

## **Learning About God Through Creation**

(A response to James Christoph, Anderson, Indiana June 23, 2008)

by

John F. Birch

## **Introduction**

Theological thought and scientific thought have both historically dealt with humanity's "ultimate" questions, one of which is the question of origins. Theology has been characterized as "rational reflection upon God's revelation", or "faith seeking understanding."<sup>1</sup> In this sense it can be said that it seeks an understanding, or a more accurate understanding, of the way things are. So it is with physics, an examination of physical phenomena utilizing a methodological approach, the "scientific method", which has developed distinctive marks as an empirical process involving observation, experimentation, and theorizing.

Human reason is not beyond correction, as evidenced by the history of modern science, replete with radical revisions whereby new phenomena lead to new insights that transcend previous conceptions, and the history of theological thought during the conciliar eras in which articulated beliefs by councils were perfected, corrected, or better stated by subsequent councils. Human reason is involved in communicating what we believe, and I believe that two forms can be utilized by theological inquiry. One is direct communication with God as Ultimate Reality. Revelation is integral to theological inquiry, yet does not constitute the whole of theological inquiry. Theological inquiry also involves communication with our world<sup>2</sup>, which affords the opportunity to dialog with other areas of knowledge, such as physics.

It is right and proper for faith and reason to dialog with and inform each other. With regard to theological thought this will naturally involve a multiplicity of ideas, perceptions, concepts, languages, etc. that can strengthen faith as long as the focus is on truth itself, for while the expression of truth will necessarily change, the essence of truth

need not. Therefore, past conflicts between the church and scientific thinkers (i.e. Copernicus, Galileo, etc.) do not have to be taken as warnings against theological thought being too closely associated with scientific thought, or faith being threatened by such association. Christian faith is stronger than that. The primary reason faith is perceived as threatened by a close association with scientific thought is due to a “God-of-the-gaps” way of thinking, which regards God as less relevant to a world gaining in knowledge and understanding of itself. This is not consistent with the Christian understanding of the person and work of God, or with the insights of modern physics. Therefore, I believe that a reading of the Genesis accounts of creation in light of insights by modern science about our world can lead to a more appropriate conceptualization of God and God’s relation to the world.

A view of God as Ultimate Reality, sovereign over all, should seek him within the life of the universe, not just at its extreme temporal boundaries. Understanding God as real and active aligns with both a biblical and a modern scientific view of the world. Furthermore, such a view requires that our knowledge and understanding mature with time. Jonathan Edwards claimed that, “ God is the author of all knowledge and understanding whatsoever”<sup>3</sup>, which seems to be what Aquinas alluded to when he wrote

God helps man to understand, not only on the part of the object proposed by God to man or by an increase in light, but also by the very fact that man’s natural light, which is what makes him intellectual, is from God.<sup>4</sup>

God is the absolute source of all knowledge, capable of making himself known through his works. A biblical, and realistic, view of God endeavors to understand his relation to the whole of reality, including revelation through the holy Scriptures as well as the dynamics of an evolving, creative universe.

## The Creative Triune God of Scripture

Accordingly, we can begin with a consideration of the biblical narrative of creation, which is the starting point for the biblical narrative writ large. Though the creation narrative was not written as a “scientific” text, it is not because the eras during which the Scriptures were written were unscientific. They were pre-scientific. Science as we know it did not exist in the human community until around the eighteenth century. It is not proper or fair to refer to the biblical eras as unscientific, as though the people of those eras were less capable intellectually than people today. Indeed, these were eras that relied on human reason, as evidenced by the flourishing of philosophy and logic. The point can be argued that the biblical texts came out of a faith tradition and by and large were not written as philosophical treatises. However, even as theological writings the creation accounts in Scripture aim at offering a more accurate statement about the way things are. They offer some knowledge about reality. Indeed, while theological inquiry may be said to focus most on the question “why” and scientific inquiry most on the question “how”, both are after a more adequate understanding of reality. Therefore, to say that the biblical accounts of creation are theological and not scientific does not mean that they do not aim at knowledge about reality, or that they cannot utilize scientific insights as God’s gifts to us.

This seems to align with Augustine’s view of the creation narratives. He emphasized that it is not inconsistent for God to reveal truths through these accounts that were not particularly the truths the writer intended for his readers to grasp. In his words,

So while we are all trying in our reading of the Holy Scriptures to grasp what it was that the author of them meant to say, what harm can it do if a man grasps hold of something which you, who are the light of all truthful minds, show him is

true, even if the author whom he is reading did not grasp this truth – though the author did express a truth, but a different one?<sup>5</sup>

The Genesis author apparently intended the reader to grasp the “how” of creation in that he emphasized that it was by God’s speaking the world into existence. However, he may not have intended the reader to grasp the “how” of creation beyond that.

Still this does not negate the potential for future readers to grasp a more accurate understanding of how things came about. Keep in mind that God, as the ultimate author of Scripture, is able to bring about greater knowledge and understanding than the individual writer of the Scripture may have had when writing. For example, the statement that God separated the light from the darkness becomes clearer in light of scientific insight with respect to the Big Bang. It is now known that once the expanding universe cooled to a temperature below 3000 K, photons (light) did not have enough energy to eject electrons from their atomic orbits. In other words “Light separated from matter and emerged from the darkness of the universe.”<sup>6</sup> With this I want to argue for the possibility of our gaining a greater understanding, a more accurate understanding, of God’s interaction with the world in light of the creation account and revelations about the world around us through modern physics.

John Polkinghorne is a high-energy particle physicist and Anglican priest interested in how God interacts with the physical world. In his examination he identifies three ways we can perceive God’s relationship to the world. First God can be perceived as the Upholder of the world. Polkinghorne’s confidence is that the world is upheld in all of its order and lawfulness by the one who brought it into being. Therefore, “To hold a doctrine of creation *ex nihilo* is to hold that all that is depends, now and always, on the

freely exercised will of God.”<sup>7</sup> Thomas Aquinas helps us to understand the meaning of *creatio ex nihilo* by explaining that

we must consider not only the emanation of a particular being from a particular agent, but also the emanation of all being from the universal cause, which is God; and this emanation we designate by the name of creation.<sup>8</sup>

In other words it is not to be understood that nothing brought forth something, but rather that God brought forth the world without preexistent material. In the beginning there was God, who used nothing to bring about all that is.

Polkinghorne also emphasizes that although God upholds the world, he does so by imparting to the world a measure of freedom. In his words “In his great act of creation I believe that God allows the physical world to be itself, not in Manichean opposition to him, but in that independence which is Love’s gift of freedom to the one beloved.”<sup>9</sup> In other words, the world displays a measure of freedom, creativity, and indeterminacy, which accords with what modern science is telling us.

Gerald Schroeder is a Jewish physicist who believes that “An understanding of both physics and biblical tradition shows that the opening chapters of the book of Genesis and the findings of modern cosmology corroborate rather than dispute each other.”<sup>10</sup> Schroeder believes the Genesis account of creation from a Jewish perspective and points out that though the physical laws discovered since the birth of modern science resulted in many believing that world is totally determined, and potentially predictable, revelations by twentieth-century physics instituted a revised view of the world whereby indeterminacy is an inherent aspect of the world. Furthermore, though indeterminacies occur at subatomic levels, their outcomes can be amplified to the macroscopic level, the human-sized levels at which we live and operate.

Third is Polkinghorne's characterization of God as Interactor with the world. By this he means that "Whatever it may mean to use personal language of God in an analogical sense, it surely cannot mean less than we experience of our own personhood, which is not content with general benevolence but seeks to meet individual need in individual ways."<sup>11</sup> That is to say, while God is benevolent, in our own experience we both yearn for and seek individual attention from God. If epistemology models ontology, as Polkinghorne claims, then the connectivity and action at a distance so evident in the world, reflect the reality of a God who is intimately involved with the world, able to effect change and to be affected by his creatures.

Like any modern-day natural scientist Polkinghorne acknowledges the existence of gaps in human knowledge, but he does not envision these as valid arguments for divine action and influence. In his estimation

it no longer seems plausible that there are scientific no-go areas, in which questions can be posed scientifically to which only a God of the Gaps could provide an answer. Scientific questions demand scientific answers and they seem to get them. As the theoretical chemist and devout Christian, Charles Coulson, briskly said, 'when we come to the scientifically unknown, our correct policy is not to rejoice because we have found God; it is to become better scientists.'<sup>12</sup>

Epistemological gaps are "arbitrary gaps" in Polkinghorne's view, which is quite a different thing than the inherent nature of ontological gaps that are a part of reality, and which he refers to as "intrinsic gaps". That a God-of-the-gaps theology tends to make God less significant with increasing knowledge and understanding of the world is evidenced in Polkinghorne's statement that

The God of the Gaps is dead and with him has died the old-style natural theology of Paley and the *Bridgewater Treatises*. No theologian need weep for them, for the God of the Gaps, hovering at the periphery of the known world, was far from being someone of whom it could be said that 'all understand that this is God'.<sup>13</sup>

So then our world is “gappy”, or indeterminate, by nature, but not in that we are limited in our knowledge and understanding. Rather, indeterminacy is a part of the warp and woof of reality. In other words, indeterminacy is found in those processes that occur at the level of the subatomic, the “quantum” processes. Polkinghorne maintains that God acts at the level of quantum indeterminacies to bring about desired effects (though he does not ‘intervene’ in nature by counteracting or suspending natural law) and that when God does act at the quantum level such small effects must be able to manifest themselves at the macroscopic level (In other words quantum effects are amplified).

Polkinghorne believes that indeterminacy may also be found in “chaotic” systems. These systems seem to have such a character whereby small changes produce large-scale effects. However, such systems do not develop in a purely haphazard manner, but rather exhibit a measure of order by way of a restricted range of possible constructs known as a “strange attractor”. Accordingly, there exist a multitude of possible future outcomes. As applied to physical systems or processes, these outcomes may occur at the same energy level, while differing only in their patterns (details with respect to their particular development).<sup>14</sup> Divine influence, then, may come about by way of “active information” input or transfer, a “top-down causality” whereby the whole influences the parts. To get some idea of the level of sensitivity, inherent in chaotic macroscopic systems, leading to freedom within the universe, consider an example cited by Polkinghorne:

Molecules in a gas behave, in many ways, like small colliding billiard balls. After only  $10^{-10}$  seconds, fifty or more collisions have taken place for each molecule. After even so few collisions the resulting outcome is so sensitive that it would be affected by the variation in the gravitational field due to an extra electron on the other side of the universe – the weakest force due to the smallest particle the furthest distance away!<sup>15</sup>

One reason Polkinghorne cites for consideration of chaotic systems is that quantum effects need to be amplified in order to effect results in the macroscopic realm, and while he acknowledges the deterministic nature of mathematical chaos theory, he also believes real-world chaos is essentially indeterministic. Therefore he proposes that the deterministic simplicity of mathematical chaos theory is useful for modeling a world that is inherently open, indeterministic.<sup>16</sup> Therefore such fluctuation in chaotic systems may provide a mechanism for small effects (such as quantum events) to manifest themselves at the macroscopic level.

My reason for briefly describing Polkinghorne's view of divine agency is to point out what I said earlier, namely that a reading of the Genesis accounts of creation in light of revelations by modern science about our world can lead to a more appropriate conceptualization of God and God's relation to the world. Such a reading can lead to a change in the way believers think about God and the world. A God-of-the-gaps way of thinking, evidenced by the fear that faith will be hindered or damaged by too close an association with reason, tends to push God further out of the picture as human knowledge increases. In contrast to this, a proper view of God as Upholder, Imparter of freedom, and Interactor with the world, can lead to our perceiving God in greater ways and greater measure as human knowledge increases. Indeed, reading the biblical accounts of creation as actual, in light of what modern science has taught us about the world, is a pastoral endeavor in that it can serve to nurture the faith of believers.

## Endnotes

1. Joseph Cardinal Ratzinger, *The Nature and Mission of Theology* (San Francisco: Ignatius Press, 1993), 16
2. I utilize the term “world” herein to mean nature, or the universe. This is in keeping with terminology in various scientific texts.
3. Edward Hickman, ed. *The Works of Jonathan Edwards* (Edinburgh, Scotland: Banner of Truth Trust, 1986), 12
4. Thomas Aquinas, *Aquinas’ Shorter Summa* trans. Cyril Vollert, S.J (Manchester, New Hampshire: Sophia Institute, 2002), 145
5. Augustine, *The Confessions of Saint Augustine*, trans. Rex Warner (New York, London: Mentor Books, 1963) 300
6. Gerald Schroeder, *Genesis and the Big Bang* (New York, London: Bantam Books, 1990), 88
7. John Polkinghorne, *The Faith of a Physicist*, (Princeton, New Jersey: Princeton University Press, 1996) 75
8. Thomas Aquinas, *Summa Theologica* (Calvin College: Christian Classics Ethereal Library) Question 45, Article 1; available from [http://www.ccel.org/ccel/aquinas/summa.FP.iv.FP\\_Q45.FP\\_Q45\\_A1.html](http://www.ccel.org/ccel/aquinas/summa.FP.iv.FP_Q45.FP_Q45_A1.html); Internet; accessed 21 May 2008
9. John Polkinghorne, *Science and Providence: God’s Interaction With the World* (Boston, Massachusetts: Shambhala Publications, 1989), 66-67
10. Gerald Schroeder, *Genesis and the Big Bang* (New York, London: Bantam Books, 1990), 10
11. John Polkinghorne, *Science and Providence: God’s Interaction With the World*, 41
12. John Polkinghorne, *One World* (Princeton, New Jersey: Princeton University Press, 1986), 60
13. John Polkinghorne, *Science and Creation* (Boston, Massachusetts: Shambhala Publications, 1988), 13
14. John Polkinghorne, *Faith Science & Understanding* (New Haven Connecticut: Yale University Press, 2000), 121

15. John Polkinghorne, *Science and Creation*, 28-29
16. John Polkinghorne, *Beyond Science The Wider Human Context* (Great Britain: Cambridge University Press, 1996), 71-72