

A God for Evolution

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TOWARD THE END OF HIS LIFE the famous Jesuit paleontologist Teilhard de Chardin (1881–1955) observed that traditional theological reflection has conceived of God’s influence on nature too much in terms of Aristotle’s notion of a prime mover pushing things from the past (*a retro*). Evolution, Teilhard said, requires that we think of God not as driving or determining events from behind or from the past, but as drawing the world from up ahead (*ab ante*) toward the future. Teilhard goes on to say that “only a God who is functionally and totally ‘Omega’ can satisfy us.” But, he asks, “where shall we find such a God?... And who will at last give evolution *its own God?*”¹

Almost half a century later we still struggle with the same questions. It is not yet evident that theology has thought about God in a manner consistent with the data of evolution. Powerful voices in the religious world continue to hold the idea of an absolute reality as far away from evolution as possible. And even theologians who have assented notionally to the compatibility of Darwin and theology have often failed to address the difficulties involved in such a novel union of ideas. A complete consummation of Teilhard’s hopes for a vision of God deeply resonant with evolution still eludes us.

Probably no modern thinker has been more persistent than Teilhard in seeking to transform our theological sensibilities in a way that takes evolution seriously. Long before most of his fellow believers, he realized that the intellectual plausibility, as well as the renewal, of Christian faith in our day depends upon a sustained encounter with Darwinian ideas. Teilhard himself struggled for many years to spell out what

with them to the study of life do not blind them to what is really going on in an evolving universe. And, like Bergson and Whitehead, he understood instinctively that the materialist metaphysics that frames the "scientific" ideas of many modern biologists is simply inadequate to the full reality of evolution.

Although science must be distinguished carefully from metaphysics, what scientists actually decide to focus on or leave out of their scientific pictures is deeply determined by their general visions of what is real and what is not. Thus, Teilhard would certainly argue that materialism, instead of leading scientists to see the evolutionary data more clearly, actually closes them off to the most obvious feature of evolution, namely, its bringing about new being, or what we shall call "novelty." In the case of Gould and Dennett, both of whose "scientific" thinking is determined in great measure by an a priori commitment to materialist metaphysics, it is not Teilhard's science that really arouses their disdain, but his demand for an alternative metaphysics. They are disturbed by Teilhard's own "dangerous idea," namely, that metaphysical materialism is incompetent to make full sense of the actual discoveries of evolutionary science. The extravagant lengths to which they have gone in order to distort Teilhard and his ideas is an indication that something much more contentious is occurring here than merely scientific disagreement. What really repels them is Teilhard's suggestion that a metaphysically adequate explanation of any universe in which evolution occurs requires—at some point beyond the limits that science has set for itself—a transcendent force of attraction to explain the *overarching* tendency of matter to evolve toward life, mind, and spirit.

However, this postulated divine "force," or the "Omega," which Teilhard identified with the Creator God of his Christian faith, was never intended to be taken as a strictly scientific explanation. Teilhard does not introduce the notion of God simply to fill up a "gap" in scientific exploration. Rather, his appeal to a theological metaphysics is undertaken precisely so that our background assumptions, unlike those of materialist evolutionism, will allow *all* of the data of evolution, and especially the fact of emergent novelty, to stand out.

A "Metaphysics of the Future"

What Teilhard seemed to be looking for is what we might call a "metaphysics of the future." "Metaphysics" is the term philosophers

he thought would be the invigorating spiritual outcome of such an engagement. And in terms of sheer inspirational force, it is hard even today to surpass the depth and passion of his own contributions to this venture.

But is Teilhard's religious thought itself adequate to Darwinian science? There have been considerable refinements in the scientific understanding of evolution since his day, especially in the areas of genetics and molecular biology. Moreover, his notion of evolutionary "progress" has led some neo-Darwinians to write him off as an outdated ideologue. The paleontologist Stephen Jay Gould, for example, is so certain that evolution is devoid of the directionality Teilhard discerned in it that he has attempted to destroy completely the famous Jesuit's scientific reputation by making him appear to be an accomplice to the notorious Piltdown hoax.² Gould's scurrilous attack, incidentally, has been thoroughly debunked; but, to my knowledge, he has never publicly retracted his claims, in spite of clear evidence that Teilhard could not have been involved.³

Daniel Dennett, who is not always in sympathy with Gould on some of the finer points of neo-Darwinian evolution, in this case expresses even more bluntly what Gould may be trying to say in his attack on Teilhard. After devoting several pages of *Darwin's Dangerous Idea* to a crude caricature of Teilhard in order to make him seem scientifically incompetent, Dennett adds: "The problem with Teilhard's vision is simple. He emphatically denied the fundamental idea: that evolution is a mindless, purposeless, algorithmic process."⁴

This is not the place to debate the merits of either Teilhard's scientific reputation or his scientific understanding of evolution, nor is it necessary to do so. Suffice it to say that Gould's and Dennett's charges have been refuted decisively and that Teilhard had the reputation in his day of being an excellent scientist; had he lived to the end of this century there is no question that he would have kept up with the latest developments in biology.

What is worth talking about is Teilhard's call for a new metaphysics in which to situate our understanding of evolutionary science. All scientists have at least an implicit metaphysics. Every scientific idea is presented against the backdrop of general assumptions about the nature of reality (which is what "metaphysics" is all about). Even in the case of the "purest" Darwinian accounts, metaphysical convictions are impossible to suppress. Teilhard wanted simply to make sure that the implicit metaphysical beliefs that scientists bring

use to refer to the general vision of reality that one holds to be true. As Teilhard acknowledged explicitly, our religious thought has been dominated by a metaphysics of *esse* (or "being") that has obscured the obvious fact of nature's constant "becoming" and its perpetual movement toward the future. The metaphysics of "being" that we find in Plato and Aristotle was taken over in one form or another by Christian, Jewish, and Islamic theology, and it still forms the intellectual setting of much religious reflection in the West. An exclusivist preoccupation with "being" may have seemed appropriate to a static cosmos and to the classic hierarchical pictures of the cosmos reviewed in the preceding chapter. But evolution requires that we now entertain an alternative understanding of reality, one that stresses the prominence of the future.

Teilhard called his proposed alternative a "metaphysics of *unire*," that is, a conception of reality in which all things are drawn perpetually toward deeper coherence by an ultimate force of attraction, abstractly identified as Omega, and conceived of as an essentially *future* reality.⁵ Evolution, to put it as directly as I can, seems to require a divine source of being that resides not in a timeless present located somewhere "up above," but in the future, essentially "up ahead," as the goal of a world still in the making. The term "God" in this revised metaphysics must once again mean for us, as it did for many of our biblical forbears, the transcendent future horizon that draws an entire universe, and not just human history, toward an unfathomable fulfillment yet to be realized. This, I think, is what Teilhard means when he says that God must become for us less Alpha than Omega.

Teilhard, therefore, surely would have endorsed the contemporary German theologian Jürgen Moltmann's persistent reminder that in the biblical view of things the word "God" means, before all else, "Future."⁶ And he would have applauded the suggestions by another famous Jesuit scholar, Karl Rahner, who spoke of God as the "Absolute Future."⁷ Likewise he would be in sympathy with the Lutheran theologians Wolfhart Pannenberg and Ted Peters, who think of God as the "Power of the Future."⁸ Since Teilhard's own lifetime, exegetical rediscovery of the prominent role of hope in biblical religion has made it more theologically appropriate than ever to think systematically of ultimate reality in terms of the dimension of "future."

Nevertheless, in spite of this century's reacquaintance with biblical eschatology and a God who relates to the world primarily in the

mode of promise, Christianity's conversion to the metaphysics of the future implicit in its biblical foundations is still far from complete. This, I think, is the main reason why evolution does not yet have "its own God." After many centuries of domination by Platonic and Aristotelian philosophical concepts, a considerable portion of Western theology and spirituality is still ruled by a metaphysics of the "eternal present," according to which the natural world is the always deficient reflection of, if not a perverse deviation from, a primordial perfection of "being" that exists forever in a fixed realm generally pictured as "above" creation, untouched by time. In accordance with this traditional "metaphysics of the eternal present," the inevitable "becoming" that occurs in evolution can be interpreted only as meaninglessly straying from a timeless completeness, rather than as genuinely *new* creation.

Accordingly, when the idea of evolution made its appearance in Europe a century and a half ago, the new historical sense of nature-in-process ran up against a still Platonically saddened theological mind-set incapable of accommodating a deep sense of the future. In spite of the biblical hope for new creation, what seems to have dominated our religious preconceptions is a strong suspicion that the future somehow must not be allowed to invade and transform the present. Aside from occasional apocalyptic expressions of hope for radical renewal, Western religious sensibilities still carry at least some residue of the pre-evolutionary prejudice that cosmic time can bring about nothing that has not already been fully realized in a perfection existing from all eternity.⁹

Nostalgia for this lost perfection persists deeply in the souls of all of us. It is not surprising, then, that evolution is still taken by many theologians as a relatively inconsequential process of becoming. After all, if being is a *fait accompli*, fully realized from all eternity, then evolution, when interpreted within the classical framework of *esse*, can be relegated easily to the same order of relative unimportance that pertains to all temporal occurrence. One must wonder, therefore, whether evolution will ever find "its own God" as long as theology and spirituality remain hostage to this brand of metaphysics.

It is worth noting once again that biblical literalists are not the only ones who cannot make room for evolution in their religious thinking. As I observed in the previous chapter, intellectually sophisticated devotees of the "perennial philosophy," with their notion of a "Great Chain of Being," have denied vehemently that evolution

can be harmonized with the hierarchical vision of reality essential to religion. Instead of revising this hierarchical metaphysics, with its static sense of graded levels of being, proponents of the perennial philosophy have found it more efficient to ignore, where they have not completely renounced, Darwinian science.¹⁰

For its part, the typically materialist reading of evolution, following what might be called a "metaphysics of the past," also logically rules out the coming of a genuinely new future. Evolutionary materialism locates the source and substance of life's diversity in the purely physical determinism that, allegedly, has led, step by fateful step, out of the dead causal past to the present state of living nature in all its profusion of complexity. Such a metaphysics no more allows for the emergence of real novelty in evolution than does a religious metaphysics fixated on the eternal present. The extravagant proliferation of living beings on this planet over the past several billion years, clear evidence of evolution's inclination to bring about unprecedented novelty, is for the pure materialist nothing more than a reshuffling of lifeless stuff that has always been there. Materialist versions of neo-Darwinism claim that all events in nature, including the story of life and mind on Earth, were coiled up implicitly in lifeless primordial cosmic conditions. Nature needed only to undergo the somewhat incidental drama of gradually unfurling over the course of time in order for life and mind to make their unremarkable appearance. Conceived of in this way, the entire life-process, rather than being evidence of nature's openness to the arrival of genuine novelty, is only the explication of what was fully latent already in lifeless matter from the time of cosmic beginnings.

It is not hard to find examples of this "metaphysics of the past" in contemporary pessimistic interpretations of evolution. Once again, perhaps the most overt example is Daniel Dennett's convoluted argument that evolution is nothing more than an "algorithmic" process, fully explainable by tracing present outcomes back to their determining physical causes in the past. All we need in order to understand the present, Dennett argues, is to practice "reverse engineering." This is the procedure of figuratively taking apart complex things, such as living beings, piece by piece in order to disclose how the implacable laws of nature assembled them over the course of time without anticipating any future goal. Reverse engineering will show that the deterministic laws of nature, not any attraction to the future, fully explain how evolution happens.¹¹

I have found Dennett's position especially worth noting in this book not because it has much light to shed on the evolutionary process, but because it sets forth so nakedly the materialist metaphysical assumptions espoused by many distinguished neo-Darwinian scientists.¹² Dennett's fatalistic vision, not unlike the tragic stoicism that has haunted much modern scientific thought, resolutely prohibits in principle the emergence of true novelty. Dennett, no doubt, would reply that the virtual archive of yet untried genetic combinations is enough to guarantee the perpetual renewal of life. However, as I indicated in the preceding chapter, the existence of life and the process of evolution require an informational coefficient that does not itself originate in any past series of mechanical causes and that therefore cannot be accounted for by the method of reverse engineering. By definition, an atomistic, reductive method of inquiry into the past "causes" of life will abstract from the very organizational principles and informational patterns that give living beings their characteristic identities in the first place.¹³

I would submit here that the novel informational possibilities that evolution has available to it arise from the always dawning future. It is the arrival of the future, and not the grinding onward of an algorithmic past, that accounts for the novelty in evolution. Without the persistent coming of an unrehearsed future, the present and the past would have no opening onto the path of transformation. Evolution is rendered possible only because of the temporal clearing made available when the future faithfully introduces relevant new possibilities. The apparent "contingencies" (in the sense of undirected occurrences) in natural history, which appear to shape evolution in all of the serendipitous and unpredictable ways that Gould's writings highlight, are themselves made possible only because of the temporal gift of an open future. Contingent events, then, are not themselves ultimately explanatory of evolutionary novelty, for their own occurrence is itself dependent fundamentally on time's opening toward the future. It is not the occurrence of contingency that brings about the future; rather, it is the arrival of the future that allows events to have the status of contingency, that is, to be more than just the inevitable outcome of past deterministic causes.

Evolutionary materialism's picture of things has attained its intellectual appeal only at the price of abstracting from the concrete actuality of nature in process. What it leaves out is a sense of the "coming of the future" as the fundamental "force" in evolutionary

The Power of the Future

An alternative view of reality, one more commensurate with the evidence provided by evolutionary novelty, is a metaphysics that gives priority to the future rather than to the past or the present. But what exactly do we mean by this oddly named "metaphysics of the future"? I am compelled, in a way, to resist the invitation to clarify. For to "clarify" something almost always means—at least in academic circles—to situate it in terms of either the classical metaphysics of *esse* or, in a more modern vein, the metaphysics of the past that hovers over scientific materialism. By definition, the futurity of being cannot be translated into these alien provinces without in the process having its very heart cut out of it.

Let me emphasize, therefore, that the notion of a metaphysics of the future has an irreducibly religious origin. Such an admission will undoubtedly lead anyone committed to either of the other two metaphysical frameworks to judge my commitments as an evasion of "reality." However, I would simply respond that the metaphysics I am espousing here is rooted deeply in the *experience* that people have of something that to them is overwhelmingly and incontestably real, namely, what may be called metaphorically the "power of the future." Of course, it is perhaps only by adopting the religious posture of hope that they have been opened to the experience of this power. But that they are prepared for such an experience by participation in a particular religious tradition, one that encourages them to place their trust in the promise of a surprising future fulfillment, need not be taken a priori as sufficient reason for our suspecting its veracity.

Faith, at least in the biblical context, is the experience of *being grasped* by "that which is to come." Any theology that seeks to reflect such faith accurately, therefore, is required to attribute some kind of efficacy to the future, difficult though this may be to conceptualize clearly. A metaphysics of the future is already implicit in a certain kind of religious experience. Paul Tillich describes it as a sense of being grasped by the "coming order": "The coming order is always coming, shaking *this* order, fighting with it, conquering it and conquered by it. The coming order is always at hand. But one can never say: 'It is here! It is there!' One can never grasp it. *But one can be grasped by it.*"¹⁶

In the experience of faith, it is the "future" that comes to meet us, takes hold of us, and makes us new. We may call this future, at least

occurrence. Following the ideas of Wolfhart Pannenberg and Ernst Bloch, as well as giving voice to what I think are the sentiments of Teilhard, Rahner, Moltmann, and many process theologians, I would argue that we need to situate our understanding of nature's evolution within a "metaphysics of the future."

A metaphysics of the future is rooted in the intuition, expressed primordially in the biblical experience of what is "really real," that the abode of ultimate reality is not limited to the causal past nor to a fixed and timeless present "up above." Rather, it is to be found most characteristically in the constantly arriving and renewing future. Such a vision, conceptually difficult though it may be, can suitably accommodate both the data of evolutionary biology and the extravagant claims of biblical religion about how a promising God relates to the world.¹⁴

We need a vision of reality that makes sense of the most obvious aspects of life's evolution, in particular the fact that it brings about *new* forms of being. Dennett's mechanism-materialism may seem to provide an appropriate set of background assumptions for explaining some aspects of evolution, but it is too abstract to encompass and account for the novelty that emerges in evolution. For example, the assumptions of materialist metaphysics can provide no illumination regarding the surprising emergence in evolution of what we all know immediately as the experience of our "subjectivity." Materialist interpretations of evolution have so far shed no light whatsoever on the question of why living beings have developed something like an "inner sense." And it is especially in the ongoing intensification of inwardness that what I am calling "novelty" enters into the material universe.¹⁵

This inability to take the fact of subjectivity into account is indicative of the more general incapacity of materialism to adjust itself to novelty as such. Materialism is closed a priori to the prospect of there arising in evolution truly new being, since by definition it has identified being with the mindless "matter" already present prior to life's evolution. Most materialists, of course, will allow that *unprecedented* arrangements of mindless matter appear in evolution constantly. But the underlying being or *reality* of all such configurations, including entities endowed with a high degree of subjectivity, consists of lifeless and mindless atomic constituents rather than of the elusive informational patterns by which they are ordered and in which their novelty is realized.

in what Rahner calls its "absolute" depth, by the name "God." In biblical circles, the very heart of authentic faith consists of the total orientation of consciousness toward the coming of God, the ultimately real. Beyond all of our provisional or relative futures there lies an "Absolute Future." And since our own experience cannot be separated artificially from the natural world to which we are tied by evolution, we are permitted also to surmise that "being grasped" by the Absolute Future pertains not just to ourselves but to the whole cosmic process in which we are sited. Theology can claim legitimately, along with St. Paul (Rom. 8:22), that the *entire universe* is always being drawn by the power of a divinely renewing future. The "power of the future" is the ultimate metaphysical explanation of evolution.

The sense of being grasped by the power of the future is palpable to religious experience, but it cannot be translated without remainder into scientifically specifiable concepts, precisely because science typically attributes efficacy only to what lies in the causal past. Nevertheless, if we follow Whitehead's pertinent metaphysical reminder that an investigation of human experience provides rich concepts that can be applied by analogy to the events that make up the rest of nature, then theology can infer that the same "power of the future" that grasps us in faith also embraces the entire cosmos.

If this all sounds too metaphorical to be scientifically palatable, we may recall here the role that metaphor also plays in scientific explanation. Evolutionary biology in particular has to employ metaphorical language. Even a scientist as reductionistic as Richard Dawkins complains of the "physics envy" among some of his fellow biologists who seek to escape metaphor by collapsing nature's hierarchical structure down to the level of physics, where only mathematics is appropriate.¹⁷ The explanatory success of Darwinian biology, Dawkins insinuates, has occurred *because* of, not in spite of, its reliance on foggy but still illuminating metaphors such as "adaptation," "cooperation," "competition," "survival," and "selection."

To admit that the notion of the "power of the future" is also metaphorical, therefore, is in no sense to diminish its explanatory competence. Accordingly, by a "metaphysics of the future," I mean quite simply the philosophical expression of the intuition—admittedly religious in origin—that all things receive their being from out of an inexhaustibly resourceful "future" that we may call "God"; this intuition also entails the notion that the cosmic past and present

are in some sense given their own status by the always arriving but also always unavailable future.¹⁸ If such an idea at first seems difficult, we need only observe that even our most ordinary experience readily corresponds to this way of thinking about reality. Only a brief reflection suffices to convince us that the past is gone and remains irretrievable, and the present vanishes before we can ever grasp hold of it. The "future," on the other hand, is always arriving faithfully at the green edge of each moment, bringing with it the possibility of new being. What has already been consigned to the fixed past is not itself enough to explain the novelty of evolutionary occurrences. We can look only to the future to find the ultimate source from which new life and new species of life arise.

It should not be too hard for us to appreciate, therefore, why a religion that encourages its devotees to wait in patient hope for the fulfillment of life and history will interpret ultimate reality, or God, as coming toward the present, and continually creating the world, from the sphere of the future "not-yet." Such an idea, I once again admit, will not make sense to everyone immediately. In fact, many of us think intuitively of the future as quite "unreal," since it has not yet arrived fully. The past and the present may seem to have more "being," in the sense of fixed reality, than does the future, which apparently has the character of not-yet-being. So the idea of a *metaphysics* of the future will probably seem confusing, at least at first.

However, perhaps this confusion is the result of our having been bewitched by a metaphysics either of the past or of the eternal present. Modern scientific thinking, which has affected all of us deeply, is not ready to abandon its passionate allegiance to the explanatory primacy of the causal past. Consequently, it seems to scientific thinkers such as Dennett that everything that occurs in cosmic or biological evolution is simply the unfolding of what has already gone before. We are compelled to acknowledge, I think, that in such a view of reality there is no room for the emergence of anything truly new or in principle unanticipated. There is something very safe, but also very stale, about such a vision of things. It thoroughly suppresses the possibility of any real informational novelty and surprise that might disturb the prospect of complete scientific prediction, or that might challenge us, as part of the evolving universe, to let new creation occur in our own lives.

At the same time, however, I think we must also confess that many of our traditional theologies and spiritualities are equally reluctant

particle physics, science is inching ever closer to an irreducibly simple and comprehensive understanding of nature. Once we have acquired a firm hold on the "fundamental" simplicity of which science "dreams" so feverishly, we will be in a position to write a "final theory" of the universe. All that will be left for science to do afterward is merely to describe in more and more refined detail how the ultimate simplicity has led to the astounding complexity we see all around us. But the real work of scientific discovery will be over.²² Along the same lines, science writer John Horgan recently garnered the impression from interviews with several other well-known contemporary scientists that we are at last reaching the "end of science."²³ Horgan claims that science has almost completed the long human quest to understand the makeup of the universe, so science as we know it may be about to disappear. Explanation is going to give way to pure description. As Peter Atkins puts it: "When we have dealt with the values of the fundamental constants by seeing that they are unavoidably so, and have dismissed them as irrelevant, we shall have arrived at complete understanding. We are almost there. Complete knowledge is within our grasp."²⁴

That such a thought occurs at all is testimony to the uncritical allegiance some scientific thinkers have had to the imprisoning and depressing "metaphysics of the past" that has governed so much of modern thought. As long as we keep looking "back there" in the cosmic past for what is most "fundamental"—as physicists, biologists, geneticists, astronomers, and other scientists are accustomed to doing—we close our eyes to what is most obvious to all human experience, namely, the arrival of an always unprecedented future; and we inevitably rob science of its own future as well. For this reason, I would suggest that a metaphysics of the future not only allows scope for the hopes of religion but also provides an open-ended and more realistic framework for the ongoing adventure of scientific discovery. For our purposes here, such a metaphysics allows us to make better sense of Darwinian science than does the mechanistic framework that typically swamps and distorts much of the novel information that we associate with evolution.

to terminate their long affair with the Greek philosophical world's metaphysics of the eternal present, a way of thinking about the real that also forbids the occurrence of anything truly new. The traditional hierarchical vision—according to which all the levels of finite being are held up from above and sacramentally permeated by an eternal, timeless *arche*—is certainly preferable to the modern materialist metaphysics of the past. Materialism, after all, is nothing less than what Paul Tillich has perceptively called an "ontology of death," a way of thinking that gives the status of "reality" only to lifeless units of "matter."¹⁹ However, as far apart as the traditional hierarchical view of being is from the modern materialist metaphysics, it unfortunately joins with the latter in its cadaverous tendency to nullify the future.

The interior logic of both of these prominent metaphysical options—and indeed what may partially explain their appeal—is their aversion to the future or, in other words, their shared inclination to shut out the disturbing arrival of genuinely new possibilities. Both modern science, with its Newtonian sense of the theoretical reversibility of time, and the traditional hierarchical depiction of the sacred think of what is "really real" in terms that make the passage of time, and hence the coming of a new future, more or less inconsequential. Even though the new studies of complexity and chaos call for an alternative metaphysical horizon for science, there is still enormous resistance to most efforts to supplant the mechanistic worldview.²⁰

The Oxford physical chemist Peter Atkins, for example, declares that all the variety in the life-world is merely simplicity *masquerading* as complexity.²¹ As this formula implies, the present complex state of nature is mere appearance concealing the lifeless physical simplicity that for Atkins is the only true *reality* underneath and temporally prior to the masquerade. Here the accomplishments of time and the constant arrival of the future are discounted as purely incidental, concealing the harsh truth that only past simplicity is fundamental. Such a way of looking at things ignores the reality of time and implies that the emergent novelty in evolution is only a charade. The limitless possibilities lurking in the future are here disregarded,

and the limitless possibilities originating in the past can