolutionary process (though some also rejoice in the “big-bang” theory of cosmic origins, which they associate with instantaneous creation *ex nihilo*).

But most people tend to see the first chapters of Genesis and the theory of evolution as irreconcilable. On one side, we have scientists and philosophers of science who hold that the teaching of evolution has made “plumb unbelievable” the teachings of the book of Genesis, especially about the special status of man: “[I]t is obviously impossible to square any evolutionary account of the origin of species with a substantially literal reading of the first chapters of Genesis.”¹ On the other side, we have Protestant fundamentalists, who, taking the same view of the challenge, declare the teachings of evolution to be false. No longer content just citing chapter and verse, some of them would like to prove it scientifically. In recent decades, they have given birth to a new movement, so-called “creation science” or “scientific creationism,” which aims both to embarrass and refute the theory of evolution and to find scientific evidence supporting the account of the origins of the world, life, and man provided by their own particular reading of Scripture.

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I should say straight out that I reject the enterprise of “creation science.” There is simply no way scientifically to gather the kind of evidence wanted, and the quality of reasoning in the few publications I have seen is appalling. True, certain

discoveries may yet raise difficulties for the orthodox theory of the *how* of evolution, inducing much-needed modesty and open-mindedness among the high priests of science. But such difficulties could hardly challenge the basic *fact* that evolution has occurred, much less constitute evidence for special creation less than 6,000 years ago. If the Bible is to be harmonized with scientific findings, creation science is not the way.

I would, however, offer two faint defenses for the creation scientists and their fundamentalist supporters, despite my wholesale rejection of their ways and goals. First, they are properly dissatisfied with a scientific explanation of the universe that, quite deliberately, refuses to consider the *ultimate* sources and origins of things; they are dissatisfied with a science that contents itself with describing the processes of change while ridiculing the quest for *causal* explanations, dismissed contemptuously as a matter for metaphysics. The inquiring mind is not content with knowing “how”; it wants also to know “why.” To answer confidently that “chance is responsible” is merely to confess our ignorance.

Second, the creationists and their fundamentalist patrons correctly discern what is humanly and morally at stake in this controversy. They sense that orthodox evolutionary theory cannot support any notions we might have regarding human dignity or man’s special place in the whole. And they see that Western moral teaching, so closely tied to Scripture, is also in peril if any major part of Scripture can be shown to be false.

In short, both metaphysically and morally, the stakes are high—and the fundamentalists, unlike many scientists, seem to know it, to their credit.

What is a thoughtful person to think? Can we continue to hold together evolution and the Bible without self-deception? Adequately to answer this question, one would need to consider thoroughly each of the teachings, first in its own terms and then in relation to the other. This task is beyond my powers. But perhaps I can contribute to our ongoing reflection by doing what is, alas, too little done in these discussions—namely, taking a close look at the text of the beginning of Genesis.

Let us put aside what we have heard about this story, whether from Milton's poem or Blake's drawings, whether from deconstructionist professors or Jerry Falwell's sermons, and let us attempt a truly literal reading of Chapter 1 of Genesis: first, to see what it actually says and means; second, to see what sort of text it is; and third, to see whether it is the sort of text and says the sort of things that can be contradicted and disproved by science.

Before proceeding to Genesis, a brief word on the theory of evolution, whose general teachings are, I shall assume, familiar. It is important to distinguish two aspects, the *what* and the *how*. The *what* of evolution is the doctrine of transformation of species: species are not fixed or specially created; rather, they descend with modification from previously existing, different species. Darwin was not the first to teach transformation of species; he was the first (along with A. R. Wallace) to teach the current view about the *how* of evolution, the means whereby species change: natural selection. Genetic variations (i.e., mutations) arise, conferring on their possessors either a slight advantage or a slight disadvantage in the struggle for life and the competition to generate offspring; the survival and reproduction of those more fit is called natural selection, the fact of greater fitness being inferred retroactively from the one successful result, namely, the greater number of surviving progeny.

I should make it plain from the start that I am convinced that evolution has occurred, but I am doubtful whether its most *important* features are *sufficiently* explained solely by the mechanism of natural selection.

I. At First Glance: The Cast of Creatures (in order of appearance)

“In beginning, God created the heavens and the earth.”²

The first sentence of Genesis majestically summarizes the entire story and states its main theme and thesis: *creation*, by God, and creation by *God*. The heavens and the earth, the high and the low, were *created* and created by God. Needless to say, this verse is hard to understand: in beginning of what? What is “creating”? And who or what is this creating being, God? To some of these difficulties—especially, creation—we shall return. But for the present, we note that the assertion “creation by God” emphatically denies important competing alternatives. In its beginning, Genesis denies the eternity of the visible universe and, *a fortiori*, its divinity: the heavens—sun, moon, stars—and the earth are not gods, but creatures. And, in promulgating creation, Genesis denies the alternative of generative beginnings: the sky did not beget upon the earth; our world is not the result of sexual (or warring) activities of gods and goddesses.

One cannot exaggerate the importance the Bible attaches to rejecting these alternatives. Curiously, these alternatives are rejected also by the theory of evolution (and modern cosmology): the cosmos is not eternal; the sun is not a god—and neither is the cosmos; the coming-to-be of the universe is not by sexual generation. Whatever their differences on “creation,” Genesis and modern science agree on these most significant matters.

The second verse is even more mysterious than the first: “And the earth was unformed and void and darkness [was] over the face of the deep, and the spirit of God hovered over the face of the waters.”

Apparently describing the situation before the first creative act, this verse focuses on a primordial “earth”—to be distinguished from the “Earth” that is the dry land, and that appears later on Day Three—above which was the spirit (*ru’akh*: literally, wind or breath) of God. The primordial earth was, to begin with, watery, formless, chaotic, mobile but non-living, undifferentiated stuff; out of this, everything (or nearly everything) else will come to be, through a process of demarcation, distinction, separation. God, the separator and distinguisher, appears Himself to be separate from the watery stuff. But the origin of the primordial chaos is absolutely unclear; there is no explicit assertion of its creation out of nothing. The

ultimate beginnings—and even the *status quo ante* God’s creative acts—are shrouded in mystery. About this, too, modern cosmology cannot help but agree: “What was there before the big bang?” “God only knows.”

Happily, the intelligibility of the account improves in the sequel, once we are introduced to the cast of particular creatures, beginning with light and ending with man. Here they are, in their familiar order of appearance:



Day One: Light, and the separation of light and dark, named Day and Night.

Day Two: The firmament, that vault of the sky, named Heavens, which separates the waters above and the waters below.

Day Three: (a) The separation of gathered terrestrial waters from the emerging dry land, respectively named Seas and Earth; and (b) Vegetation—grass, herbs, and trees, each after its kind—put forth by the Earth.

Day Four: The lights in the Heavens—the greater, the lesser, and the stars.

Day Five: The fish of the sea and the birds of the open sky, after their kinds.

Day Six: (a) The terrestrial animals, after their kinds; and (b) Man, made in God’s image, male and female.

The account, though comprehensive, has an earth-centered focus. Though it speaks about what we call, in non-biblical language, the universe or the cosmos, it addresses *us*, as terrestrial beings, looking around and about and, especially, up. All the beings mentioned are known to us in ordinary experience: there are no mythical beasts and no gods and goddesses; the main regions of our world are present—land, sea, and air—with their appropriate inhabitants, divided into recognizable kinds or species. And the overarching, star-studded, watery-blue vault of heaven that beckons our gaze is present almost from the start, preceded only by light, in the absence of which nothing at all could be distinguished or gazed upon. By addressing human beings exactly as *they* experience the world, especially through sight, Genesis begins with what is both familiar and first for us, and for all mankind at all times. (The same cannot be said for modern science.³)

But while addressed to our experience, the account of Genesis 1 does not simply accord with our experience; indeed, some of the peculiarities of the account induce perplexities about the way we ordinarily encounter the world.

First, there are peculiarities related to time: the creatures do not just come in order, they come sharply separated in a day-by-day sequence. As early as the Middle Ages, well before the modern theory of evolution, Christian scholars debated whether creation was largely instantaneous or whether it was gradual; in this debate, everything depends on the nature and meaning of time—a subject that we shall, mercifully, not entangle ourselves with. But our ordinarily sure sense of temporality is called into question by this simple fact: we have day and night, and the marking of what appears to be time, on Day One, before we have the sun, which is created only on Day Four. The traditional explanation, that creation days are not solar days, merely avoids the difficulty, and prevents us from recognizing the dangers of trusting too much our notions of temporality.

The order of creatures poses other challenges to our ordinary perceptions of things: there is light in the absence of the sun or of any light-giving heavenly bodies; and there is terrestrial vegetation (Day Three) before the sun (Day Four). In short, though all the beings are familiar, the *order* of their appearance does not square perfectly with facts of ordinary experience—to say nothing of modern scientific accounts of cosmogony.

What are we to make of these difficulties? We could try to rationalize them away: for example, we know at least one source of light that does not require a luminous body, namely, lightning (though it does require clouds, earth, etc.); also, the appearance of plants with the earth and before the sun might be due to the fact that the earth-bound and earth-borne character of vegetation is more impressive to the naive observer than is its dependence on sunlight. But what if these incongruities should *not* be rationalized away? What if they were *intentionally*

arranged incongruously, out of the expected order? What if the text intends, in this way, to challenge, or at least correct, certain aspects of our naive, untutored perception of our world?

This suggestion gains force when we notice that the sun is the common feature of all the peculiarities: light without the sun, days or time without the sun, earth and vegetation without the sun. In keeping with its rejection of the belief in cosmic gods, Genesis depreciates the importance of *the* primary being in the world of our common experience, the sun, source of light, warmth, and sustenance.

This striking demotion of the status of the sun leads us to suspect that the author of Genesis is engaged in teaching something other than what came first and what came next, that the sequence of creatures may not be mainly or primarily an effort to tell a *historical* or temporal story. Rather, the apparently temporal order could be an image for the ontological order; the temporal sequence of comings-into-being could be a vivid means of conveying the *hierarchic* order of the beings-that-have-come-to-be-and-are. We need a second, and different, kind of look at the biblical sequence.⁴

II. Looking With the Mind's Eye: Intelligible Hierarchy

We begin our second glance at the order of creatures with the following observation: the six days of creation are organized quite clearly into two *parallel* groups of three: Days One to Three, and Days Four to Six. Day One brings light, Day Four the heavenly lights; Day Two, heaven, separating waters above from the waters below, Day Five the living creatures—fish and fowl—that live in the waters below and that fly before heaven. Days Three and Six have, in parallel, double creations, giving them preeminence in their respective triads. Day Three: first, the earth or dry land, and second, the plants, put forth by earth. Day Six: first, the land animals, second, man.

This observation prepares the next, which is that the second three days bring creatures that all have locomotion: the heavenly bodies, the fish and fowl, the land animals and man all move. None of the creatures of the first three days can move. Moreover, the mobile creatures are arranged in order of progressively greater freedom of movement: the heavenly bodies move in fixed orbits and cannot change their paths; all living things—fish, fowl, beasts—can change their paths, though they move in set and prescribed ways, governed, as we would say, by largely fixed instincts; man alone moves in paths and ways that he can set for himself (at least in part).

Having begun to attend not to the temporality but to the logic—or intelligibility—of the sequence, we are in a position to discern the utterly logical and intelligible structure of the entire account.

The created order embodies four basic principles: *place*, *separation*, *motion*, and *life*, but especially *separation* and *motion*; places are necessary regions for housing separated kinds of beings and backgrounds for detecting their motion, while life may be seen, at first glance, as a higher and more independent kind of motion. Further, if one then treats locomotion as itself a more advanced kind of separation, in which a distinct being already separated from others also separates itself from place, we could say that *the* fundamental principle through which the world is created is *separation*. Creation, then, is the bringing of order out of chaos largely through acts of separation, division, distinction.

This view is strongly encouraged by the language of the text: the word “divide” or “separate” (from the root *b-d-l*) occurs explicitly five times in the first chapter, and the idea is implicitly present ten more times in the expression “after its kind,” which implies the separation of plants and animals into distinct kinds or species.

Here is how Leo Strauss summarizes the sequence of creation in the first chapter, showing the principle of separation at work:



[F]rom the principle of separation, light [which allows discernment and distinction]; via something which separates, heaven; to something which is separated, earth and sea; to things which are productive of separated things, trees, for example; then things which can separate themselves from their places, heavenly bodies; then things which can separate themselves from their courses, brutes; and finally a being which can separate itself from its way, the right way. . . . The clue to the first chapter seems to be the fact that the account of creation consists of two main parts. This implies that the created world is conceived to be characterized by a fundamental dualism: things which are different from each other without having the capacity of local motion and things which in addition to being different from each other do have the capacity of local motion. This means the first chapter seems to be based on the assumption that the fundamental dualism is that of distinctness, otherness, as Plato would say, and of local motion. . . . The dualism chosen by the Bible, the dualism as distinguished from the dualism of male and female, is not sensual but intellectual, noetic, and this may help to explain the paradox that plants precede the sun.

The creation of the world, in accordance with these intelligible principles, proceeds through acts of intelligible speech. Creation through speech fits creation by separation, for speech implies the making and recognition of distinctions. To name something is to see it distinctly, both as the same with itself and as other than everything else. To predicate or combine words in speech is to put together what mind has first seen as separate. Distinction, otherness, separation—or, if one prefers, the principle of contradiction, that A is other than not-A—is the very foundation of the possibility both of speech and of an articulated world.

With this in mind, we look again at the order of creation, as it is called into being through acts of speech. I again quote Strauss:



[T]he first thing created is light, something which does not have a place. All later creatures have a place. . . . [T]he things which have a place either do not have a definite place but rather fill a whole region, or [are] something to be filled—heaven, earth, seas; or else . . . they do not fill a whole region but [fill] a place within a region, within the sea, within heaven, on earth. The things which fill a place within a region either lack local motion—the plants; or they possess local motion. Those which possess local motion either lack life, the heavenly bodies; or they possess life. The living beings are either non-terrestrial, water animals and birds, or they are terrestrial. The terrestrial living beings are either not created in the image of God, brutes; or in the image of God—man. In brief, the first chapter of Genesis is based on a division by two, or what Plato calls *diarexis* [division by two].

The order of the cosmos is not only supremely intelligible; it is also *hierarchic*. The work of creation is completed by living things, created on Days Five and Six. Living things are characterized (1) by having a proper place—in the waters, above the earth before the firmament, or on the earth; (2) by being formed according to their kinds; (3) by reproducing themselves, according to their kinds (or species); (4) by having motion appropriate to their place (more free on land). Living things are higher than the heavenly bodies, as already indicated, (5) by having greater freedom of motion, man most of all. Most significantly, unlike the heavenly lights, living things also (6) have powers of awareness—especially hearing—which are implied in the receipt of God’s blessings; they can recognize the distinctions that are manifest in the world and, ultimately, at least one of them—man—can convey and understand the distinctions conveyed in speech. Living things are characterized also (7) by neediness and vulnerability—indicated by the remarks about food [verses 29-30]—which may be what makes them in need of God’s blessing. But if living things have needs, they also (8) have appetites, that is, inward and felt awareness of their lack coupled with an impetus to act in order to remedy the lack: around this germ of appetite, there will eventually appear desire, feeling, and a rich inner life in the higher animals and man.

The phenomenological characterization of life implicit in Genesis 1 is remarkably rich and remarkably apt: need and appetite for food from the world, openness to the world through sensory and intellectual awareness, power to move in the world and to alter it through action, activated by desire, passion, and will. Living things are higher than non-living things; and among living things, some are more alive than others—that is, their powers of awareness, action, and desire are more fully developed. Who could disagree?

Evolutionary theorists might disagree. Or rather, they would resist entering into the argument about hierarchy altogether. In his notebooks, Darwin wrote an exhortatory note to himself, “Never use higher or lower,” but he could not keep himself from doing so; the terms are all over *The Origin of Species*. Insofar as evolutionary theory offers any standard for higher and lower, that standard could only be a standard of success, namely, “most surviving offspring”—in which case, at least in Chicago, the cockroach would be the highest being. Because evolutionary theory does not deal with the *beings* and the *character* of their *lives*, but only with their comings-into-being, it can in principle never fully appreciate theoretically the different degrees and grades of *being-present* that are manifestly here on earth.

But one point bears emphasis: the biblical assertion—I would say the *fact*—of hierarchy is not incompatible with the fact of evolution, or even with evolution by natural selection. It is only incompatible with orthodox evolutionary theory, which refuses to notice it *as hierarchy* and which cannot at present explain it. This ought to make us wonder about the hierarchy-blind character of present evolutionary theory. The special powers of human beings make the case most boldly.

III. The Highest Creature and his Place in the Whole

In the cosmology of Genesis, human beings clearly stand at the peak of the creatures. Not only is man the last of the creatures listed in hierarchic order; once he appears, the creation is complete. Though man himself is not said by God to be

good—a point to which we shall return—once man is present (and blessed), “God saw *all* that He had made, and, behold, it was *very* good,” by which, I take it, is meant that the all or the whole was complete, lacking in nothing. Given dominion or rule over the other animals, man is the most godlike or godly of the creatures: man alone is said to be in the image of God.

This teaching about the place and special dignity of man is today on the defensive. It has been attacked as both false and dangerous. Some say it expresses merely an anthropocentric prejudice, vulgarly called “speciesism” by some advocates of animal rights. Others, appealing to evolutionary theory, allege that, far from being godly, man does not even differ fundamentally from other animals: since all life is in the same business—survival and reproduction—man’s apparent difference is merely superficial, a difference not of kind but only of degree. Still others, with moralistic purposes, blame this allegedly self-promoting thesis of man’s special place for man’s ruthless and smug exploitation of his planet and his animal relations, and even, indirectly, for the smugness that leads—so they argue—directly from self-preference and hierarchic thinking to racism and sexism.

I believe these charges are all mistaken. To show this, one would need to understand the meaning of “image of God,” no small task. A sensible approach is to begin with the term itself and then consider its meaning in the local context provided by the text.

The Hebrew word translated “image” is *tselem*, from a root meaning “to shade”: *tselem* would be a shadow or a phantom, and, hence, derivatively, a likeness or resemblance, something which both is and is not what it resembles. While being merely a likeness, a shadow not only resembles but also points to, and is dependent for its very being on, that of which it is a shadow.

How is man godlike? One possibility, of course, is that man and God are alike in looks; the Olympian gods of ancient Greece were anthropomorphic, and differed from human beings only in being ageless and immortal. But Genesis 1 offers no hint of God’s corporeality. Instead, in the course of recounting His creation, the

text introduces us to God's *activities* and *powers*: (1) God speaks, commands, names, and blesses; (2) God makes and makes freely; (3) God looks at and beholds the world; (4) God is concerned with the goodness or perfection of things; (5) God addresses solicitously other living creatures.

In short: God exercises speech and reason, freedom in doing and making, and the powers of contemplation, judgment, and care.

Doubters may wonder whether this is truly the case about God—after all, it is only on biblical authority that we regard God as possessing these powers and activities. But it is certain that we human beings have them, and that they lift us above the plane of a merely animal existence. Never mind for now where these powers came from; their presence, and the difference they make for human life, are indisputable. Human beings, alone among the earthly creatures, speak, plan, create, contemplate, and judge. Human beings, alone among the creatures, can articulate a future goal and use that articulation to guide them in bringing it into being by their own purposive conduct. Human beings, alone among the creatures, can think about the whole, marvel at its articulated order, wonder about its beginning, and feel awe in beholding its grandeur and in pondering the mystery of its source.

These demonstrable truths do not rest on biblical authority. Rather, our reading of this text, addressable only to us, and our responses to it, possible only for us, provide all the proof we need to confirm the text's assertion of our special place. Reading Genesis 1 demonstrates the truth of its claims about the superior ontological standing of the human. This is not anthropocentric prejudice; it is cosmological truth. And nothing we shall ever learn about *how* we came to be this way will ever make it false.

But we must be careful not to exaggerate our standing, Man may be, of all the creatures, the most intelligent, resourceful, conscious, and free—and in these respects the most godlike—but he is also the most questionable. In fact, Genesis 1, read with the fine print, provides this teaching as well. Man may have powers that resemble divinity, but he is also at most merely an image; man, who, quite on his own, is prone to think of himself as a god on earth and to lord it over the animals, is reminded by the biblical text that he, like the other creatures, is not divine. Though brought into being by a special creative act, man appears on the same day as the terrestrial animals; though in some respects godlike, man belongs emphatically to the world of animals, whose protective ruler he is told to be. Man is the ambiguous being, in-between, more than an animal, less than a god. This fact—and it is a fact—makes man a problem, as the Bible, even in this celebratory chapter, subtly teaches.

After nearly every act of creation, God looked at the creature and “saw that it was good.” There are two striking exceptions: neither the firmament (or heavens), on Day Two, nor man, on Day Six, is said to be good. What bearing, if any, might these omissions have on the place and status of human beings?

Now one might say that there is no need to see or say that man is good; after all, he is made in God’s image and that might make man “better” than good. Moreover, once human beings are present, the whole is said to be *very* good: does this not imply that each part—man especially included—is good? Perhaps. But what if the omission were intended and meaningful? On what understanding of “good” might it be simply true that man, as created, cannot yet be said to be good?

“Good” as used throughout Genesis 1 cannot mean *morally* good; when “God saw the light that it was good,” He could not have seen that the light was honest or just or law-abiding. The meaning of “good” seems rather to embrace notions like the following: (1) fit to the intention; (2) fit to itself and its work, i.e., able to function for itself and in relation to the unfolding whole; and, especially, (3) complete, perfect, fully formed, clear and distinct and fully what it is. A being is good insofar as it is fully formed and fully fit to do its proper work.

A moment's reflection shows that man as he comes into the world is not yet good. Precisely because he is the free being, he is also the incomplete or indeterminate being. More pointedly, precisely in the sense that man is in the image of God, man is not good—not determinate, finished, complete, or perfect. It remains to be seen whether man will *become* good, whether he will be able to complete himself (or to be completed).

Man's lack of obvious goodness, metaphysically identical with his freedom, is, of course, the basis of man's *moral* ambiguity. As the being with the greatest freedom of motion, able to change not only his path but also his way, man is capable of deviating widely from the way for which he is most suited or through which he—and the world around him—will most flourish.

The story of man's moral ambiguity and God's efforts to address it—a story that occupies the rest of the Bible—does not really begin in earnest until the tale of the Garden of Eden in the next chapter; Genesis 1 does not address man's work or his duties and does not speak about good and evil. Yet even while presenting its majestic cosmology and locating human life as highest in the context of the whole, Genesis 1 subtly hints at the reasons why man is existentially and morally so troublesome.

In this sense, the first chapter of the Bible prepares the rest. It not only tells of the temporal beginnings, answering our questions about ultimate causes; it not only uses the temporal account to convey the intelligible order and the hierarchy of being; it also begins the moral education of the reader.

It seems, then, that Genesis 1 is guided overall by a moral intention, that it is in fact an *ethical* text even more than it is a cosmological one. We need a third look at the text from this point of view.

IV. Listening Morally: Away from the Heavens

The *cosmology* of Genesis 1 is discussable entirely within the confines of the first chapter itself; but properly to discern the *moral intention* of this beginning requires reading further. Nevertheless, in the light of such further reading, we will find the appropriate clues present already from the start. Indeed, the relevant evidence has already been presented and needs only to be recollected.

A main teaching—perhaps *the* main teaching—of Genesis 1 is the non-divinity of the cosmos, and, in particular, of the sun, the moon, the stars—in short, of everything connected with heaven. Here is the textual evidence: heaven and its occupants are not eternal; there is something temporally before, causally behind, and ontologically above the cosmos; the Hebrew word for Heaven, *shamayim*, is grammatically plural (actually, dual), not singular; the account begins with a primordial earth, and there is no primordial heaven; the heavenly bodies are not alive, not gods, but mere creatures; they are not even named by God; they are presented as merely useful for the earth, and rule only over day and night, not over the earth and man. The special demotion of the sun—regarded by other peoples as a god—has already been well documented: light, time, and even vegetation are presented as not requiring the sun. Not heaven but man has the closest relation to God; heaven is not said to be good. Heaven, the enduring vault of the cosmos, to which ancient peoples looked with awe and fear, wonder and reverence, is, according to the Bible, not deserving of such respect.

Why such an effort to demote the dignity of the cosmos, and, especially, of heaven? Is there perhaps some connection between the fact that man is not said to be good and the fact that heaven is not said to be good? The following answers suggest themselves.

Human beings, left to their own devices, would naturally incline to the worship of nature. Based on their experience of the world, and the knowledge to which their senses lead them, they would look up to the powers that be, and preeminently to the sun. Because of its permanence; its regular, ceaseless, perfect circular

“motion”; its power and its beauty; and above all, its importance for human life as the source of life, warmth, and the growth of crops, the sun is always and everywhere the prime candidate for natural divinity.

These are not just primitive or foolish notions. Whether among the ancient Babylonians or Egyptians or Persians, or among modern-day Buddhists, we find men looking up to nature as something divine—not only from reasons of theory but also for purely practical reasons. Because human life is precariously dependent on sun and rain, the effort to appease, propitiate, and control the cosmic forces through worship and sacrifice and the reading of signs is a nearly ubiquitous feature of early human life, and certainly in the ancient Near East.

Thus, according to the Bible, the first to offer gifts to the divine—gifts not invited by God—was Cain, fittingly a farmer, no doubt concerned with rain and the appeasement of heaven. Noah, on getting off the Ark, builds an altar and roasts up some of his animal charges, again without instruction, perhaps in gratitude, but perhaps also in an effort to assure no more floods. And, most clearly, Babel, the universal human city, founded on reason and the arts, centers around a tower, like the ziggurats of the historical Babylon; in these ziggurats the priests, watchfully yet apprehensively, conducted measurements of the heavenly motions, on the basis of which they sought knowledge useful for the life of the city—forerunners of the astrological aspiration that persists to the present day.⁵

If these inferences do not persuade, the Bible makes the point explicit. In Deuteronomy, Moses exhorts the Israelites to remember the divine voice they heard at Mount Horeb:



Take ye therefore good heed unto yourselves—for ye *saw* no manner of likeness [*temunah*] on the day that the Lord *spoke* unto you in Horeb out of the midst of the fire—lest ye deal corruptly, and make you a graven image, even the form of any figure, the likeness of male or female, the likeness of any beast that is on the earth, the likeness of any winged fowl that flieth in the heavens, the likeness of any thing that creepeth on the ground, the likeness of any fish that is in the water under the earth; *and lest' thou lift up thine eyes unto the heavens, and when thou seest the sun and the moon and the stars, even all the host of the heavens, thou be drawn away and worship them, and serve them, which the Lord thy God hath allotted unto all the peoples under all the heavens.* [Deuteronomy 4:15-19, emphasis added]

Absent special revelation—indeed, absent the special revelation of the Exodus and the giving of the law at Mount Sinai—human beings would naturally be led to the worship of heaven.⁶ Absent *hearing* God's word, human beings would follow their eyes, upward. Human beings, free and hence indeterminate, would *on their own* try to find their way in the world, based on their ordinary experiences; they would ultimately be led to orient themselves by the cosmic gods. This perfectly natural human tendency the Bible seeks to oppose, and right from the first verse, by denying that the heavens—or any other natural beings—are worthy of human reverence.

I cannot here explore in detail the so-called second creation story, the Garden of Eden, which explicitly examines the structure of human life and calls most profoundly into question the goodness of the human inclination autonomously to choose for oneself how to live. In that story, the knowledge to be avoided is knowledge of good and bad rooted in nature—the tree—and always within reach—at the center of our garden—through our immediate experience, once reason—the conversation with the serpent—has emancipated us from obedience to fixed ways. Suffice it to say that the second story even more radically supports the first, showing the folly of the human animal's inborn propensity to autonomy, to find its

own way by the lights of reason and experience. But our willingness to suspect that our powers might be inadequate to the task of righteous living has been provided at the start, in Genesis I's challenge to our native presumptions about the dignity and divinity of our given world. And what, one may rightly ask, is wrong, ethically speaking, in looking up to cosmic gods, or more simply, in trying to orient human life on the basis of knowledge of nature? After all, philosophers as diverse as Aristotle and Lucretius seem, at first glance, to have taught the life lived according to nature.

The Bible's answer would seem to square with current dogma: nature is morally neutral. Not only is it silent about right and justice; absolutely no moral rules can be deduced from even the fullest understanding of nature. Knowing even that man is the highest creature, because free, does not lead to any clear guidance about how his freedom is to be used.

Perhaps the philosophic life, the life of contemplation, for a few private individuals, might arguably be endorsed by a cosmology that begins with light, that is ordered on strictly intellectual principles, and that concludes with man as the one godlike being who can behold and appreciate the order of the world and ponder its source. But this interpretation seems forced: in presenting man's difference, Genesis stresses more his freedom of motion and action, less his theoretic intellect.

And regarding action, society, and politics, the point is incontestable: the cosmos can have nothing at all to say or teach about all the important questions of human beings *living with other human beings*. Not even the basic prohibitions against cannibalism, incest, murder, and adultery—constitutive for all decent human communities—can be supported by or deduced from the natural world. From the point of view of *righteousness*, indeed for all *practical* purposes, cosmic gods are about as helpful as no gods at all.

Nothing in the theory of evolution requires us to abandon this biblical teaching. Indeed, as I pointed out at the start, modern science altogether shares the Bible's view of the non-divinity of nature, the silence of nature regarding the human good, and, therefore, the insufficiency of human efforts to find our way of life by thinking about cosmic nature.

Yet whereas evolutionary theory suggests no alternative to nature, the Bible begins beyond nature with its divine Creator and moves throughout to supply our defect of ethical knowledge with its own stories and instructions regarding how to live. Though most of that moral instruction comes later in the Bible, the assertion of creation by God at the very start of the story seems crucial to the moral intent and to its ultimate success. We must return to look at the question of creation.

V. Creation and Evolution

Our attempt at a literal and philosophical reading of the first chapter of Genesis has shown how its apparently temporal account conveys what we might call an ontological or metaphysical order of the entire world, beginning with all the familiar beings that appear universally in human experience. Moving us to think beyond our experience, Genesis discloses the immanent, hierarchic *order* of our world and its *intelligible principles*, both of them accessible to human beings as human beings, on the basis of reason alone. We see how this ontological account serves an overall *moral* intention, namely, to show, in small print, the incompleteness and ambiguity of the human, and, in bold print, the lack of divinity and moral irrelevance of the entire visible cosmos.

None of these biblical teachings needs to be retracted because of the findings of evolution. The nature, rank, and dignity of the various beings of the world remain unaltered, independent of the process by which they all came to be. In particular, the ambiguous metaphysical and moral status of human beings—in-between, in

some respects godlike yet not-good, and morally indeterminate—can still be affirmed, taking men as they have been and are, evolutionary origins or no evolutionary origins.

Furthermore, because the major intention of the first chapter is not historical but ontological, ethical, and theological, I submit that Genesis is not the sort of book that can be refuted—or affirmed—on the basis of scientific or historical evidence. This is, I repeat, not because it is myth or poetry, but rather because its truths are metaphysical and ethical, not scientific or historical, because it teaches mainly about the status and human meaning of what is rather than about the mechanism by which things work or came-to-be.

But, surely, someone might say, I have skirted the main point of the entire first chapter: creation, and creation by God. The perfectly intelligible cosmology, accessible to human reason, is overarched by an assertion regarding divine creation (with God as the ultimate cause), an assertion for which the Bible offers no direct evidence or argument. Indeed, the passage from Deuteronomy quoted above suggests that, absent hearing the *voice* of God and, by extension, absent the revealed *speech* of the Bible itself, human beings would not readily come to the conclusion of creation, would not readily understand that there is an invisible, intelligent source of the visible and intelligible world. The *intelligibility* of the created order may be known by man as man, but about the *createdness* of the intelligible order—and all the more, about its creator—we readers know only by biblical assertion, that is, only by revelation.

Perhaps we should leave it at that. Yet because today's controversy concerns precisely the matter of creation, and because evolutionary theory does pose some challenges, not yet discussed, to the letter of the Genesis account *as it is ordinarily read* by many people, we should carry the analysis somewhat further—not least because such important matters are at stake.

To recapitulate: creation, according to Genesis 1, is the bringing of order out of primordial chaos, largely through a process of progressive separation, division, distinction, differentiation. If there is to be a world, there must be articulated and distinguishable beings; if there are to be *living* beings, capable of self-perpetuation, each individual must belong to a kind or species that by and large breeds true, i.e., after its kind. (Of this, more soon.)

At this level of generality, the biblical account is perfectly compatible with the fact of a slowly evolving cosmos, with life arriving late, beginning in the sea and only later emerging on earth, progressively distinguished into a variety of separated kinds.

Further, since the separations, actually made or appearing in the world, were all beforehand *makeable*, one might even conclude that the biblical creatures—or at least the broadly possible *kinds* of creatures—were present *potentially* in the world, even before they were called forth into being (that is, created).

With this addition, one sees how one might find in Genesis 1 a doctrine of evolving or unfolding creation, or, conversely, how *certain* evolutionary accounts of the emergence of living forms are compatible with the Bible's account of a graded and sequential unfolding of the cosmos, through progressive acts of separating out implicit or at least latent possibilities.

True, evolution through the unfolding of latent possibilities is not the same as evolution through the natural selection of accidental variations—it is more Lamarckian than Darwinian. But leaving aside such questions of mechanism, “creation” and “evolution” might be perfectly compatible, at least in principle; everything depends on what is meant by each notion.

I do not yet fully understand these notions; and I rather suspect that evolution *solely by natural selection*—orthodox Darwinism—cannot be simply squared with the biblical account. But if the question is to remain open for further reflection, we need to challenge some common assumptions that usually lead people to see evolution and creation simply as opposed.

First, *evolutionists deny the primacy and even the intelligibility of natural kinds or species*. Some of them ridicule as “typological” or “essentialist” thinking the focus on natural species, characteristic not only of Genesis 1, but also of common human experience. Evolutionary theory, like natural science in general, shares the Bible’s teaching regarding the intelligibility of the cosmos, but the intelligibility it seeks comes in the form of universal laws of natural change, rather than the specific forms of the separable natural beings. Indeed, the whole point of Darwin’s researches was to discover the natural processes by which new species emerge from preexisting species, through descent and modification.

Yet the transformability of species does not refute the status or importance of species as a natural category; even Darwin’s own title (*The Origin of Species*) presupposes the reality of species or natural kinds. Moreover, species remains a principle of intelligibility, maybe not for how the animals came-to-be the way they are, but certainly for *what* they are and *do*. In reproduction, like still mates with like, and the progeny are, for the most part, always like their parents in kind. Genealogy may explain lines of descent or kinship of genotypes, but existent organisms behave largely true to their type. Is not your average rabbit much more impressed by the difference between a rabbit and a fox than he is by the fact that they have the same genetic code or that they are mutually descended from a common mammalian forebear? Species, however mutable, still make sense.

Second, evolutionists, rejecting the notion of fixed species and insisting that life, like the universe, is constantly in flux, oppose this view to the Bible, which they assume *proclaims a static world, created once and for always the same*.

Yet the account in Genesis, contrary to popular belief, does not assert the eternity or fixity of the species. On the contrary, Genesis asserts—along with modern science—the non-eternity of the species: like the entire visible universe, each species had a beginning in time. Moreover, there are several subtle indications in the biblical text that invite us to think that God’s created order is, in fact, subject to considerable change, *on its own*.

I begin with a trivial observation: God’s creatures, at the start, all had their distinct place or habitat: sea, air, land. Where were the amphibious ones? Did God not make frogs and alligators? Could they be later “creatures,” evolving out of an exclusively watery niche? Since frogs and alligators were surely known to the ancient Israelites, is the text perhaps raising questions about the “propriety” of those beings that cross boundaries and upset the distinctions that constitute the order of the world? Later, in Leviticus, all such ambiguous creatures will be declared unclean.

But the possibility of organic change is more strongly supported by explicit evidence from Genesis 1 itself. After the creatures have all appeared, God speaks to man about food:



And God said: “Behold I have provided you with all seed-bearing plants which are on the face of all the earth, and every tree which has seed-bearing fruit; to you I have given it as food. And to every living being of the earth and to everything that creepeth upon the earth which has a living soul in it, I have given every green herb as food”; and it was so. [Verses 29-30]

All the animals were to have been what we call vegetarian. Keeping to this diet would disturb almost not at all the order of creation. Yet we must imagine that man and the animals as created *were capable* of eating meat. (The alternative is that meat-eaters *evolved*, later.) That they needed to be told what to eat is perhaps

a sign that, left to their own devices, their appetites would naturally lead them to incorporate one another—disturbing the terrestrial order and giving rise to what we now call powerful pressures for natural selection.

In this subtle way, the text hints that the harmonious and ordered whole contains within it a principle—life, or, if you will, appetite, and eventually omnivorousness and freedom—that threatens any original order of the whole. Life is, in principle, destabilizing; man is so in spades. God’s created order is not immune to change—indeed, as subsequent chapters relate, by the tenth generation all the earth (including the animals) has become corrupt and has erupted into violence and fury (Genesis 6:7, 11-12); the return through the flood to the watery chaos of the beginning completes the dissolution into chaos that life—and freedom—itsself had wrought.

Life and freedom are only the most obvious principles of disordering and change. A scrupulously close look at the text suggests even more fundamental principles of change. First, there is the formless, watery chaos out of which everything came-to-be. How well does it accept form and order? Are all its native entropic tendencies abolished by the process of separation to which it is subjected? Or does its chaotic character persist beneath the forms of the world, making *any* order unstable? Does Genesis 1 subtly teach what was once known as the recalcitrance of matter?

The text speaks twice of each creative act, once to call forth (“Let there be”), once to report the act as performed (“And there was”). Only in the case of the creation of light is the report of the creative act letter-for-letter perfectly identical to the call for the creative act: “Let light be” and “Light be.”⁷ In all other cases, there is a clear difference between command and performance. For example, God asks the earth to “grass grass,” but the earth instead *put forth* grass—leading the rabbis long ago to remark that the earth was first in disobedience.

In fact, resistance to order may be present even earlier: at the very start, after God has fully separated the light from the dark, calling the one Day and the other Night, the narrator reports that there was *evening* and there was *morning*: the separated Day and Night, quite on their own, had drifted partially back together, blurring the boundaries between them.⁸ The recalcitrance of matter, like the mischievous propensities of life, promise massive changes, even for God's created order.

Third, *evolutionists insist that the world and life emerged, and that change proceeds, by wholly natural processes*, and they reject, in particular, creation *ex nihilo*. But, as I read Genesis 1, creation need not mean *ex nihilo*. The text says nothing to support such a notion; in particular, it is silent about the origin of the primordial watery chaos. And if, as I suggested, the watery stuff offers immanent resistance to the coming and persistence of intelligible order, there may even be said to be some biblical evidence against the kind of divine omnipotence that creation *ex nihilo* would require. And if there is not creation *ex nihilo*, then what is *called* creation could very well proceed through perfectly natural—even evolutionary—processes.

Can creation proceed through natural processes, or must creation mean something supernatural, something miraculous, i.e., something that defies the ordinary workings of nature? What help, if any, does Genesis 1 provide on this question? What, when we finally come down to it, *is* the *how* of creation according to Genesis 1?

The Hebrew word “create,” *bara'*, is applied only to God; it occurs five times in the first chapter, once in the first summarizing sentence, once regarding the sea monsters, three times in connection with man. But this word is used, apparently synonymously, with another word, *'asah*, meaning “to make or do.” *'Asah* occurs eight times in the first chapter, and three more times in the first three verses of Chapter 2 which conclude the account. The last words of the story (2:3) assimilate

bara' and *'asah*: “. . . which God in creating had made.” Curiously, two of the eleven uses of *'asah* refer not to God but to trees, to the trees *making* fruit. Is it possible that one could learn something about creation altogether by learning about the natural process of fruit trees making fruit? Here, once more, is Leo Strauss:



The fruit tree making fruit, what kind of making is this? The fruit is originated almost entirely by the tree and, as it were, within the tree. Secondly, the fruit does not have the looks of a tree. Thirdly, the fruit is a complete and finished product. And last, the fruit can be separated from the tree. Perhaps creation has a certain kinship with this kind of making as distinguished from the following kinds of making: first, the making of something which does not originate almost entirely in the maker, artifacts, which require clay and so on in addition to the maker; secondly, the making of something which looks like the maker, the generation of animals; third, the making of something which is not complete but needs additional making or doing, the eggs; and finally, the making of something which cannot be separated from the maker: for example, deeds, human deeds, cannot be separated from the man who does them.

If creation through separation were, in fact, more like fruit-making than pottery, could it, just possibly, be an entirely natural process?

I have perhaps gone too far. If the analogy is strictly applied, creation becomes a process of God's fructification, out of God's own substance; and the distinction between God and world on which the text manifestly and vigorously insists would be lost.

But it has been useful to have pushed the account of creation this far in the naturalistic direction, for we can now turn the tables and put a hard question back to the evolutionists. Let us assume that creation *is* evolution, and proceeds solely by natural processes. What is *responsible* for this natural process? What is its *cause*? What is the *ultimate* source of the intelligibility of the natural order or of

the actual intelligence that emerged within it with the coming of man? Can a dumb process, ruled by strict necessity and chance mutation, having no rhyme or reason, ultimately answer sufficiently for life, for man, for the whole?

Darwin himself was utterly baffled by how life first arose; in the last words of the last edition of *The Origin of Species*, he repairs to “the Creator” as the ultimate source of the first breath of life. Descartes before him had understood that if the human *mind* is thoroughly determined by physical causes there can be no such thing as scientific truth; he therefore was compelled to invoke God as the source of man’s rational powers. And when we finally allow ourselves to come face to face with the mystery that there is anything at all rather than nothing, can we evolutionists confidently reject the first claim of the Bible—“In beginning, *God* created the heavens and the earth”?

¹ Antony Flew, “The Philosophical Implications of Darwinism,” in *Darwin, Marx, Freud*, Arthur Caplan and Bruce Jennings, eds. (Plenum Press, 1984), pp. 3-33. See also my critical response, “Darwinism and Ethics: A Response to Antony Flew,” in the same volume, pp. 47-69, especially the section on “Darwinism and the Bible.”

² The translations here and throughout are my own—L.K.

³ For an exploration of the “unnatural” character of modern natural science, see my *Toward a More Natural Science: Biology and Human Affairs* (Free Press, 1985), especially Chapter 13, “Looking Good: Nature and Nobility.”

⁴ I owe this new way of reading Genesis 1 largely to the writings of Umberto Cassuto and Leo Strauss, on which the next section of this essay heavily depends. See U. Cassuto, *A Commentary on the Book of Genesis* (Jerusalem: Magnes Press,

Hebrew University, 1964), and Leo Strauss, “On the Interpretation of Genesis,” *L'Homme*, January-March 1981, XXI (1), pp. 5-20. This remarkable essay informs my entire reading of Genesis 1.

⁵ See ray essay, “What's Wrong With Babel?,” which is scheduled to appear in the Winter 1989 issue of the *American Scholar*.

⁶ One does not have to take this on biblical authority. Here is a famous passage from Aristotle's *Metaphysics*, to the same effect and with a similar moral point: “The ancients of very early times bequeathed to posterity in the form of a myth a tradition that the heavenly bodies are gods and that the divinity encompasses the whole of nature. The rest of the tradition has been added later as a means of persuading the many and as something useful for the laws and for matters of expediency; for they say that these gods are like men in form and like some of the other animals, and also other things which follow from or are similar to those stated. But if one were to separate from the later additions the first point and attend to this alone (namely, that they thought the first beings to be gods), he might realize that this was divinely spoken . . .” (1074b 1-11). (Translated by Hippocrates G. Apostle, with slight changes; Indiana University Press, 1966, pp. 208-09.) Unlike the biblical author, Aristotle believes that the additions made for ethical and legal purposes, however salutary and useful, represent deviations from the truth.

⁷ In the original, the words that precede and follow the *and* are identical—*yehi 'or*. English requires a change from *let there be* to *there was*, but because of a peculiarity in the use of Hebrew tenses no change is needed.

⁸ I was first made aware of these “deviations” by Robert Sacks, St. John's College, Santa Fe, who has written a most unusual and helpful commentary on the Book of Genesis, entitled, *The Lion and the Ass*. It has been published serially in *Interpretation: A Journal of Political Philosophy*, beginning with Volume 8 (2-3), 1980, pp. 29-101. The commentary on Genesis 1 is found on pp. 31-47.

