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Innocent as Doves, But Not Wise as Serpents: Nineteenth Century Evangelicals and Evolution



by Kenneth W. Hermann

There is no question that evolution, as a comprehensive framework for understanding the whole of life from the amoeba to the intellectual zeitgeist, has played a dominant role in shaping the Western intellectual tradition's understanding of the world since the beginning of the nineteenth century. Since then it has permeated virtually every arena of intellectual inquiry from the more immediate areas of biology, physiology, geology, and anthropology to the more remote areas of literature, philosophy,

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theology, and even music.¹ The more familiar Darwin/Wallace paradigm was only a single manifestation of this much larger movement of thought.

The question before us is: how can we come to a clearer understanding of the issues that are at stake in a Christian assessment of the variety of evolution-inspired interpretive frameworks which have been spawned in numerous fields of study? Specifically, what can we learn about these issues and an appropriate contemporary Christian response by investigating how nineteenth-century evangelicals responded to Darwin and evolution?

The Evolutionary Program As Worldview

Whatever else we want to say about Darwin's program, we must be clear that it was first rooted in and guided by a dominating vision of the created order. Any effort to come to terms with it, must begin at the point of recognizing its spiritually compelling and formative power in shaping thought. The critical issue was, and remains, one of faith, not fossils.

It has become increasingly clear in the last thirty years that the traditional image of Darwin as the untiring collector of biological facts out of which his theory of the transmutation of species through natural selection ultimately and inescapably emerged is both historically and philosophically inaccurate. Recent work in the history and philosophy of science has leveled a telling blow against the claim put forward by Positivism that facts are neutral, independent of any underlying or overarching philosophical or even religious, framework. Naiveté on this point has been and continues to be exploited for ideological purposes.²

Central to the entire evolutionary enterprise was a radical vision of the world as an autonomous complex system of lifeless matter in continuous motion through inconceivably vast stretches of time. This assumption was, in fact, extrapolated from the Newtonian paradigm in which motion was abstracted from the fullness of life and given the premier role in interpreting, in principle, every dimension of life. Physics, under the guidance of the Newtonian vision, became the paradigm suitable for comprehending other domains of life. Darwin extended the Newtonian understanding of Motion to explain how organisms developed and were modified. Motion applied to History became Time, a continuously creative force in the evolutionary programs.³

The function of any worldview is to provide insight, guidance, and direction for understanding, in principle, every aspect of life. Worldviews are faith commitments, surely as religious in their power in guiding thought as any historic or traditional religion. They are visions, perspectives by which people live and think. They can be elaborated into myths and poetic images to give visual expression to the inexpressible faith.⁴ Familiar examples, among many that could be cited, would be the final paragraph of *The Origin of Species*, Carl Sagan's expansive claims in *Cosmos*, and portions of Disney's *Fantasia*.

As visions for the entirety of life, the central evolutionary insight entailed a commitment to articulating its implications for increasingly diverse arenas of intellectual inquiry. Such extension is neither tangential nor unwarranted. Faith commitments are inherently comprehensive in scope: if they represent a true insight into the nature of things, then they must be true in all areas of life and thought. This is the reason we find evolutionary thought permeating wider domains of intellectual inquiry from the nineteenth century to the present. Christians should not find this surprising since this is the same way we understand our fundamental commitment to the Lordship of Christ: we comprehend every conceivable aspect and domain of life in the light of this orienting commitment. This same principle holds for all other confessional positions.

Innocent As Doves, But Not Wise as Serpents

Let me state my thesis as boldly and provocatively as I can. The evangelical community, indeed the entire Christian community, failed to discern the

deeper philosophical and confessional commitments underlying and animating the evolutionary vision of the created order in general and the Darwinian vision in particular. For all of their commitment to the authority of Scripture and the centrality of Christian doctrine, they were blind to the spiritual dynamics motivating and animating the numerous new evolutionary visions of the world in the nineteenth century.

They assumed that Darwin's primary challenge came from his assault on the natural theological belief that the world was marvelously designed by God. They, therefore, set themselves the task of investigating whether or not Darwin's new findings could be harmonized with the traditional belief in a universe designed by God. This strategy was followed by virtually all those who reflected on the relationship between Darwin and the design argument, both those who eventually denounced Darwinism as atheistic and those who sought some form of accommodation with it. They were engaged in what James Ward Smith has termed an apologetic strategy of superficial accommodation.⁵

These superficial apologetic strategies were not unique to the nineteenth century evangelical response to Darwin. Indeed, they form a continuity with the historical Christian understanding of the extent to which central Christian confessions ought to guide thought about the created order. By the beginning of the eighteenth century evangelicals had enthusiastically and uncritically accepted the post-Newtonian framework of thought as a legitimate understanding of God's world.⁶ They had, in fact, elaborated it into a sophisticated natural theology which not only supported belief in God, but, they believed, *compelled* such belief. They believed, therefore, that their primary task was to harmonize the independent, but related domains, of *science*, as portrayed by the Newtonian paradigm, and *religion*, or, as they were fond of saying, showing the unity of God's World and God's Word. Evangelicals believed that the chief task was to incorporate Darwin's new facts into their existing natural theology.

In adopting this strategy evangelicals critically failed to recognize that they were confronted first of all with a new *spirit*, a new philosophical framework, by which those so-called facts were being interpreted. Their superficial understanding of the issues at stake for a Christian understanding of

reality in the evolutionary enterprise led to a number of disastrous consequences which I will elaborate on in a later section of my discussion.

How did it happen that evangelicals were unable to discern the deeper philosophical and religious issues at stake in the evolutionary program? The complex answer is deeply rooted in several major assumptions and characteristics which have shaped Christian thought about reality throughout its history. These provide the historical, philosophical, and theological context within which the evangelical community responded to evolution and Darwin.

Historical Context Of the Evangelical Response to Darwin

It has been a dominant premise of Christian thought from the first century down to the present that the creation is demarcated into two distinct, though closely related and hierarchically arranged, realms of knowledge. These divisions have gone by numerous designations, from natural/supernatural, God's Word/Work, reason/revelation, faith/knowledge, philosophy/revelation, sacred/secular, spiritual/natural, to science/religion.

Dominant Dualisms

It was further assumed that the Christian confession did not carry any specifically unique philosophical implications for how this world should be understood beyond the most general restrictions. Christian thought pertained primarily to concerns *beyond* this world. It was considered either unnecessary, impossible, or irrelevant to articulate a unique philosophical framework for understanding this world, one which was permeated by the implications of the Christian confession. Matters pertaining to this world could be adequately understood by employing, with appropriate modifications, various existing philosophical frameworks which were framed independently of Christian thought. Such truth about this world was universally accessible to all persons in contrast to the truth about the *other* world which was accessible only to those who possessed the teachings of the Church or the Bible. After all, all truth is God's truth, as Augustine reminded us.

Thus, Augustine could employ neo-Platonism, Aquinas could use Aristotle, British natural theologians could accommodate the Newtonian paradigm, Enlightenment evangelicals in the early nine-

teenth century could adapt the philosophy of Common Sense Realism, and late nineteenth century evangelicals could modify German idealism in their understanding of the natural world and as support for belief in God. The only criterion that was generally used in all of these cases to determine the usefulness of any philosophical system was whether it could be modified or otherwise interpreted to be compatible with and to support belief in the existence of God.

Apologetics and the Emergence of the Design Argument

The existence of these two realms of knowledge,

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deriving their knowledge from at least two different sources, demanded considerable energy to bring them into harmony and unity. This became the task of apologetics. It is not too wide of the truth to say that Christian scholars throughout history have devoted a preponderant amount of effort and thought to apologetics, second only to the effort and thought given to theology. This should not surprise us. After all, it was of utmost importance that these two realms of knowledge not only be brought into harmony, but that the knowledge gained in the natural realm, whatever its source, must lead to and support belief in God. Such harmony and support was crucial to assure the Christians and to convince the non-Christians. This latter enterprise was known as natural theology, the survey of the knowledge about God and other possible aspects of Christian belief which was available to all from the natural world without the aid of revelation.

Almost from the beginning Christian scholars began elaborating arguments, based upon whichever philosophical position was then dominant, which justified and compelled belief in the existence of God and the truth of Christianity. The most prominent of these are known collectively as the design arguments. Thomas Aquinas consolidated these arguments into his classic five-fold proofs for the existence of God.

In one form or another these arguments have been

the mainstay of virtually all Christian apologetic efforts down to the present day. Quite simply, the arguments maintained that design, order, and unity were intuitively obvious to any rational observer of this world. But design, order, and unity could not have arisen by chance. They could arise only as the product of an intelligent Designer. And this Designer was God. That pagan authors, like Plato, Aristotle, Xenophon, Cicero, and others, had first used such an argument to support the existence of the gods did not deter Christians. They merely supplemented the god arrived at in their arguments with additional attributes derived from Scripture. The success of apologetics was determined by how well various systems of thought either supported or were not incompatible with belief in the existence of the Christian God.

It should be clearly noted that rarely, if at all, was knowledge in the *spiritual* realm used to gain deepened insight and understanding in the *natural* realm. Rather the entire structure of knowledge was built into a hierarchy which ultimately arrived at God. That this neo-Platonic view of knowledge cut the nerve of a distinctly Christian understanding of the creation has plagued the Christian intellectual enterprise ever since. It played a fundamental role in the inability of nineteenth century evangelicals to comprehend the nature of the Darwinian challenge.

The History of the Transformed Meaning of Science

Outside the volatile field of the history and philosophy of science, it is still commonly believed that the term *science* has a universally-agreed upon meaning, a meaning which, furthermore, is independent of any underlying philosophical premises or worldviews. That is precisely the basis of its claim to universal validity. Christians, as indeed virtually everyone else, throughout history have adopted this view rather uncritically. Recent investigations spawned by disillusionment with the breakdown of confidence in the classic understanding and implications of *science* have fairly well exposed the philosophical and worldview assumptions inherent in any conceivable meaning of the word *science*. This development has shed important light on the Darwinian enterprise.⁷

It should never be forgotten, especially in discussing Darwinism, that major intellectual battles throughout history have been fought over the right

to determine what should and should not qualify as *science*. The term has always been an honorific term, a badge of prestige. Those who win the right to define its meaning have thereby aggrandized significant cultural power in all segments of society. This is no wonder. After all, the term *science* (Latin *scientia* for knowledge) has always carried the philosophical claims that this particular kind of knowledge, whatever it happens to be, is either most certain or least uncertain, and can, therefore, serve as a more stable foundation upon which to gain understanding of other areas of life than other competing claims to *knowledge*. We all want to live our lives in accord with the way the world really is. Thus, whatever we take to be *science*—that which tells us how the world really is—will provide the framework within which we seek to gain insight and understanding of other areas of life.

That some perspective, method, or area of study is said to be a *science* must always be taken as a philosophical claim about the kind of knowledge acquired in that field, the range of what knowledge is possible, and how knowledge ought to be sought. It must never be reduced to a bare name for a particular discipline, group of disciplines, or used as a synonym for systematic inquiry. To say, for example, that Newtonian physics is a *science* is to claim that it meets the criteria that mechanical philosophy has established for acquiring dependable knowledge about the physical domain of life. It, rather than some other philosophical framework, therefore, has the right to be called a *science*.

Now, the claim that some way of understanding reality is or is not a *science* demands an argument in its support, not acquiescence in the face of obvious authority. It is a *claim* to be argued and debated, not a *definition* to be highlighted and memorized. I realize how counter this understanding of *science* is to our ordinary use, but I am persuaded that evangelicals must understand this point in order to comprehend the challenge of Modernity, in our case today, that of evolutionary patterns of thought.

From the Greeks down to the sixteenth and seventeenth centuries, science dealt with, as Aristotle claimed, that kind of understanding that was either synonymous with or deducible from the first principles of pure thought. Only they were certain and stable since they dealt with eternally valid ideas and principles. The shifting and transient phenomena of

this world could provide no stable foundation for knowledge at all. The claim to be a *science* must henceforth be related to these philosophical premises. It is not surprising, therefore, that various medieval scholars took up the question whether theology was a *science*. Thomas Aquinas answered with a resounding affirmation since theology dealt with the immutable being of God himself. Not only was theology a *science*, it was the queen of the sciences by virtue of its exalted object. Protestant thought, with a brief time out for the first generation of reformers, soon followed Aquinas' estimate of the place and role of theology. The Reformation did not alter that.

The great watershed in our Western understanding of science occurred in the sixteenth and seventeenth centuries, the period conventionally known as the *Scientific Revolution*. This period was revolutionary precisely because various persons made the radical claim that true knowledge (i.e. *science*) could not be found by examining bare philosophical and theological assertions. It could only be found by examining the phenomena of this world through observation, experimentation, and rational analysis. Thus, those forms of understanding which would subsequently count as *science* and *knowledge* were dramatically inverted.

Henceforth *science* would be used to describe both the method and the proper domain for gaining understanding of this world. There would be a hierarchy of the disciplines in this new formulation as well. Now physics would be the epitome of knowledge; it would be the paradigm *science*. The other disciplines were ranked in the order in which they approached the maturity of physics. Understandably, the status of that which had formerly been called *science*, including theology, was in serious doubt and grave peril of being denied altogether as a legitimate framework or field of study, as subsequent history has shown all too vividly.

The central point of this discussion for our story is that the evolutionary programs of the nineteenth century were rooted in a different framework for understanding the organic and human worlds from that which had previously held sway. What developed was a battle between competing paradigms of what should and should not count as *science* for understanding these matters.⁸

Evangelicals completely failed to comprehend that the evolutionary programs were rooted in a radically

different understanding of *science*. Their position was often all the more uncomfortable since they had already adopted the Newtonian paradigm which Darwin was now, unexpectedly, extending into the biological and human sphere. How could they legitimately throw up a bulwark against this extension when they had already accepted Darwin's major premise?⁹

Rather than level their critique at the philosophical and religious foundations of this new claim, they persistently claimed that persons who made these claims stubbornly refused to acknowledge what was plain for all to see, had departed from the proper

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*scientific method, or had made unwarranted extensions of good science.*¹⁰

Evangelicals, the New Science, and the Design Argument

Evangelicals moved swiftly to recast their apologetics in light of the new *science*. They quickly jettisoned the now *unscientific* views of Aristotle, Plato, and company as the foundation of Christianity and deployed the truth about the heavens and earth revealed by Newton. Newton surely had brilliantly shown them the truth of the matter. As Alexander Pope exclaimed, "Nature and Nature's laws lay hid in night:/God said, let Newton be! and all was light." What could provide a more stable foundation for the Christian faith than the cascading discoveries of the new *science*? After all, all truth is God's truth and should point to his goodness, wisdom, and power.¹¹

The venerable design argument was refurbished and given new life. Now rather than using the *unscientific* philosophical arguments of the Ancients, evangelicals used the new *scientific* arguments of the Moderns based on the manifold and obvious evidence of design everywhere they looked in the world, from the minutest seed to the most majestic solar system. Every new discovery was transformed into an argument for God's existence based on its transparent design. Surely belief in God could ask

for no surer support or firmer friend. True and good science *must* move one toward God. Those, like the rationalists and deists, who stopped short of Christianity or blatantly denied it, could only be guilty of perverting the arguments and methods of *good science*.¹²

Knowledge Emancipated From Theology

It was a central feature of the new meaning of *science* in the *scientific* revolution that knowledge of whatever type could and must be justified on grounds other than those traditionally provided by theology. There was a palace revolt in the kingdom of knowledge in which theology, the queen of the sciences, was driven into exile. Slowly but surely various domains of knowledge declared their emancipation from theology and God as a necessary foundation for coming to know and understand various domains of life and thought. This emancipation, in fact, became the criteria for being *good science*: could this particular domain of study articulate its basis for acquiring knowledge without appealing directly to God as a foundation? Physics was the first to fully meet this qualification. From the end of the seventeenth century, physics, rather than either philosophy or theology, became the prime exemplar of *science*.¹³

Slowly and then quite swiftly the phenomena of this world were increasingly understood in terms of the new paradigm of *science*. This trend did not bother the Christian community, at first. They felt confident that as long as they could base their apologetic appeals on the findings of these newly emancipated domains, all was well. After all, *good science* (i.e. that *science* which supported the design argument) provided a sure foundation for theology.

While the motives driving Darwin's lifelong search for a deeper understanding of the organic are certainly complex, it nevertheless was important for him to free understanding of biological relationships from their bondage to theological explanations based on perfect adaptations designed by God. Such explanations, to him, were irritating signs that biology was still immature and not yet a fully adult *science*. Biology must find an explanatory framework which offered a logically more complete and compelling interpretation of organic life than did the traditional argument based on God's design. The result was modification by descent through natural selection. This was explicitly formulated to supplant God's explanatory role in natural theology.¹⁴

Evangelical efforts to supplement Darwinian

natural selection with God's guidance not only failed as an apologetic, but completely failed to engage Darwin at the confessional and philosophical level his position demanded. Such efforts frustrated Darwin to the end of his life, as well they should have.¹⁵

It is against this historical background that nineteenth century evangelicals framed their response to Darwinism and evolution. The major question they asked was how, if at all, Darwinism or evolution, as they understood them, could be made compatible with some version of the design argument for the existence of God. Some, like Charles Hodge, denounced Darwinism as atheism primarily because it undermined the design argument. Many others, as several recent historians have convincingly demonstrated, were able to work out numerous modifications of the design argument, through trimming and reinterpreting various features of both Darwinism and Christian thought. These arguments were, of course, clothed in the currently fashionable philosophical garb, principally in some version of German idealism. As long as it was possible to say that God was behind evolution in some manner, the apologetic effort was pronounced a success. The integrity of Christianity was preserved and the threat of atheism was once again averted. Or so they thought.

Evangelicals and The Darwinian Challenge

It is critically important for Christian academics to clearly distinguish between apologetics and a philosophy of science.¹⁶ It is not surprising, given the Christian heritage, that the bulk of Christian writing on the relation of Christianity and the various fields of learning, from algebra to zoology, is taken up with showing how belief in God, human freedom, moral responsibility, etc., is either compatible with or not incompatible with the currently influential paradigms which structure the disciplines. The way that historians have approached the history of the relationship between Christianity and *science*, especially true of Christianity and Darwinism, has been overwhelmingly within the apologetic framework. Rarely have the deeper questions which challenge this framework either been asked or addressed.

Apologetics No Substitute for Philosophy of Science

Apologetics, as important a task as it surely is, ought never be used as a framework for articulating

a Christian philosophy of science. They are both essential, but proceed from different premises and serve very different functions within a Christian worldview. There is far more at stake for the integrity of a Christian understanding of the world in any framework of thought, whether Darwinism or General Systems Theory, for example, than whether it can be made compatible with belief in God. Anyone with a little ingenuity and imagination can forge some sort of harmony between what is taken to be *religion* and what is taken to be *science*. Such attempts, however, never probe the deeper philosophical and spiritual foundations of the ways we come to understand creation.

The spiritual challenge of Darwinism, as that of any other paradigm the Church has confronted throughout its history, could only have been (and can be) discerned and met by a Christian philosophy of science which elaborates the ontological and epistemological implications of the Christian creeds and confessions.¹⁷ Evangelicals desperately needed a framework for understanding the height, breadth, and depth of the created order in terms of the Christian central affirmations concerning creation, fall, redemption, and consummation.

What was needed in the nineteenth century was not so much showing how the created order exemplifies the wondrous design of God, as showing how the central Christian affirmations illumine the complex phenomena and relationships of the created order. What was needed was not showing the unity of God's Word and God's World, but showing how God's Word illumines God's World.¹⁸ Nineteenth century evangelicals should not have been intimidated by the ideological and dogmatic charge that such a program was *unscientific*. They were confronted with a battle over the meaning of *science*, a battle they could only have waged with an alternative philosophy of what should count as a *satisfactory understanding of the world*, not the apologetic framework of natural theology.

Consequences of the Superficial Evangelical Response to Evolution

Evangelicals were hopelessly marginalized by their failure to assess accurately the true nature of the evolutionary challenge. The serene confidence with which many affirmed the continued validity of the design argument in the face of the evolutionary challenge was no more than assuring the faithful.

It is more than a little ironic that at the very time that a stream of books and articles flowed from the evangelical presses seeking to demonstrate the harmony of Christianity and evolution or science, such proposals were considered increasingly quaint and irrelevant by the intellectual and cultural leaders. The aggressive secularization of thought took little notice of the establishment of many chairs on the harmony of revelation and science in many Christian colleges.

We ought not be lulled into believing that all was well within Evangelicalism because of the prominence of harmonizing proposals and programs. Like a shooting star, Evangelicalism seemed to shine

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brightest just before it flickered out as a dominant intellectual leader. They continued to provide evidence for design after that premise had been hopelessly demolished.¹⁹ The argument was no longer (if it ever really was) about apologetics; it was now about confessions, philosophy, and faith. In this light, it is not surprising that Christian thought, now reduced to the narrow domain of theology, quickly disappeared from the dominant cultural centers in the late nineteenth century. It was impotent to inspire distinctive frameworks in various disciplines, ones that could compete with the numerous non-Christian frameworks. It is sobering to consider that the seeds of late nineteenth century evangelical intellectual irrelevance were sown in the soil of their vaunted post-Newtonian apologetic successes. In Max Weber's trenchant phrase, they became their own grave-diggers.

Not only did the evangelical strategy of accommodation fail to win any converts, it made unbelief a serious intellectual option. If the existence of God and the truth of Christianity is built on the foundation of the design argument, those beliefs are gravely imperiled by the collapse of the design argument. Such is what occurred in the nineteenth century. Unbelief in God became, for the first time, a widespread rationally compelling alternative to Christian belief. Such a development was ironically rooted in the Church's effort to shore up Christian belief with the best *science*.²⁰

Instead of offering the spiritually starving the life-giving bread of a broad, deep, sweeping, and grand

view of the created order rooted in their Christian confession, they could only offer those enamored of the Darwinian and evolutionary visions the cold stones of dogmatic dismissal or superficial accommodation. No wonder so many thoughtful people left the Church.

We in the twentieth century should indeed be sobered by the cul-de-sac in which our forbears found themselves and challenged to work out a philosophy of science for understanding God's world which honors the height and depth, length and breadth of the wisdom hid in Jesus Christ.

Towards an Agenda for Evangelical Reflection on Evolution

Nothing that I have said thus far should be construed as denying any of the insights Darwin had into the creation. He had many, but it is crucial to qualify the kinds of insights he offered. Since I am not a biologist, I will not be foolish enough to venture into that minefield. But I believe that I can identify some of his insights and give some direction for probing others as an intellectual historian.

Giving Darwin His Due

Darwin was absolutely correct, in my judgment, in his extensive criticisms of the prevailing version of natural theology for failing to explain adequately the complex and intricate relationships which he was discovering. He rightly criticized natural theology for failing to do the necessary penetrating *philosophical* work of explanation. Whatever verdict we may eventually render about the adequacy of Darwin's own explanation, we cannot deny that an account which explains everything by arguing that God did it is virtually no explanation at all.

For all of its attention to the wonders of the world, the natural theology tradition was not genuinely interested in the complex structure of creation for any other reason than to provide arguments to silence the skeptics and assure the faithful. It had an apologetic interest in the world, but not a philosophical interest, one that would probe deeper and ask harder questions about the world which could not be satisfied with apologetic answers. Tragically for orthodoxy at the very time it was encouraging naturalists to examine the world more deeply through the natural theology tradition, it was failing to provide the conceptual tools necessary to structure that examination. Those persons interested

in such philosophical issues were therefore forced to forge their own tools of investigation.

Darwin's painstaking and patient efforts opened up the incredible complexity and functional coherence of the created order, a complexity which could not have been opened up by the old natural theology. Darwin recognized that deepened insight and understanding had to move outside its narrow boundaries. The *Origin* is a long sustained argument against the older natural theology's inability to account for this complexity.

What Did Darwin Discover About the Creaturely Order of Life?

But what precisely was and is the nature of the creaturely relationships Darwin discovered? Is the creation essentially a functional continuum stretched out across time? If so, how does Darwin, or anyone, come to know that? Is the Great Chain of Being a more appropriate model when it is temporalized? Did Darwin discover the Law which God had established for the creation? Or did he, perhaps, discover a pattern of the Law of sin and death at work even in the non-human world? What precisely is the relationship between God's Law and those creatures which are subject to the Law? How do we understand the development of God's covenantal relationship with the creation over time? How do we understand the peculiar covenantal relationships between various creatures and between them and their environment?²¹

How can we come to an appropriate understanding of God's abstract creatures, such as motion, matter, and time, as they perform their rightful service in God's world? How can we gain insight into their service without idolizing them by making them the foundation of our understanding of this world? How can we resist, as I believe we must, the temptation to make these abstract creatures the essence of explanation and more real than the creatures, such as rocks, trees, humans, and families, which are constitutive of our lived experience?

How can we resist, as I believe we must, the effort to find a unifying principle, based on functionality, for life which is inherent in the creation itself? This surely requires that we have a stake in maintaining the irreducible boundaries which mark off the creation in ways we yet do not fully comprehend? In this I believe Christians can learn much from the work of such people as Marjorie Grene,

Hans Jonas, and Michael Polanyi who have insights into these aspects of life for which the evolutionary programs cannot give an adequate account.²²

Critical Philosophical Questions

There are innumerable philosophical assumptions in the Newtonian paradigm, and consequently in the prevailing natural theology, which begged for critical analysis. Evangelicals tended to accept uncritically the way these terms and concepts were defined in that paradigm. Such key terms as cause, law, creation, miracle, design, purpose, providence, begged for critical elucidation in terms of Christian philosophical insights. Evangelicals failed to comprehend that the new philosophies of science in the nineteenth century gave these terms a completely different meaning. It would do no good for them to continue believing that the argument was any longer a matter of evidence or semantics. The very terms of the philosophical debate had been changed.

It is certainly true that metaphor and analogy play a critical role in forming concepts and interpretive frameworks. They played a central role in Darwin's thought. The critical question, I take it, is not whether they are used, which is indisputable, but what kind of insight they provide into the structure of God's world. Furthermore, they perform very different functions: whether poetic, illustrative, heuristic, or foundational. How do we determine how they are being used and what criteria do we use for judging their appropriate use? There has always been the profound temptation, inherent in the metaphorical enterprise, to transform the analogous *like* into an ontological *is*. Promiscuous and uncritical use of analogies is the prime source of reductive interpretations of the multidimensionality of God's rich world.²³

There is clearly much significant work that must be done by evangelical scholars in all fields of study to discern the issues that the evolutionary paradigms raise for accurately understanding the nature of God's world. Our hindsight enables us to uncover the facile strategy our evangelical forbears adopted in meeting the intellectual and confessional challenge of evolution. Hopefully, being aware of these weaknesses will strengthen our resolve to plumb the philosophical depths of our confessional resources in ways that will at once avoid the shoals of cultural isolation and the shallows of superficial accommodation.

END NOTES

1 The term *evolution* is itself a hotly debated and contested term, having meant different things to different people at different points in Western thought. Debate over its meaning was one of the centrally contested arguments in the nineteenth century. I shall therefore not try to offer an ahistorical definition of *evolution*. Rather I will use *evolution* as an umbrella term to cover all discussions in which the term was used. The focus of my remarks will be on Darwinian evolution. The best introduction to the history of the term and idea of *evolution* is Peter Bowler, *Evolution: The History of an Idea* (Revised Edition. Berkeley: University of California Press, 1989).

The influence of evolutionary thought on all aspects of culture and thought has been profound. Of the many books devoted to studying this varied influence, the following two are good places to begin: David Oldroyd, *Darwinian Impacts: An Introduction to the Darwinian Revolution* (Milton Keynes: Open University Press, 1980) and Alan Grafen, ed., *Evolution and its Influence* (New York: Oxford University Press, 1989).

2 Those on the margins of acceptability have been among the most consistent critics of Positivism as ideology in discussions concerning evolution. See, for example, Robert Young, from a neo-Marxist perspective, "Evolutionary Biology and Ideology: Then and Now," *Science Studies* 1 (1971): 177-206; Alan Freeman and Betty Mensch, from a liberal Jewish perspective, "Religion as Science/Science as Religion: Constitutional Law and the Fundamentalist Challenge," *Tikkun* 2 (1987): 64-71; and David C. Caudill, from a Reformed perspective, *Disclosing Tilt: Law, Belief and Criticism* (Amsterdam: Free University Press, 1989).

3 John C. Greene has consistently articulated the worldview framework of Darwin's thought. See his *The Death of Adam: Evolution and Its Impact on Western Thought* (Ames: Iowa State University Press, 1959); *Science, Ideology, and Worldview: Essays in the History of Evolutionary Ideas* (Berkeley: University of California Press, 1981); and his "Introductory Conversation" in *History, Humanity, and Evolution: Essays for John C. Greene*, ed. James R. Moore (Cambridge: Cambridge University Press, 1989), 1-38.

Important discussions of the significance of *time* in nineteenth-century evolutionary thought can be found in Frederick J. Teggart, *Theory and Processes of History* (Berkeley: University of California Press, 1941); Charles C. Gillespie, *The Edge of Objectivity: An Essay in the History of Scientific Ideas* (Princeton: Princeton University Press, 1960); Stephen Toulmin and June Goodfield, *The Discovery of Time* (Chicago: University of Chicago Press, 1965); Maurice Mandelbaum, *History, Man & Reason: A Study in Nineteenth-Century Thought* (Baltimore: Johns Hopkins University Press, 1971); Stephen Jay Gould, *Time's Arrow, Time's Cycle: Myth and Metaphor in the Discovery of Geological Time* (Cambridge: Harvard University Press, 1987).

4 Discussions of the mythic elements in nineteenth-century evolutionary thought have been most productively studied in English departments. A good place to begin on this topic is Gillian Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot, and Nineteenth-Century Fiction* (London: Routledge & Kegan Paul, 1983).

- Martin Rudwick has presented some intriguing discussions of the ways in which evolutionary thought was visually (mythically?) portrayed by illustrators and artists. See "The Emergence of a Visual Language for Geological Science, 1760-1840," *History of Science* 14 (1976): 149-195 and "Encounter with Adam, Or at Least the Hyenas: Nineteenth-Century Visual Representations of the Deep Past," in *History, Humanity and Evolution: Essays for John C. Greene*, ed. James R. Moore (Cambridge: Cambridge University Press, 1989), 231-252.
- 5 James Ward Smith, "Religion and Science in American Philosophy," in *The Shaping of American Religion*, ed. James Ward Smith and A. Leland Jamison, (Princeton: Princeton University Press, 1961), 402-442.
 - 6 For recent assessments of these developments see the excellent essays and annotated bibliography in David C. Lindberg and Ronald L. Numbers, ed., *God and Nature: Historical Essays on the Encounter between Christianity and Science* (Berkeley: University of California Press, 1986).
 - 7 The most recent attack on the Positivist claim for the philosophical neutrality of *science* comes from the Edinburgh group, proponents of the so-called strong program in the sociology of knowledge. This perspective focuses on the social and cultural interests within which that which is claimed as *science* emerges. See Barry Barnes, *Scientific Knowledge and Sociological Theory* (London: Routledge & Kegan Paul, 1974) and Barry Barnes and Stephen Shapin, ed., *Natural Order: Historical Studies of Scientific Culture* (Beverly Hills: Sage, 1979) for a good introduction to this approach.
 - 8 Neal C. Gillespie, *Charles Darwin and the Problem of Creation* (Chicago: University of Chicago Press, 1979) provides a lucid discussion of this conflict between competing perspectives on the meaning of *science*. A very good illustration of this point from the contemporary literature can be found in an exchange between Simon Newcomb, the well-known American astronomer and advocate of the new *science*, and Joseph Cook, Noah Porter, James Freeman Clarke, and James McCosh, advocates of traditional natural theology, the old *science*, in the *North American Review* 128 (1879): 537-562, 647-663.
 - 9 Asa Gray, the Harvard botanist, was determined to insure a fair hearing for Darwin's views. However, he experienced significant turmoil over the implications of Darwin's premises. In a letter to his, and Darwin's, good friend, J. D. Hooker in the fall of 1859 just prior to the publication of the *Origin*, Gray commented that he was "staggered" by the philosophical foundation of Darwin's views on variation. He was caught in a foreboding dilemma: since physical science dealt only "with the series of effects & not with the efficient cause at all," it was inescapably forced to pursue causal relationships beyond time itself. If that were so, Gray implored Hooker, how was it possible to "connect the philosophy of religion with the philosophy of your science." Gray to Hooker, October 18, 1859; quoted in A. Hunter Dupree, *Asa Gray: 1810-1888* (Cambridge: Belknap Press of Harvard University Press, 1959), 266.
 - 10 These criticisms were followed by virtually all those from the older natural theology tradition who criticized evolutionary thought.
 - 11 Two recent books raise significant questions about the theological and philosophical wisdom of the new natural theology as an effective apologetic for orthodoxy. See Michael J. Buckley, *At the Origins of Atheism* (New Haven: Yale University Press, 1987) and John Platt, *Reformed Thought and Scholasticism: The Arguments for the Existence of God in Dutch Theology, 1575-1650* (Leiden: E. J. Brill, 1982).
 - 12 Eventually the design argument was drawn mainly from the elaborate and exquisite adaptations and design of the biological world. This version of natural theology was known as physico-theology in the late seventeenth and early eighteenth centuries. Its most prominent proponents were John Ray and William Derham (England), Bernard Nieuwentyt (Holland), and Cotton Mather (colonies). William Paley and the nine-volume Bridgewater treatises brought this tradition to its culmination in the early nineteenth century—just in time for Darwin to undermine its major premise. Because the design argument seemed to rest so securely on the manifest design of the Designer in the biological world, Darwin's challenge to the entire edifice of natural theology was especially acute.
 - 13 Many people would no doubt say that those asserting that theology or philosophy are *sciences* are making *false* rather than making *counter* claims.
 - 14 Darwin argued in a letter to Charles Lyell, a close friend who nevertheless had serious reservations about Darwin's understanding of evolution, that to "say that God ordained that at some time and place a dozen slight variations should arise, and that one of them alone should be preserved in the struggle for life and the other eleven should perish in the first or first few generations, [is] . . . mere verbiage. It comes to merely saying that everything that is, is ordained. . . . Why should you or I speak of variation as having been ordained and guided more than does an astronomer, in discussing the fall of a meteoric stone? . . . Would you have him say that its fall at some particular place and time was 'ordained and guided without doubt by an intelligent cause on a preconceived and definite plan'? Would you not call this theological pedantry or display? I believe it is not pedantry in the case of species, simply because their formation is still with most people under its theological phase of development." Darwin to Charles Lyell, August 21, 1861, Francis Darwin, ed., *More Letters of Charles Darwin* (London: John Murray, 1903), I, 194.
 - 15 Neal Gillespie's discussion of this point in *Charles Darwin and the Problem of Creation* is a good place to begin.
 - 16 While for all of the reasons I have cited above for not using the term *science* as a descriptive term, I am forced to trade in the prevailing currency of speaking of the *philosophy of science*. Since I am forced to use this expression, I would want to add the adjective *Christian* to distinguish how the Christian confession structures the ontological and epistemological insights into creation from how other paradigms in the philosophy of science understand these issues.
 - 17 Perhaps because he writes from outside the dominant Western tradition, Philip Sherrard is able to develop a trenchant critique of Modern Science, which has so beguiled evangelicals, on the basis of the ontological, epistemological, and anthropological implications he derives from the perspective of his Orthodox tradition in *The Eclipse of Man and Nature: An Enquiry into the Origins and Consequences of Modern Science* (West Stockbridge, MA: Lindisfarne Press, 1987).

- 18 This is an obviously complex and arduous task. Its beginning requires a fundamental challenge to the traditional harmonizing approach of apologetics and at least an openness to the claim that the central Christian confessions provide considerably deeper implications for understanding various facets of the created order than has been traditionally taken to be the case. The Reformational tradition flowing from Kuyper and Dooyeweerd provides considerable insights for such a project.
- 19 When Darwin denied that the world was *designed*, he was most definitely *not* denying that the world was orderly and lawful. He was denying *design as it was understood by the Paleyan natural theology tradition*. Up until the publication of the *Origin*, this was *the* prevailing understanding of *design*. After Darwin there were many *competing* ways of understanding *design*, many of which did not appeal to natural theology. Evangelicals simply failed to see this. They continued to ask the question whether the world showed evidence of design or not, which is the way it was asked *before* Darwin. Faced with a growing multiplicity of meanings for *design* such a shallow response could only insure the demise of natural theology.
- 20 See the following for elaboration of this theme: James Turner, *Without God, Without Creed: The Origins of Unbelief in America* (Baltimore: Johns Hopkins University Press, 1985); *idem*, "Morality, Natural Law, and Unbelief: Some Roots of Agnosticism," *Perspectives in American History* New Series 1 (1984): 359-378; and John Hedley Brooke, "Science and the Fortunes of Natural Theology: Some Historical Perspectives," *Zygon* 24 (1989): 3-22.
- 21 The Dooyeweerdian tradition speaks of these as law/subject, subject/subject, subject/object relationships. Marinus Dirk Stafleu has some fruitful insights into the historical opening up of a field of study which merit increased attention for fields of study beyond physics. I would suggest that Darwin was opening up the biotic modality of creation far beyond what the natural theology tradition could bear.
- See the following essays by Stafleu for suggestive hints for other fields, including biology: "The Mathematical and the Technical Opening-Up of a Field of Science," *Philosophia Reformata* 43 (1978): 18-37; "The Isolation of a Field of Science," *Philosophia Reformata* 44 (1979): 1-15; and "The Opening-up of a Field of Science by Abstraction and Synthesis," *Philosophia Reformata* 45 (1980): 47-76.
- 22 Marjorie Grene, *Approaches to Philosophical Biology* (New York: Basic Books, 1968) and *The Understanding of Nature: Essays in the Philosophy of Biology* (Dordrecht: D. Reidel, 1974); Hans Jonas, *The Phenomenon of Life: Toward a Philosophical Biology* (Chicago: University of Chicago Press, 1966); Michael Polanyi, *Personal Knowledge: Toward a Post-Critical Philosophy* (Chicago: University of Chicago Press, 1962) [1958]; and Marjorie Grene, ed., *Knowing and Being: Essays by Michael Polanyi* (Chicago: University of Chicago Press, 1969).
- 23 Dooyeweerd's insight into the ontological and epistemological foundation of analogies and metaphors in both our conversation and deepened investigations of creation has not been explored at the depth it deserves. His discussion needs to be joined with the mainstream philosophical tradition with which it differs significantly.