Does *Creation* Equal *Nature*? Confronting the Christian Confusion about Ecology and Cosmology

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Much of the recent interest in the idea of creation among Christian writers has suffered from a fundamental misconception that *creation* and *nature* are equivalent or nearly equivalent terms. While the two are not unrelated, they are nonetheless distinct. Two particular areas where this misconception appears are the movement that calls itself "creation science" and certain strains within the movement known as "theology of nature" or "ecological theology." One promising way to distinguish the ideas of creation and nature is by introducing Hans-Georg Gadamer's understanding of *world* (*Welt*) as a hermeneutical construct. This allows us initially to distinguish *world as creation* from *world as nature*. Once the lines of division have been laid, Gadamer's ideas provide the groundwork for a more critical reintroduction of ideas of creation and nature that offers productive possibilities for an ecological ethic as well as a general ethic.

IN A RECENT ISSUE of *Scientific American* Michael Shermer cites a 2001 Gallup Poll that shows that 45% of Americans believe that God "'created human beings pretty much in their present form at one time within the last 10,000 years or so.'" Even more disturbing, Shermer points out, "In a forced binary choice between the 'theory of creationism' and the 'theory of evolution,' 57 percent chose creationism against only 33 percent for evolution (10 percent said that they were 'unsure')" (35).

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These kinds of statistics have been a concern for scientists, lawyers, lawmakers and legal scholars, and educators since the early part of the last century. They ought to be of concern to scholars of religion as well because, among other things, they force us to look at what we do and to question the meaning of our subject matter. Questions about the origins of the universe, and more pointedly of human life, are particularly pressing given the resurgence of evangelical Christianity that is taking place in the United States and across the globe. Why is this issue of special importance? Quite simply, there is no way to make currently accepted scientific cosmologies square with a literal reading of the seven-day creation story in Genesis; there is no way to make room in the biological account of evolution through natural selection for a direct and "special" creation of human beings. Quite simply, there is no way to reconcile a strictly scientific account of the origins of the universe with the movement within evangelical Christianity that calls itself "creationism," or more ambiguously, "creation science."

Does this mean that the Christian idea of creation has no relevance in contemporary discussions of the nature of reality? Most Christian theologians, historians, and, perhaps, biblical scholars, I venture, would say not at all. Evangelical fundamentalism is not the only way to approach Christian understandings of creation; literalism and inerrancy are not the only hermeneutical strategies available for analyzing the book of Genesis or any of the other biblical references to creation. There has, in fact, been a reawakening of interest in the notion of a theology of creation, and the interest is not limited to either the "conservative" or the "liberal" camp but rather runs the spectrum of ideological positions. Much of the reason revolves around two concerns that plague the historical development of the doctrine of creation. The first is spurred by the current environmental crisis and the link drawn between environmental degradation and the "mandate of dominion" in Genesis. Although many have been quick to point out the degree to which Genesis provides religious legitimation of environmental exploitation, others have sought an alternative reading whereby a proper understanding of the Genesis narrative provides the foundation for an ecological ethic. The second concern behind the renewed focus on creation involves questions about attempts to reduce the doctrine of creation to an aspect of a theology of redemption. Under this rubric creation takes on significance only as the prefiguration of the event of redemption or as the beginning of salvation history. In questioning this reduction of creation to an aspect of redemption, a number of scholars from a range of disciplines have sought to reconceive the doctrine of creation on its own theological grounds.

I hope here to add something to the rejuvenation of the idea of creation. I concur that the Christian understanding of creation is both historically problematic and theologically promising with regard to ecological matters. I agree also that the significance of creation has been lost behind the idea of redemption for too long, and I applaud the efforts of those who attempt to reexamine the historical, epistemological, and ethical complexity of the doctrine of creation. My contribution comes in the form of clarification, and my criticism of certain strains within this effort at reconstitution is guided by a desire to firm up the terminology that we use to talk about the religious concept of creation. My argument is that many explorations of the possibilities for a theology of creation are mounted on a mistaken assumption: that *creation* and *nature* are equivalent, or nearly equivalent, terms. The ideas of creation and of nature are clearly related by a vast array of symbolic and metaphorical points of contact. However, the two are not equivalent and ought to be recognized as objects of very different orders of discourse. For instance, "creation" is definitionally a theological term, or very nearly so: "creation" implies "creator," hence an intentional being or beings, that is, a god or gods, who create. There is nothing inherent in the term "nature" that leads to this implication. And, in fact, the dominant discourse through which we typically discuss nature in the contemporary situation, that is science, methodologically rules out a supernatural "creator" as a valid explanation for *natural* phenomena. Although this may seem self-evident, the ideas of creation and nature continue to infiltrate each other in many positions, and this introduces daunting conceptual problems. By insisting on the distinction between these terms, I hope to offer some clarification and some suggestions for more productive lines of inquiry.

I begin by addressing the distinction between creation and nature itself. The discourse of creation and the discourse of nature share a fundamental similarity; both attempt to offer a comprehensive account of the origin and/or continued existence of the universe. The major reason, I argue, that nature and creation so often become confused is the forgetfulness of the fact that our understanding of the universe is linguistically mediated and, hence, fundamentally interpretive. Creation and nature are accounts of the *world* in the manner that Hans-Georg Gadamer uses the term. This intermediary term "world" serves initially to distinguish, and eventually to relate, the ideas of creation and nature.

Next, I explore two major perspectives within which creation and nature become confused: *creation science* and ecotheology or the *theology of nature*. Creation science explicitly seeks to blur the terminological lines between creation and nature by reconceiving scientific method so

that it accords with biblical revelation. More to the point, creationists argue for epistemological parity between biblical narrative and scientific explanation such that the two are offered as alternative and equally valid interpretations of the same "factual data." In a similar, though more unreflective manner, the theology of nature, in some of its incarnations, seeks to reinterpret the idea of creation so it accords with science. Criticizing the anthropocentricity of the biblical accounts in particular, theologians of nature tend either to reinterpret biblical narratives and theological doctrines as figural represenations of the formation and continued functioning of ecosystems or to speak of ecological science and scientific cosmologies as creation stories like the Genesis narrative. In all cases I argue that what is lost sight of is the important intermediary concept of *world* and the attending idea of hermeneutical understanding.

So, how ought we to understand the significance of the idea of creation? The article concludes with a suggestion that creation theology, with all its textual, historical, and doctrinal baggage, functions within Christianity as an axiological claim and that this axiological claim is the moral and aesthetic point of the symbolically mediated relationship between creation and nature. *Pace* the creationists, I argue that the explanatory value of Genesis relative to naturalistic, scientific accounts of the origin of the universe is not the issue; we simply must abandon biblical narrative as an explanatory model. Likewise, the attempt on the part of theologians of nature to make biblical narratives and doctrinal formulations correspond to accepted scientific explanations is equally misdirected. The biblical accounts are less (if at all) concerned with the question of *how* everything came into being than they are with the character of what unquestionably *is*. In other words, the fundamental significance of the idea of creation is that the universe is invested with value, that is, creation is good, and that this value makes a claim on us.

If I am right in this, then the ultimate problem is not anthropocentrism, as theologians of nature charge. Indeed, I will suggest that anthropocentrism is ultimately unavoidable. The problem is not anthropocentrism but the manner in which anthropocentrism lends itself to a devaluation of the non-human world and eventually to the kind of mechanization that threatens to devalue even human life. If creation is an axiological claim, the confrontation with an irreducible value within the world, we are given a buttress against the tendencies toward devaluation within anthropocentrism. This, I will argue is the most promising contribution of creation theology not only for an ecological ethic but for a comprehensive ethic.

THE CREATION OF WORLDS

As stated, the concepts of creation and nature share a fundamental similarity, and this similarity serves to cloud the conceptual waters; both seek to offer a comprehensive account of everything that is.[1] This said, I want to insist, once again, on the very real and very important distinction between the two. I hope to introduce Gadamer's hermeneutical constitution of a "world" as an intermediary concept that will initially help us to distinguish one from the other. This exploration requires an initial examination of understanding of language as "world horizon" and his distinction between *Welt* and *Umwelt*. After these ideas have been established, it will be possible to address the hermeneutical constitutions of "world as creation" and "world as nature."

Welt and *Umwelt*

Key to Gadamer's hermeneutical theory is the distinction between *Welt* and *Umwelt*, most often translated as "world" and "environment" or "habitat." What distinguishes these two is that while *environment* is characterized by immediacy, *world* is a mediated reality. To exist in a world is to exist in a realm invested with meanings that are conveyed and understood in language. As Gadamer argues, "Language is not just one of man's possessions in the world; rather, on it depends the fact that man has a *world* at all. . . . [T]his world is verbal in nature"(1993: 443). This claim that human understanding of the world is dependent *upon* language and that human experience of the world rises to meaning *in* language does not entail the claim that there are no non-linguistic dimensions of understanding and experience. Gadamer can and does affirm the reality of preconceptual, pre-reflective, purely perceptual experiences; the question is how these non-linguistic aspects rise to reflective consciousness. For Gadamer, human understanding is fundamentally dependent upon language because experience rises to meaningful expression *in* language, that is, attains meaning through conceptual filters which are fundamentally linguistic in character.

The fact that humans exist in a world that rises to meaning in language serves as well to point out a difference between human existence and non-human existence. Gadamer continues,

[1] This presentation of the idea of *nature* is admittedly somewhat arbitrary. As Rosemary Radford Ruether, among others, has pointed out, the term "nature" is ambiguous in western thought. Ruether states that "The word *nature* is used in four distinct senses in Western culture: (1) as that which is 'essential' to a being; (2) as the sum total of physical reality, including humans; (3) as the sum total of physical reality apart from humans; and (4) the 'created' world apart from God and divine grace" (5). I have tried to be consistent in using the term only in the second sense.

> Moreover, unlike all other living creatures, man's relationship to the world is characterized by *freedom from environment*. This freedom implies the linguistic constitution of the world. Both belong together. . . . To rise above the environment has from the outset a human—i.e., verbal—significance. Animals can leave their environment and move over the whole earth without severing their environmental dependence. For man, however, rising above the environment means *rising* to "*world*" itself, to true environment. This does not mean that he leaves his habitat but that he has another posture toward it—a free, distanced orientation—that is always realized in language. (1993: 444–45)

The distinction that Gadamer draws between the human and the nonhuman has come under attack in some quarters that will become important later in this article. However, the fact remains that because human experience and understanding of environment are linguistically mediated, humans do have a relative freedom with regard to them. *Umwelt* can become an object of understanding, contemplation, study, and manipulation, and this is not necessarily a bad thing. Human beings are not separated from environment; rather, they are oriented differently *in* it. They have an orientation *toward* it. Understanding is won on the basis of this distanced orientation.

However, the price paid for this "freedom from" the brute immediacy of environment is the inability to engage the immediacy of environment in any way other than a sort of abstract and artificial imagining. The fact that one can choose to adopt a more immediate stance toward the environment is itself a function of the freedom gained by the distanced orientation of language, and such a stance is no less a hermeneutically constituted perspective *upon* the world. There is simply no way back; the fact that humans have *Welt* means that they no longer have the option of existing in *Umwelt* other than imaginatively.

Such a flat distinction between *Welt* and *Umwelt* seems somewhat reductionistic; yet Gadamer remains a profoundly non-reductive thinker. Indeed, reductive thinking is precisely his target in laying out this idea of the hermeneutical constitution of world. Because human understanding is understanding of a linguistically constituted horizon, the world itself is continually open to new understandings. And, vice versa, human experience is continually open to new presentations of world. Gadamer asserts,

> As verbally constituted, every such world is of itself always open to every possible insight and hence to every expansion of its own world picture, and is accordingly available to others. This is of fundamental importance, for it makes the expression "*world in itself*" problematical. The

> criterion for the continuing expansion of our own world picture is not given by a "world in itself" that lies beyond language. Rather, the infinite perfectibility of the human experience of the world means that, whatever language we use, we never succeed in seeing anything but an ever more extended aspect, a "view" of the world. (1993: 447)

Because humans have the capacity to take a view on the world, they have the capacity to constantly readjust that view in light of new information. This also means that different *language views*, if I can use this term, are allowed constantly to interpenetrate and inform each other. This is an important insight for this article given the distinction between nature and creation that I am exploring, a distinction to which I can now turn.

Creation and Nature

It is possible to explore the hermeneutical constitution of world as it is configured either *as creation* or *as nature*. The examination of world as creation, at least as it is so configured in Jewish and Christian thought, entails looking first at the set of texts that actually do the configuring.[2] An adequate examination also necessitates a discussion of the history of the formation of the doctrine of creation. Exploring world as nature is equally complex. Indeed, the idea of "nature" is not itself a given but is rather the result of the historical development of the scientific viewpoint. The idea of a "natural phenomenon" that arises on the basis of empirical natural processes, as opposed to metaphysical, *supernatural* ones, is itself a part of this development. I will not call this naturalistic bias into question, if for no other reason than because it is quite useful; I will, however, address the prospects for theology given this configuration of world as nature.

The foundational text in the configuration of world as creation within Jewish and Christian thought is, of course, Genesis 1–3; yet, it is important to realize that Genesis is not the only text, biblical or otherwise, that informs the idea of creation. Others in both the Hebrew Bible and in the New Testament are also important. Beginning with Genesis itself, the first three chapters do not stand alone but are rather part of a saga that spans the first eleven chapters. As Claus Westermann has famously pointed out,

[2] There is always some risk in presenting any religious tradition in such a monolithic fashion as I am doing here. It is, of course, more accurate historically and sociologically, where much of this paper resides, to speak of Christianities rather than Christianity. I use the monolithic designation reflectively; my intention is to use "Christianity"—and to a lesser extent, "Judaism"—in a manner similar to Max Weber's notion of an ideal type. I have chosen to address Christianity principally from the perspective of the historical formation of doctrine. Other theoretical perspectives might produce different outcomes, but this perspective is particularly useful for addressing the creation science and theology of nature positions later in the article.

to place the first three chapters outside of this context is to miss the point of the story. "This very narrow view, that only the line from Creation to Fall and from Fall to Redemption really matters, leaves out of consideration everything else which the biblical account of the origins sets out as basic for the world and man. . . . Man's painful striving after knowledge is his from the very beginning, as is characteristic the drive to improve on his achievements in art and technology" (Westermann: 18–19). Likewise, as is widely recognized, the creation narrative is not a seamless narrative but is composed of historically divergent textual strands that have been skillfully redacted into a poetic structure.[3]

But Genesis does not stand alone in the textual configuration of world as creation. It holds an important theological position *vis-à-vis* the Torah as a whole, especially with regard to the establishment of covenant—the ultimate point of Genesis and Exodus—and fidelity to covenant—the principal theme of the prophetic texts. In addition, the Hebrew Bible is full of other references to God's creative action that reveal a rich prehistory to Genesis. Also important are the less frequent references in some of the Apocryphal literature and in the New Testament, especially the prologue to the Gospel of John and Paul's Letter to the Romans. This very rich textual configuration of world as creation opens onto the doctrinal history of the idea of creation.

Again, although Genesis provides the principal foundation, there are both a prehistory and a posthistory that are as important, if not more so, in the formation of the *doctrine* of creation. Genesis diverges from other ancient Middle Eastern creation narratives by virtue of the complete omnipotence by which God creates. For instance, in the Babylonian epic *Enuma Elish* the world is created in the aftermath of armed combat whereby the god Marduk fashions the world out of the dead body of the vanquished Tiamat. In Genesis, on the other hand, creation comes about solely on the basis of divine fiat; God speaks and so it is. Jon Levenson points out, however, that this is a relatively late development in ancient Israelite contemplation on the creation and continued existence of the world. This development can be traced in other, older sources within the Hebrew scriptures which reveal a picture much more in line with the combat myth prevalent throughout the Middle East.[4]

[3] There are at least two textual strands in *Genesis* 1–3 alone: the *J source* (Yahwist), written around the tenth century B.C.E, and the *P source* (Priestly), written around the sixth century B.C.E.

[4] Of particular interest here are references to God's overpowering of Leviathan that appear in Psalms 74, 82, and 104, and in Job. These references serve to link Jewish reflection on creation with the rich prehistory of such thought in the ancient Middle East.

Levenson calls the result of this development the drama of divine omnipotence, a drama characterized by two "idioms" of monotheism—combat and covenant—that remained in dialogue for some time in the development of Israelite creation theology: "In the Hebrew Bible, covenant and combat myth are two variant idioms for one idea, the exclusive enthronement of YHWH and the radical and uncompromising commitment of the House of Israel to carrying out his commands. If 'monotheism' refers to anything in the conceptual universe of biblical Israel, it refers to that ideal" (Levenson: 135). What goes on behind the Genesis narrative is the continual tension between order and disorder, cosmos and chaos. God's creative act is the ordering of chaos. Yet, when God creates, God allows chaos to remain; chaos is not vanquished once and for all but remains as a continual threat to creation. This, according to Levenson, is the source of the persistent evil that thwarts the ordering principle of creation. Creation is good, but vulnerable to the chaos that brings about de-creation. The significance of this biblical prehistory for the development of the doctrine of creation is precisely the development of the idea of divine omnipotence and the ideological interests that it serves. God's omnipotence is displayed in God's act of creation. Evil exists not as a principle opposed to God's action; evil exists because God *lets* evil exist.

The doctrinal history of creation therefore becomes important for Jewish and Christian understandings of the existence of evil as well. Although Jewish thought continued to view the existence of evil, and more particularly human sin, as a principle of disorder within an otherwise ordered cosmos, Christians came to view evil as a metaphysical reality.[5] Much of this starts with Paul's adoption of the expulsion from Eden in his letter to the Romans: "Therefore, just as sin came into the world through one man, and death came through sin, and so death spread to all because all have sinned. . . . Therefore, just as one man's trespass led to condemnation for all, so one man's act of obedience leads to justification for all" (Romans 5.12, 18). Here, of course, Paul links the existence of sin to Adam's act of disobedience.[6] The result is that we are all now afflicted by a "law of the members" which acts against the law of the mind that

[5] Jewish theology presents sin as disobedience; evil is the punishment that God inflicts for disobedience, typically conceived as infidelity to covenant. This is the principal theme of the prophetic texts: The omnipotent God is the cause of historical events; catastrophic events are the punishment of disobedience. This theology of evil is, of course, complicated by many of the other biblical texts, most especially Job, and, of course, by the events of the twentieth century. Nonetheless, it remains a principal aspect of the Jewish understanding of the existence of evil.

[6] Paul also establishes the importance of the personage Jesus here as the second Adam who undoes the effects of the first Adam's disobedience. Thus, the doctrine of creation has exercised an important influence upon Christology as well.

directs us toward the good. Although Paul's presentation squares with the preexisting rabbinical idea of sin as the turning of an evil urge within the heart from its proper direction by the good urge, once Christianity became principally a non-Jewish reality, Paul's statement took on a new tone. The dualistic anthropology of Hellenistic thought, whether present in Paul's statements or not, came to infiltrate Christian interpretations of Paul's "two laws." Rather than a conflict between two laws, the conflict was one that took place between the mind and the body (reason/passion). Adam's transgression made it such that the mind is no longer the keeper of the house. Augustine eventually took Paul's statements and developed a full fledged logic of *original sin* that exerts its own influence on the Christian configuration of world as creation.

A final aspect in the development in the doctrinal understanding of creation is the idea of *creatio ex nihilo*, the assertion that God creates out of nothing. Many thinkers have pointed out that Genesis does not claim that God created out of nothing; preexisting the creation are the primordial waters. In fact, the biblical texts nowhere claim that God creates out of nothing.[7] *Creatio ex nihilo* is part of the posthistory of Genesis and the biblical texts that grounds a principally Christian understanding of creation, and it developed primarily to combat the Platonism that provided the cultural background for the development of early Christianity. Plato, of course, argued that the existing world was fashioned out of eternally preexisting matter: "This is in the truest sense of the origin of creation and of the world, as we shall do well in believing on the testimony of wise men. God desired that all things should be good and nothing bad, so far as this is attainable. Wherefore also finding the whole visible sphere not at rest, but moving in an irregular and disorderly fashion, out of disorder he brought order, considering that this was in every way better than the other" (Plato: 1162). Against this idea, the second century apologist Tertullian argued that God must have created everything *ex nihilo* because God is the only truly perfect existence. This is to say, God is the only being who is eternal, immutable, and indivisible. Everything else is by definition of a lesser perfection and therefore cannot be coeternal with God. Tertullian argued that God, in God's omnipotence, brought everything into existence out of nothing. Although he recognized that the Bible did not state explicitly that God created everything out of nothing, neither did it state that God created out of preexistent matter. Therefore, in the interest of maintaining God's perfection, he argued that we must

[7] Anne Clifford points out, "This doctrine is an interpretation of God's creative activity that is not explicit in the biblical texts. At best it is hinted at in 2 Maccabbes, in Romans, and in Hebrews" (210).

assert that God created *ex nihilo*. Likewise, Irenaeus of Lyons asserted *creatio ex nihilo* in his treatise against Valentinus, again citing God's sole perfection. Upon it Augustine founded, among other things, the absolute goodness of created nature. And it plays a central role in Thomas Aquina's understanding of God as both first and final cause. This complex textual and doctrinal history undergirds the hermeneutical constitution of world as creation. Upon it the idea of creation depends, and we cannot adequately understand Christian creation theology without it. This dependence forces the distinction between creation and nature that we have been dealing with.

The hermeneutical constitution of world as nature arises out of its own complex history that centers on the development of the scientific viewpoint. The cultural, intellectual, and epistemological changes that took place during the sixteenth and into the seventeenth and eighteenth centuries were radical, to say the least. Franklin LeVan Baumer, charting the shift from the Christian–Aristotelian metaphysic that governed the Middle Ages (and which remained the presumption during the Renaissance and Reformation) to the more positivistic scientific viewpoint, argues that it is appropriate to speak of a "scientific revolution" that occurred over the course of the sixteenth and seventeenth centuries. The result of this shift of viewpoint is a new understanding of the world as a realm governed by *observable*, *natural* principles. In 1543 Nicholas Copernicus's *De Revolutionibus Orbium Celestium* challenged the reigning Aristotelian–Ptolemaic, geocentric universe, effectively displacing the earth and humanity from the center of the universe. In 1687 Sir Isaac Newton's *Principia* postulated a world governed not by divine providence but by gravitational attraction and repulsion; whereas Newton kept the idea of God as a first cause and principle of correction, God was no longer understood to be directly involved in the everyday affairs of individuals. Niccolo Machiavelli and Thomas Hobbes undermined the idea that political authority is held by divine right. Baumer argues,

> Since the seventeenth century, "science" or "knowledge" had obviously undergone a considerable restriction of meaning. Knowledge now meant exact knowledge: what you know for certain, and not what may possibly or even probably be. Knowledge is what can be clearly apprehended by the mind, or measured by mathematics, or demonstrated by experiment. Galileo came close to saying this when he declared that without mathematics "it is impossible to comprehend a single word of [the great book of the universe]. . . . " (Baumer: 252)

Along with this restriction of the notions of science and knowledge came a less metaphysical, more *disenchanted* view of the world. Yet, Baumer

continues, "The odd thing about the scientific revolution is that for all its avowed distrust of hypotheses and systems, it created its own *system of nature, or world-view*" (Baumer: 254).This worldview is important for my purposes, because out of it arises the modern notion of the "natural."

Prior to the picture of a world governed by purely "natural," observable processes, the idea of a *natural* phenomenon that is explainable by purely *natural* processes does not make sense. The hermeneutical constitution of world as nature is a world that brings with it certain preestablished canons and explanatory methods, first and foremost of which is that a *natural* phenomenon cannot be explained by a *supernatural* cause and remain scientific. I see no reason to call these canons into question. Science is quite good at explaining the natural world and ought to be left to its task of explaining. To grant this is not to grant that science is the only legitimate, or even the only worthwhile, manner of approaching the world.

To grant science its legitimate province does have some implications for theology, however. Most importantly, we cannot look at religious truths in the same way that we look at scientific truths. The statement "Humans are made in the image of God" is not true in the same sense as the statement "Light travels at a constant speed of 299,792,548 meters per second," or "Objects in free fall accelerate downward at a rate of 9.8 meters per second per second under the force of gravity on Earth." But this fact should not alarm us; Langdon Gilkey has long argued that religious truths are verified on a level that is quite different from scientific truth. Criticizing the "creation science" movement in particular, Gilkey claims,

> The creationists—many of whom are trained scientists--speak of 'scientific facts' and 'scientific evidence'; they see science as located in its facts, rather than in its theoretical structure. There is little recognition of the 'canons' of scientific method, the logical conditions that make a theory a part of *science*, and creation science contravenes each of these major 'canons.' The creation-science 'model' is, therefore not an example of science at all: it involves a supra-natural cause, transcendent to the system of finite causes; it explains in terms of purposes and intentions; and it cites a transcendent, unique, and unrepeatable—even in principle, uncontrollable—action. It represents, therefore, logically and linguistically, a re-edition of a familiar form—that is, 'natural theology,' which argues that certain data point 'rationally' to a philosophical/religious conclusion, namely, to the agency of a divine being. (1983: 60)

Typically, religious truths have been spoken of in terms of *existential* truths as opposed to the sort of empirical, observable truths with which

science deals; that is to say, religion deals with *why* questions, although science deals with *how* questions. Religious statements are simply different in kind from scientific statements; to try to collapse the two is detrimental both to the empirical efficacy of scientific claims and to the depth and richness of religious claims.

All too often, unfortunately, such a folding of one discourse into the other happens, and the result is typically a confluence of misrepresentation and misunderstanding. I have suggested that two points on the side of theology where this has happened are the movement calling itself "creation science" and some strains within the theology of nature. I will now turn to these.

CREATION OR NATURE

Creation science exists on the fringes of both the theological and the scientific establishment. It is a movement that has built up a head of steam in the last twenty years, and it does not appear that it will disappear in the near future. Creation scientists confront both establishments, claiming that science cannot live up to its own mandate to provide a comprehensive naturalistic explanation for the universe and that liberal theology has become ashamed of its own biblical heritage. Both claims are partially true, even if mounted on faulty premises. The theology of nature or ecological theology, on the other hand, has found a niche within the theological establishment. My point of contention with this perspective is not whether nature has theological significance. Rather, my concern is the often uncritical usage of terms like cosmos, nature, creation, world, and so on. In the attempt to circumvent the literal interpretation of the biblical texts from which the idea of creation is drawn—which I believe is necessary—theologians of nature all too frequently speak of nature *as* creation, tending to lose sight of the circumscribed character of the idea of creation and the hermeneutical character of world conceived both as nature and as creation.

Addressing the perspective of creation science, I will first trace the process by which creation is made equivalent to nature. This involves an exploration of creationists' proposals of an "open philosophy of science" and the corresponding reduction of epistemological differences between biblical narrative and scientific theory. This is a very complex set of arguments, and it is not immediately clear why creation scientists go to such great lengths to advance their position. I will conclude, therefore, by examining the motives for such a move.

Creation scientists typically begin their arguments by shifting attention away from the "empirical facts," upon which everyone agrees, and onto

what they consider the more pertinent philosophical issues.[8] This is to say, they have no interest in debating, for instance, whether or not the earth is flat—something that the Bible at least insinuates but against which there is overwhelming evidence; the problem is rather the principles or rules that govern scientific method itself. Paul Nelson and John Mark Reynolds argue that "Rule making may turn out to be an excuse for not thinking about issues that challenge the status quo. It can become a bad intellectual habit. . . . Knowledge of truth and falsity in empirical matters . . . is gained only by work, not by verbal manipulations" (58). Both science and religion seek truth; thus anything that would constrict the search for truth, for example, a methodological separation between scientific exploration and biblical narrative, cuts off possible avenues *to* the truth. The creation science position begins, therefore, with a criticism of accepted scientific method, or what they call, alternatively, methodological naturalism or philosophical naturalism. What is at issue is not science itself but the accepted axiom that a scientific explanation of a natural phenomenon cannot contain a supernatural, hence non-verifiable, non-falsifiable, cause. This axiom, say the creation scientists, is an artificial constriction of possible modes of explanation and, therefore, represents a possible or actual barrier to the search for truth. The problem is not science but the closed mindedness of scientists who demand that exploration proceed solely on the basis of naturalistic presumptions. The problem for creationists is one of rules, namely, the presupposed rules that govern accepted scientific investigation; these rules keep creation science out of the scientific establishment and refuse creation science its due place in the curriculum of science education. Scientists use these rules to protect the *status quo* and stifle new ways of thinking. The way to clear up this problem is to abandon the restrictive rules and adopt an "open" philosophy of science. In the absence of restrictive rules, scientists are freed to use all avenues in the search for truth.

It appears, then, that creationists are not interested in cutting off dialogue—the usual charge—but in opening dialogue, that is, in getting rid of the rules that inhibit rigorous exploration and open conversation. This is more appearance than reality, however, because the restrictions that are abolished in scientific exploration are reinstated by way of biblical hermeneutics—a different set of restrictions, but restrictions, nonetheless. These hermeneutical principles are stated as such:

[8] This analysis applies principally to the branch that hesitantly calls itself "young earth creationism" or "recent creationism"—as opposed to "old earth creationism" (or "progressive creationism") and "theistic evolution" (or "fully gifted evolution"). However, in most of the important aspects, these comments are germane to all self-designated "creationist" perspectives.

1. *The world is created by an intelligence or mind in whose image we are created. Therefore it is contingent. . . .*
2. *Our knowledge is incomplete.* Even the seemingly best-supported human idea may be wrong.
3. *God is absolutely free.* This leads to an openness on our part to all possible modes of causation. God could allow the universe to function based on its 'creaturely capacities' or he could actively intervene. This means that design is an empirical possibility.
4. *The Bible is true.* If it describes an event and asserts that it happened, then it happened. It seems very implausible to us that God would have used numerous false stories to convey his message. Scripture does not read like the Timaeus or Epic of Gilgamesh or other ancient stories.
5. *There is a moral dimension to all knowing: science is not metaphysically neutral.* (Nelson and Reynolds: 62)

These rules are presented as a separate issue, but by allowing theological concerns to influence (and perhaps infiltrate) scientific exploration, the hermeneutical rules *de facto* become methodological, explanatory rules. For instance, any suggestion that the world is not created by an intelligent designer, or that some event in the Bible did not happen must be jettisoned outright, even if there seems to be empirical evidence for it. Thus, these criticisms of accepted scientific method are not as innocent as first meets the eye: it is less a criticism of imposing rules than a criticism of imposing the wrong rules, that is, rules that brand theological explanations as nonscientific explanations.

The offshoot of this criticism is the even more problematic attempt to place science and theology, more particularly, biblical narrative, on the same epistemological ground. Robert C. Newman argues that biblical narrative and scientific cosmology actually correspond because the same God is behind the Bible and the natural world:

> This match between Bible and science would really be quite surprising if the Bible were merely ancient guesswork or made-up stories. But the fit between them is just the sort of thing we might expect if the God who created the universe was also behind the Bible. . . . Since the Bible tells us that God cannot lie, *I prefer to interpret nature* so as to avoid having God give us fictitious information. (Newman: 108–109, emphasis added)

What is at issue, therefore, is the *integration* of religion and science. Once again, religion and science both seek truth and ought, therefore, to point in the same direction. This is not a new claim; Galileo said the

same, Nelson and Reynolds point out. The question is which, if either, ought to take priority: "This method of harmonizing Scripture with empirical data makes the interpretation of the Bible dependent on scientific fact. Roughly speaking, Galileo would have the Christian read the Bible through the lens of empirical data" (Nelson and Reynolds: 69). Nelson and Reynolds argue instead for a sort of dialogical interaction between biblical hermeneutics and scientific explanation such that both play equally into the integration of religion and science. In other words, truth is most likely assured if a reasonably plausible interpretation of the biblical text can be made to correspond to a reasonably plausible scientific explanation of a natural phenomenon. Thus, it appears that creationists simply want to give equal voice to biblical hermeneutics and science.

Once again, however, this is more appearance than reality; when push comes to shove, biblical hermeneutics trumps scientific explanation. Lest we doubt this, Nelson and Reynolds tell us, "some natural interpretation of Scripture based on the whole of the text might conflict with some theory of science. *If there is another interpretation of the data that preserves the natural meaning of the text, it is to be preferred*" (72). The key here is the phrase "interpretation of the data," creationist nomenclature for scientific explanation. Because biblical narrative and science exist on the same epistemologically footing, that is, they are both *interpretations* of the facts, there is no reason that science should not give way in order to preserve the more *natural*, that is, the more literal and hence more *true*, scriptural interpretation. In other words, the governing principle in all explanations of natural phenomena is *the preservation, as much as possible, of the literal interpretation of scripture*.

As I have suggested, what is going on here is a subtle collapse of two very different discursive realities. It appears that precisely the opposite is going on: What the creationists are trying to do is separate the discourse of naturalism from the discourse of creation. Why all the criticisms of methodological and philosophical *naturalism* if "creation" and "nature" signify the same thing? The phrases "natural meaning of the text" and "natural interpretation of scripture" are instructive here. They seem to operate as ways of avoiding a charge often leveled at the creationist position, indeed one that we have already encountered with Langdon Gilkey: *natural theology*. Nelson and Reynolds never use this term, but it is clearly what is intended.[9] The claim that biblical narrative and scientific expla-

[9] Robert Newman, on the other hand, advancing a different version of the creationist position—"progressive creationism"—turns explicitly to natural theology in articulating his position. I quote

nation are on the same epistemological level demands such a collapse; Genesis 1–3 could only conflict with cosmological theories like the Big Bang if the two were of the same discursive order discussing the same set of events.

The question of why creationists would go to such great lengths to offer Genesis as a competing cosmological theory presents itself here. What is the motive for calling accepted canons of scientific method into doubt? There are, I think, reasons both external and internal to the creationist position. Externally, the onus to place biblical narrative on an equal footing with scientific cosmology is imposed by the dominance, or perceived dominance, of science and scientific epistemology in the culture at large. One of the stated aims of creationists is to get creationism into the science education curriculum in public schools. The only possibility that this may happen is by blurring the epistemological lines between the Bible and accepted science. But this motivation simply begs the question of the motives for wanting to include creationism in the science curriculum. Here we come upon the motives internal to the perspective.

Specifically at issue with creationists is the claim of metaphysical and epistemological neutrality offered by scientists. In other words, creationists dispute the claim that the pursuit and acquisition of scientific knowledge is value neutral. There may be very good reasons to question the value neutrality that science frequently claims for itself, but the manner in which creationists, who are overwhelmingly of the evangelical Christian persuasion, do this is both unique and problematic. The stakes for the proponents of creation science are neither epistemological nor moral. They are *soteriological*; nothing less than the immortal state of the individual soul is up for grabs. Given this soteriological dimension, Delos McKown outlines three general motivating factors that affect the discussion:

> First, no known religion (of historical significance) is quick to incorporate new scientific discoveries into its body of beliefs—unless these reinforce its soteriology; second, if new scientific discoveries call into

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Newman at length: “Science can be understood as a method, an institution, or a body of knowledge. In this it is parallel to ‘theology’ rather than to the ‘Bible.’ Science is a method or institution that investigates nature, and it is also the body of knowledge that results from this study. Theology (at least, biblical or exegetical theology) is a method or institution that investigates the Bible, and also the resultant body of knowledge. Theology studies God’s *special* revelation in Scripture, while science studies God’s *general* revelation in nature. If biblical Christianity is true (as I believe), then the God who cannot lie has revealed himself both in nature and in Scripture. Thus, both science and theology should provide input to an accurate view of reality, and we may expect them to overlap in many areas” (Newman: 117).

> question its soteriological claims, any religion can be expected to resist these strenuously; and third, no ecclesiastical structure is eager to accept new scientific discoveries if these weaken its authority by calling into question what it has been teaching. The problem for religion in seeking truth is simply this: Those who seek the truth may find it and in finding it be horrified—or, more likely, horrify others. (29)

It is not simply a problem of the best explanation, but one of protecting the Christian soteriological claim that Jesus' obedience in crucifixion somehow atoned for the sins introduced into the world by Adam's disobedience. It is not the meaning of Genesis that is at issue but the meaning of Paul's letter to the Romans.

At the other end of the theological and ideological spectrum is the movement commonly known either as the theology of nature or ecological theology (or ecotheology for short). I will address this perspective in a similar way, addressing first the motivation in articulating the position itself. Unsurprisingly, there is much more diversity in this position; theologians of nature are of many different stripes. In a second move, it will be necessary to mark some distinctions amongst adherents. Finally, I will explore the manner in which some versions of the theology of nature suffer from a flaw similar to the creation science position, namely, the imprecision of terminology and difficulty in distinguishing between creation and nature.

The factors motivating the formation of theologies of nature are, I think, quite laudable. Perhaps the most immediate factor is recognition of the need to move away from the claims of biblical inerrancy that we saw at work in the creation science position. Theologians of nature recognize the lack of hermeneutical sophistication and the fundamental misuse of texts that afflict creationist positions and seek to deal more responsibly with biblical, and in some cases doctrinal, claims than their creationist counterparts. The second and more important motivating factor is the recognition of exploitive ideologies that spring from the biblical texts, particularly ecological exploitation. In a now famous article Lynn White, Jr. blames the western religious traditions in general, and Christianity in particular, for exploitive attitudes toward the environment:

> Since both *science* and *technology* are blessed words in our contemporary vocabulary, some may be happy at the notions, first, that, viewed historically, modern science is an extrapolation of natural theology and, second, that modern technology is at least partly to be explained as an Occidental, voluntarist realization of the Christian dogma of man's transcendence of, and rightful mastery over, nature. But as we now

> recognize, somewhat over a century ago science and technology—hitherto quite separate activities—joined to give mankind powers which, to judge by many of the ecological effects, are out of control. If so, Christianity bears a huge burden of guilt. (White: 33)

Theologians of nature usually accept this judgment on the history of Christianity and either seek to explain how the exploitive ideology that springs from Genesis is a misinterpretation of the true Christian message or attempt to reinterpret the Christian message in more ecologically friendly terms. More recently, thinkers such as Leonardo Boff and Rosemary Radford Ruether have drawn a connection between ecological exploitation and gender and economic exploitation. These exploitive attitudes all spring from a faulty epistemology that separates subject from object and a faulty ontology that separates (male, European) humanity from non-human (non-male) nature. The hope is that exploitive attitudes in general might be alleviated by a more ecologically sound orientation within Christian witness.

How such an orientation is to be achieved is an open question; as I intimated, positions within the theology of nature vary greatly. At risk of oversimplication, I will lump the positions into two primary camps: traditional theists and revisionists. Among the traditional theists are thinkers like John Carmody, Jürgen Moltmann, Wolfhart Pannenberg, and Richard Fern. These thinkers place the emphasis upon traditional, doctrinal claims about the relationship between God, the world, and humanity. Although they are critical of the narrow biblicism of the creationists' position, they are not ready to abandon the doctrinal particularity of Christianity either. Stating the position pointedly, Moltmann argues that the creationist position is "nothing but a retreat to the doctrine of creation of a past era. It would not be an interpretation of the belief in creation today, in light of its true origins. . . . On the other hand, we are also unable to follow those theologians who accept the cosmological theories that are under discussion at the moment, sanctioning them by making them the basis of their own religious cosmologies" (22). Theists tend to see Christian dogma as a reality consistent with, yet beyond scientific cosmology, a superadded abundance that exists behind and gives meaning to cosmology.

Revisionist then are thinkers who, in Moltmann's words, make scientific cosmology "the basis of their own religious cosmology," among other things. Examples of this position are Gordon Kaufman, Rosemary Radford Ruether, John Cobb, and Sally McFague. Theological revisionists tend to be critical of traditional, doctrinal claims, particularly the anthropocentrism entailed in them. The outcome of such anthropocentrism is

the very epistemological and ontological dualism that funds the exploitive attitude toward the non-human world, women, and the economically vulnerable. The remedy is to recognize the more naturalistic, scientific "creation story" that links humanity with the rest of the natural world.

I claimed that the theology of nature suffers from a confusion similar to that of the creation science position; indeed, the problems are more intractible here because the collapse of creation into nature is not done consciously. The confusion takes two principal forms: either discussing the biblical, doctrinal idea of creation as if it concerned the origin and functioning of the environment or ecosystem or conceiving scientific cosmology as a creation story. Some theologians of nature, typically in the theists' camp, argue that the doctrine of creation and the biblical narratives from which it develops are narratives about the origins and processes of the natural world. Of course, the doctrinal formulations and biblical narratives speak not of the literal origins of the universe and/or natural processes but point figuratively to the theological underpinnings of the natural world. In this vein Richard Fern claims,

> Asked to comment on Darwin, Aquinas, remaining open to the possibility that God has created the world through an evolutionary process over vast periods of time, would most likely conclude the Bible has nothing much to say about dinosaurs—even though it tells us everything crucial about the underlying reality and value laden processes whereby they and we come to be. . . . So long as we bear in mind methodological differences and resultant limitations, there is no reason why religious faith cannot call on scientific inquiry in its understanding of divine creation. (128)

This is, at the very least, a monumental oversimplification; it is difficult to see how Aquinas, operating out of an Aristotelian metaphysic, could make much sense of Darwin's evolutionary theories, let alone incorporate them into his understanding of creation; the open-ended nature of the process of natural selection would be inconceivable.

In a similar fashion Moltmann seems to correlate the theological idea of God's continued creative activity with natural evolutionary processes. Curiously, he begins by stating that evolution, strictly speaking, "has nothing to do with 'creation' itself." But, problems mount as he continues

> Creating and making, creating and separating, are biblically distinct concepts which must not be confused. Creation is the term that describes the miracle of existence in general. . . . Evolution describes the continued building up of matter and systems of life. This means that the

> theory of evolution has its place where theology talks about continuous creation (*creatio continua*). (Moltmann: 196)

Not only does Moltmann treat creation as if it encompassed the theory of the evolution of the species, but he speaks of *creatio ex nihilo* as if it were an account of the origins of the cosmos, existence in general. It is important to be fair here; there is more going on than a simple reduction of one order of discourse to another, at least in Moltmann's case. He is not claiming, so far as I can tell anyway, that the theological idea of creation points to evolution (or the "Big Bang" for that matter). But a problem remains: Theologians of nature tend to use terms equivocally to intermingle different orders of discourse imprecisely and, sometimes, uncritically. More to the point, however, it is not clear that biblical narratives and theological doctrines of creation are fundamentally concerned with the origins of the universe or natural processes of complexification.

In this, theological revisionists are right to point to the inherent and irredeemable anthropocentrism of these narratives and doctrines. They do not speak of the origin and functioning of the natural world so much as they speak of the preparation of a realm in the center of which is placed the pinnacle of creation: man, that is, male humanity. To focus on the idea of creation as a story of origins or of the processes by which humanity arose from simpler life forms is to misconceive the significance of the narratives. Genesis is not a cosmology, it is an assertion about the meaning of being human in relation to the perception of an all powerful God, and it reflects all the cultural bias, ethnic chauvinism, and sexism of its time. *Creatio ex nihilo* is not a scientific theory; it is a statement about the perfection and omnipotence of the God of faith. Divine providence is not an account of natural processes; it is an existential statement about the experience of existence before a loving and demanding diety. None of this is to say that the composers and redactors of the biblical texts or the church fathers did not speculate about the *hows* of the origins of the universe, but the biblical and doctrinal formulations do not ultimately say anything about these *hows*. What is continually presupposed is that the source of the universe is the all-powerful God whose purposes and plans are fundamentally beyond human comprehension. The modern understanding of nature as the realm of impersonal natural laws that are open to human understanding would be utterly inconceivable.

A second pitfall is the tendency, particularly among revisionist theologians of nature, to speak of scientific cosmology as a creation story. Take for instance, Brian Swimme's suggestion that, in light of ecological devastation and the need to respond to it, we tell stories:

> I am suggesting that this activity of cosmic storytelling is the central political and economic act of our time. My basic claim is that by telling our cosmic creation story, we inaugurate a new era of human and planetary health, for we initiate a transformation out of a world that is—to use David Griffin's thorough formulation—mechanistic, scientistic, dualistic, patriarchal, Eurocentric, anthropocentric, militaritaristic, and reductionistic. . . . A *cosmic creation story* is that which satisfies the questions asked by humans fresh out of the womb . . . By *cosmic creation story* I also mean to indicate those accounts of the universe we told each other around the evening fires for most of the last 50,000 years. (249)

Although it may be possible to call scientific cosmologies cosmic stories, it is difficult to think of them as cosmic *creation* stories, and this for at least two reasons. First, cosmologies offer possible accounts of the origins of what there is *now* based on certain observations of and various speculations about relevant data about the past; but, those accounts are not stories of the origins of what is in the same way that the Christian doctrine of creation is. They speculate about how what is came to be *the way it is*, not how what is came to *be*. As Langdon Gilkey puts it, there is a distinction to be made between *ultimate* origins and *proximate* origins. Criticizing creationism, Gilkey argues, "the creationists fail to distinguish the question of *ultimate* origins (Where did it *all* come from?) from the quite different question of *proximate* origins (How did A arise from B, if it did?). They ignore the scholastic distinction between the *primary* causality of a First Cause . . . and *secondary* causality, which is causality confined to finite actors" (1983: 60). Ironically, this criticism applies to the theology of nature as well.

A second problem is one that concerns the logic of creation itself. The word "creation" implies a creator. Scientific cosmologies do not make reference to a creator and indeed rule out the possibility of a purposeful, creative agent as an explanation. How do we make sense of a creation story without a creator? Surprisingly, this uncritical tendency to designate cosmology as a creation story is widespread. Rosemary Radford Ruether speaks of the scientific creation story as if it were on a par with the Christian creation story. Sallie McFague calls "Big Bang" cosmology "the common creation story." Gordon Kaufman argues that the idea of serendipitous creativity offers a new and ecologically responsible metaphor for God.

Much like the creationist position, these tendencies to speak either of creation stories as cosmologies or cosmologies as creation stories lead to the mistaken assumption of tension or outright conflict between religion and science. Science is accused of being overly reductionistic in its orientation to and presentation of the cosmos, that is, science treats nature as

an *object* of study and refuses to discuss the value of creation. Conversely, the anthropocentrism and androcentrism of the biblical texts, and the Eurocentrism of the Christian doctrine of creation, are supposedly called into question or openly criticized by scientific cosmologies and ecological models. Once again, I believe that this oversimplifies the relationship between world as creation and world as nature and between theology and science. "Creation" and "nature" are not equivalent terms; their relationship is a much more complex, mediated affair. An adequate theology of creation must recognize the hermeneutical character of human understanding of the world and must take seriously the distinction between creation and nature. An adequate theology of creation must be self-consciously constructive in expressing its relation to ecology and environmental exploitation. The concluding section of this article explores some possible lines of inquiry for such a theology of creation.

CREATION DOES NOT EQUAL NATURE: CRITICAL RAPPROCHEMENT

Emphasizing the exploratory character of this final section, I want to offer it as a sort of prolegomenon to a self-consciously hermeneutical, constructive theology of creation arising principally out of a Christian perspective. I will begin by trying to disentangle the discourse of nature and the discourse of creation via a return to the hermeneutical constitution of worlds. I will conclude by reintroducing the two discourses on more critical grounds. I hope to outline some possible future directions of exploration for human agency and ecological ethics.

The central argument of this analysis has been that certain strands within the resurgence of interest in the idea of creation too readily equate the terms "creation" and "nature." I introduced Gadamer's idea of *world*, more specifically, the distinction between *Welt* and *Umwelt*, world and environment, as a way to begin to address the difference between creation and nature. An immediate temptation is to equate nature with environment, but I argued that nature is as much a hermeneutical construct as is creation. According to Gadamer, the immediacy of environment, the "thing-in-itself", is simply not open to human understanding except as an imaginative abstraction. In an important sense, therefore, science, as the "objective" study of nature, approaches—and perhaps appropriates—its subject matter through abstracting its immediacy. On this point Gadamer states,

> The world of physics cannot seek to be the whole of what exists. For even a world equation that contained everything, so that the observer of the

> system would also be included in the equations, would still assume the existence of a physicist who, as the calculator, would not be an object calculated. A physics that calculated itself and was its own calculation would be self-contradictory. The same thing is true of biology, which investigates the environments of all living things, including, therefore, the human environment. . . . The being-in-itself toward which research, whether in physics or biology, is directed is relative to the way being is posited in its manner of inquiry. There is not the slightest reason, beyond this, to admit science's metaphysical claim to know being-in-itself. Each science, as a science, has in advance projected a field of objects such that to know them is to govern them. (1993: 452)

Cosmology, as the comprehensive object of physics, and ecology, as the comprehensive organization of biotic communities, are fields of objects delimited by scientific method that give rise to the hermeneutical abstraction of nature as an immediate object of study. A central aspect of that method is the assertion of *value neutrality*: science seeks to explore nature without reference to value claims.

Oddly, science frequently comes under fire for this ideal of value neutrality. It is often difficult to discern exactly what is being criticized, but there seem to be two principal targets: the refusal to include morality in scientific method and the "dualistic epistemology" that separates the observer from the object of study. And, the criticism tends to be directed both at the scientist and at the findings of science: the scientist is accused of tacitly introducing his or her values into observation—immoral, irreligious values and/or the objectifying gaze of western modernity—or the findings of science themselves are said to introduce immoral or anthropocentric ideals into society. John C. Newman, for instance, decrying the advent of scientific rationality, expresses his concerns over "the influence that belief in atheiestic evolution has had on our society."

> I see the modern tendency toward secularization in our society to be much encouraged by this belief. It has led many to ignore God, resulting in enormous distortions in public, family and private life. It has undermined moral standards, which (in a universe with nothing more authoritative than society) can hardly have stronger sanctions than 'don't get caught.' (121)

Whether or not the scientist actually achieves—or even could achieve—the ideal of neutrality is irrelevant here. The more pertinent question is whether or not scientific investigation is possible without the ideal. There is, to put it ironically, some value in value neutrality. To argue that the scientist's personal value system ought to inform the investigative process

is akin to suggesting that a baker's personal dislike of chocolate ought to inform the type of cakes he makes. To demand that the scientist forgo the ideal of value neutrality is critically to misunderstand the role of science as a practice and as a dimension of human inquiry.

By granting the value of value neutrality, we do not necessarily suggest that science be left to its own devices, that the scientist be free from all limits upon experimentation. There are all sorts of reasons to argue for limits on human, and perhaps animal, experimentation. There are all sorts of reasons to argue for limiting the environmental effects of the technology that arises out of scientific advancement. The ideal of value neutrality only threatens the abolition of limits with the mistaken assumption that the only worthwhile and legitimate perspective on the world is scientific, that there is no more comprehensive level of existence and enquiry that can limit the efforts and findings of science. Here we would do well to listen again to Gadamer:

> Science may be able to bring us to the point of producing life in a test tube or of artificially lengthening the human life span to whatever length. But this does not affect the tough discontinuities between what is material and what is living or indeed between a really lived life and a withering away into death. . . . Over against this context, the dismantling and reconstructing of everything that is which is carried on by modern science represents simply a particular domain of expansion and mastery, which is limited just to the degree that the resistance of what exists to objectification cannot be overcome. Consequently it cannot be denied that science always has and always will come up against a claim of comprehension (*Begreifens*) in the face of which it must fail—and indeed which it should forgo. (1981: 11–12)

Not even the scientist exists solely in the world constructed as nature. She values the opinions of her colleagues; she leaves the lab to go home to her family. The scientist constantly confronts a degree of resistance to objectification. Hermann Broch's novel *The Unknown Quantity* describes such a confrontation; in the end of the novel the protagonist, mathematician Richard Hieck, recognizes the fact of his existence in multiple worlds:

> Life would go on. And what with the theory of sets and group theory and all kinds of astronomical calculations one would be kept busy. And with any luck one might make an advance, a considerable advance, in the epistemological and logical groundwork of knowledge. Was that not enough? And out of the darkness that gave one birth one would advance into new darkness, with stars glittering on the black background, stars that would glide along the surface of dark waters, shining out in the greatness and sublimity of death. . . . Out there life roared on its course,

> flowing down from afar, incomprehensible, uncanny, inexhaustible, but its course ran also through one's heart, just as incomprehensible, just as uncanny, just as inexhaustible. Just as terrible. (Broch: 177)

There is another configuration of the world that resists the reduction to value neutrality, and I am arguing that this is the point of world as creation.

The discourse of creation configures the world as a realm of irreducible value, that is, it is a discourse that is fundamentally axiological. Anne Clifford points out that the Christian understanding of creation "expresses the belief that God is the origin, ground, and goal of the world and of everything in it. . . . The doctrine of creation is shaped by presuppositions about God—fundamental beliefs that are difficult to conceptualize, and yet make a profound difference in how Christians view the world." (195). Among the most important of these presuppositions are God's goodness and perfection. The Christian view of the world is one of a realm invested with value and a proper object of respect because it is the creation of a good and perfect deity. This recognition of the world as a realm of value says important things about the place of humanity and human use of the world.

It is important to stress, once again, that Genesis is not a cosmological theory; the biblical texts speak of world as a realm that is created for human use. That is to say, the Christian understanding of creation is inescapably anthropocentric. But, this is not necessarily bad. To some extent it is unavoidable; anthropocentrism is part of the human condition. We always view the world from the perspective of how it affects human life. What is bad is the accompanying devaluation of the nonhuman, not to mention the exploitation of women and the economically vulnerable. This devaluation of the non-human world, combined with the radical advance of human technological capabilities, has resulted in large-scale environmental devastation. In this regard, Lynn White, Jr. was right: The western religious heritage has played a substantial role in ecological crisis. It can be argued that this movement, rather ironically, has brought about a devaluation of human life as well. But it is not clear that the devaluation of the non-human world, let alone the human world, is an essential part of the Christian understanding of creation.

Although the biblical accounts do speak of humanity as the pinnacle of creation, human use of the world comes with conditions and limitations. The Genesis account of Adam's and Eve's disobedience of the command not to eat of the tree of knowledge and the resulting expulsion from Eden says more about the conditions God puts upon human usage than it does about the ontological state of humanity after the expulsion. Covenantal regulations against eating meat with the life (i.e., blood) in it

and the extension of sabbath rest to animals in Genesis, Exodus, and Deuteronomy place further conditions upon human usage. Jesus' valuation of the birds of the air and the lilies of the field in Matthew cast a positive light on the created world. The Christian doctrine of creation has developed around the perduring assertion of the goodness of the world as a creature of God. Indeed, at the heart of the Genesis narrative is the constant assertion by God that what has been created is good.

Claus Westermann points out that the meanings that attach themselves to this declaration of goodness are many. Among the most important is the idea of beauty:

> We can hear in this sentence the overtone: ' . . . and see, it was very beautiful.' It must be remarked, however, that the Old Testament has a basically different understanding of the beautiful than is current among us. Our understanding is strongly coloured by the Greek understanding where the beautiful is primarily a being. In the Old Testament the beautiful is primarily an event; the proper approach to the beautiful is in this context not the beholding of something which is there . . . but the encounter. The beautiful is experience in encounter. (Westermann: 63)

The goodness of creation is, then, experienced in an encounter with beauty. That is to say, world as creation is itself fundamentally aesthetic in character, both in the common sense of the beautiful and in the Kantian sense of an overall, meaningful organization. There is a deep relationship between the experienced value of the created order and encounter with the beautiful. In Immanual Kant's terminology, two things inspire awe in the soul: the starry heavens above and the moral law within.

Far from casting the non-human world in an unfavorable light, then, the configuration of world as creation speaks of the fundamental beauty and value of the whole of creation. And here we can begin to address possible directions for the critical reintroduction of world as creation and world as nature. The naturalistic discourse of science, for all it gains by way of *empirical* precision, loses something in the way of *lived* experience. Cosmological theories argue that we are composed of elements produced in the first moments of an expanding universe that either will continue expanding, losing energy as it does so, to become a frozen, lifeless wasteland, or will reach a critical point and then collapse in on itself in a cataclysmic explosion. Evolutionary biology argues that we are simply an adaptation in the evolutionary process that is guided by the random mechanism of natural selection. Ecology argues that we are merely parts of a biotic cycle that is governed by the sequence life-death-reabsorption. That is to say, the naturalistic account of the world points to the fact that human existence is neither specially placed within nor separate from

non-human existence. Humans are simply a species of animal that is endowed with higher brain function, the capacity for abstract thought, and an inordinate curiosity about the world and about themselves. There is no *empirical* evidence to dispute these findings. Indeed, there is every reason to accept the findings and to recognize the importance of the conclusions that can be drawn from these naturalistic accounts of the world. *Phenomenologically*, however, they are very far away from the world in which we live on a daily basis.

For instance, my wife is more significant to me than our cat or the dogwood tree that grows in our backyard. This may sound trite, but it is important to recognize that we simply do not view humans as part of the natural process in the same way that we do squirrels, or ants, or juniper bushes. That is to say, we are hopelessly anthropocentric. When I go to see my doctor, I do not want her to stop and consider the ecological effects of the rigorous treatment of a viral infection that has afflicted my body. Viruses are, after all, valuable contributors to the ecological community and, from a strictly naturalistic perspective, have as much standing and purpose in existence as I do, perhaps more. In other words, medicine could be viewed as an unnatural infringement on the biotic community. However, we tend not to look at medicine this way because we feel that humans have more of a right to life than the organisms that cause sickness and death. More controversially, society sanctions medical experimentation on non-human animals because we value human life more. Whether or not this social sanction is morally justified is up for debate, but to draw the line at chimpanzees and not at viruses seems arbitrary from a strictly ecological point of view.

The intermediary concept of *world* is useful here. *World* is precisely the hermeneutical horizon that arises out of the distanced orientation from environment, the hallmark of human existence for Gadamer. Humans can approach world as nature, that is, as object of study and manipulation, and as creation, that is, as object of value deserving of respect. Importantly, this orientation is not an either/or; I am not oriented at one time to world as nature and at another time to world as creation. I am oriented at once *in* world as nature and as creation. Phenomenologically, I can attend to one or the other as a primary orientation at any particular time, but I never leave one for the other. And, in the exercise of their agency, humans have the capacity to act in accord with these orientations. Humans have the capacity to take a consciously responsible attitude toward the non-human world. Indeed, it is this capability to be consciously oriented in the world that makes ecological ethics a possibility.

It is with regard to the possibility of an ecological ethic that the critical reintroduction of world as nature and world as creation offers the

most promise. Naturalists and environmental activists have for more that forty years now given us prudential reasons for paying more attention to our effects on the non-human world; ecology has shown us the interconnectedness of all aspects of the biosphere. Use of chloroflourocarbons in the Northern hemisphere has depleted the ozone layer that shields the earth from harmful radiation with the result that skin cancer rates in Australia have skyrocketed. Complex chemicals like DDT and PCBs have built up in soil and leached into water supplies threatening human populations and devastating wild bird populations. Overuse of fossil fuels combined with deforestation brought about by human overpopulation has led to the build up of greenhouse gases and higher temperatures worldwide with the result that the polar icecaps are now shrinking and sea levels are now rising. (The fact that the US government is the only one in the developed world not officially to recognize the problems associated with use of fossil fuels is something for which American citizens ought to be ashamed.) If we do not heed these lessons, we may very well make our own ecosystems uninhabitable.

But what if these forecasts of doom are overstated; what if the warnings of ecologists are simply the ravings of alarmists, as many, especially in the United States, have suggested? What if the projected damage of over population and deforestation is inconclusive? What if the benefits to the human population of opening public, protected land to oil drilling can be shown to outweigh the costs in loss of wildlife habitat? Are we free to go on as before, content in the recognition that we are not causing as much damage as we have been told? There is a problem with casting environmental concerns solely in prudential, cost-benefit terms. And, this is where understandings of world as creation lend an important corrective. Human use of the non-human world ought to come with limits; the non-human world ought to be recognized as a proper object of respect. We are, in Jewish and Christian understandings, stewards of a world that is on loan. Beyond this, it is important to recognize the innate value of undeveloped land and native habitat. There is an aesthetic value in the creation that elicits our response. In the words of a well known hymn, "For the beauty of the earth, for the glory of the skies, for the love which from our birth over and around us lies, Lord of all to thee we raise this our hymn of grateful praise" (Pierpoint).

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