

# *Honoring Arthur Peacocke: 1924–2006*

## EVOLUTIONARY THEORY AND THEOLOGY: A MUTUALLY ILLUMINATIVE DIALOGUE

*by Gloria L. Schaab, SSJ*

*Abstract.* Scientific perspectives often are perceived to challenge biblically based cosmologies and theologies. Arthur Peacocke, biochemist and theologian, recognized that this challenge actually represents an opportunity for Christian theology to reenvision and reinterpret its traditions in ways that take into account scientific theories of evolution. In the course of his career, Peacocke offered a new paradigm for the dialogue between theology and science. This paper explores his proposals, in particular his theories of language, the God-world relation, and the nature of God, and exemplifies the impact these proposals had on his theological insights.

*Keywords:* analogy; creation; critical realism; divine nature; evolution; indeterminacy; pantheism; Arthur Peacocke; self-limitation; suffering

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In his 1605 commentary on the human search for meaning in existence, Sir Francis Bacon counseled, “Let no man . . . think or maintain, that a man can search too far or be too well studied in the book of God’s word or in the book of God’s works . . . only let men beware . . . that they do not unwisely mingle or confound these learnings together” (quoted in Peacocke 1987, 4). History has demonstrated that Bacon’s caution has met with mixed reviews from the fields of theology and science. Although the Copernican revolution altered our understanding of our significance in the universe and the Darwinian understanding of evolution revised our concept of the emergence of life in the cosmos, such transformations in

Gloria L. Schaab is Assistant Professor of Theology in the Department of Theology and Philosophy and Director of the Master of Arts in Practical Theology, O’Laughlin Hall 220, Barry University, 11300 NE 2nd Avenue, Miami Shores, FL 33161; e-mail gschaab@mail.barry.edu. She is a Sister of St. Joseph of Philadelphia, Pennsylvania.

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knowledge have not always meant interaction between theology and science. Science often is perceived as challenging the Bible and tradition, and theology ordinarily is deemed irrelevant in the dispassionate world of science. Both, by and large, insist on separate modes of discourse in distinct spheres of study. Arthur Peacocke, both biochemist and theologian, would not abide this separation and instead seized the opportunity for Christian theology to reinterpret its traditions in ways that take into account scientific theories of evolution.

#### OBSTACLES TO DIALOGUE BETWEEN THEOLOGY AND SCIENCE

In his essay "Rethinking Religious Faith" Arthur Peacocke discussed several possible relationships that might exist between theology and science (1987, 11–12). Four of these relationships reflect obstacles to dialogue, while the others represent ways the two might move their conversation forward. Reflecting with Peacocke on what some hold as obstacles to dialogue, first, many insist on the separation between theology and science because each allegedly concerns its own distinct realm. Science is concerned with finite, observable reality, while theology is concerned with infinite, unfathomable reality. Second, each supposedly serves and is defined by its own discrete objects of study. Science ought to be concerned with natural being and phenomena, and theology ought to focus on supernatural being and phenomena. Third, each presumably is generated by different attitudes. Science probes the realm of the natural world with a goal of prediction and control. Theology probes the realm beyond the natural order with the goal of personal commitment and moral purpose. Fourth, each characteristically employs its own language system and vocabulary, which would seem to prevent any communication.

#### A WAY FORWARD: COMMONALITIES BETWEEN THEOLOGY AND SCIENCE

Delving beneath these apparent differences, Peacocke brought to light several commonalities that exist between theology and science that make dialogue not only possible but in fact indispensable (Peacocke 1979, 33–34). First, both theology and science seek to establish and express their claims based upon observation and experience. Both do so by identifying relationships that validate and deepen their understanding of what is observed and experienced. For Peacocke, a cause-and-effect relationship exists theologically between God as Creator and the cosmos as creation. Based upon this relationship, Peacocke surmised, as did Thomas Aquinas, that the nature and attributes of the Creator could be inferred from the nature and attributes of creation.

A second commonality to which Peacocke called attention is that each discipline claims to deal with and speak about reality. However, neither

theology nor science speaks naively, as if a one-to-one correspondence existed between its words and the realities to which each points. Yet, neither do they speak as if their words were simply useful fictions bearing no connection to the reality each explores. Concerning finite reality in science and Infinite Reality in theology, Peacocke proposed that each must speak critically and somewhat skeptically (Peacocke 1984). The theologian and the scientist must strive to demonstrate as clearly as possible that the reality each investigates truly exists. They communicate this existence in language that signifies as accurately as possible the reality to which each refers. However, each understands that language inevitably falls short of literally describing the realities that each investigates. From this stance of what he termed “critical realism” Peacocke tested the validity of a theological or scientific proposal on the basis of its success as a tool for further theological and scientific practice, that is, on the basis of an “experimental argument for realism.” Applying this experimental argument to theological statements, Peacocke explained that over time persons have encountered particular experiences in themselves, in others, and in the universe and have attributed to God the “cause” of these experiences. In parallel to the scientific method, the more recurrent and widespread these experiences and attributions are, the more assured the Reality to which is referred (Peacocke 1984, 87–88).

A third commonality follows from this stance of critical realism. Both theology and science can refer to the realities they investigate, but neither can literally describe them. The human mind is, after all, finite. Thus, the insights it grasps, the thoughts it formulates, and the language it uses are fallible. Mystery truly pervades both theology and science. Therefore, theologians and scientists must proceed by way of inference rather than definition, seek intelligibility rather than certainty, and establish reasonableness rather than proof. However, this need not leave one speechless concerning the mysteries “in whom we live and move and have our being” (Acts 17:28 NRSV). Although the language of theology and science is unavoidably constrained by the space, time, and material limits of our minds and experiences, these constraints call not for silence but for humility. This is a humility born from the realization that, while all reality is essentially mystery, it is continually self-communicating and thus infinitely knowable. As theologian Sallie McFague emphasizes, “With any construction, the most one can do is to ‘live within’ it, testing its disclosive power [and] its ability to address and cope with the most pressing issues of one’s day. . . . [These] constructions are ‘houses’ to live in for a while, with windows partly open and doors ajar” (McFague 1988, 26–27). When a theological or scientific construction “houses” its community hospitably and without constraint, it becomes an acceptable affirmation of reality, though never beyond revision.

As a result of these linguistic constraints, both theology and science are confronted with the necessity to refer to reality using imagistic language—

the language of model, of analogy, and of metaphor—in order to fathom the unobservable and to articulate the inexpressible. As Ian Barbour wrote, a model or an analogy is not a literal picture of reality, yet neither is it simply “useful fiction.” Models and analogies are “partial and inadequate ways of imagining what is not observable. They are symbolic representations, for particular purposes, of aspects of reality which are not directly accessible to us” (Barbour 1974, 69). Peacocke agreed: “Not only does a good model allow logical inferences to be made about possible phenomena . . . but it functions . . . by throwing light forward . . . into new areas of investigation” (Peacocke 1984, 31). Peacocke demonstrated this function by pointing to the model of the computer as applied to the brain. The model itself spawns metaphorical terms such as *input*, *output*, *information processing*, and even *wired* as ways of speaking about brain function. Theology, too, makes wide use of analogy, model, and metaphor. These include models of God as Trinity, of Jesus as Word or Wisdom, and of salvation as ransom or atonement. However, although they are indispensable pointers toward reality, models are not literal. All models have a certain inadequacy. Nonetheless, this inadequacy is beneficial. It both safeguards against naïve interpretations and invites us to expand existing models and to devise new ones (Peacocke 1984, 30–33).

#### PARADIGMATIC PRINCIPLES FOR A MUTUALLY ILLUMINATIVE DIALOGUE

How might these commonalities between theology and science lead to fruitful dialogue? One approach to dialogue looks for consonance between theology and science, while another tends to subordinate one of the disciplines to the other. However, these approaches subvert the intellectual integrity that each theology and science must duly maintain. To preserve the integrity of each discipline, Peacocke regarded the relationship between theology and science as one of mutually illuminative interaction (Peacocke 1987, 11–12). This is a reciprocal relationship in which insights from each discipline inform the understandings and discourse of the other. Science illuminates the mysteries of creation, thereby deepening and expanding what creation discloses about the Creator. Theology illuminates the mysteries of meaning and existence that lie beyond the scope of scientific exploration. Their mutually illuminative interaction produces the paradigm that guides Peacocke’s interpretation of Christian theology in an evolutionary cosmos, a paradigm that can be set out in four principles.

Peacocke’s foundational principle is that (1) God is the Creator of the evolving cosmos and, therefore, the cosmos must be conceived as creation. It follows that (2) if God as the Creator has given creation the kind of existence that we observe and experience, the structures and processes of that creation reveal something of God’s attributes and purposes. Therefore (3) speech about the nature and attributes of God is inseparable from the

speaker's understanding of the cosmos—a cosmos described by science as evolving in unity and diversity through law and chance, delight and suffering, birth and death. However, because the natures of God and of the cosmos are ultimately mystery, (4) speech about God in relation to the cosmos can express itself only in models and metaphors that hope to yield meaningful and fruitful ways of speaking of God within an evolutionary worldview.

Having explored some of the elements that led to Peacocke's paradigm of the interaction between theology and science, I want to show how they played out in Peacocke's constructive theology. Focusing on particular aspects of Peacocke's scientific worldview, I demonstrate next how Peacocke's paradigm affected his inferences about God, to the point of requiring a specific model to speak about God in an evolutionary context.

#### DIVINE BEING AND BECOMING IN AN EVOLUTIONARY WORLDVIEW

"There was God. And God was All-That-Was. God's Love overflowed and God said: 'Let Other be. And let it have the capacity to become what it might be—and let it explore its potentialities.' And there was Other in God, a field of energy . . . and with one intensely hot surge of energy—a hot Big Bang—this Other exploded as the universe" (Peacocke 2000, 89). Thus begins, in the poetry of Peacocke, the epic of evolution.

Prior to evolutionary understandings of the cosmos, a Newtonian model of the universe prevailed. Newton's was a mechanistic model that pictured a "clockwork universe," operating according to natural laws with no intervening forces. Although this model applied well to observable experiences, it tended to break down with the very small (subatomic), the very fast (speeds close to light), and the very large (cosmological) (Peacocke 1993, 29–30). At these ranges, some observations failed to agree with Newton's mechanics. Albert Einstein, for example, demonstrated that relations among time, space, and the velocity of light relativized features of matter and energy. Werner Heisenberg's Uncertainty Principle questioned the independence of physical structures and reduced Newton's presumptions of precision to a range of probabilities. These are but two of the scientific discoveries that brought about what Karl Heim called the "twilight of the gods" of classical physics (Heim 1953, 24).

Nevertheless, before the demise of these gods, the concept of the Creator God of classical theism faced its own challenges from Charles Darwin's study *On the Origin of Species by Means of Natural Selection*. Darwin theorized that all organisms, past, present, and future, descend from earlier living organisms and develop through the process of natural selection. Determining the mechanism of this natural selection, Gregor Mendel deciphered the laws of heredity and established the science of genetics, which was further illuminated by analyzing the function of the DNA molecule.

Insights such as these altered scientific conceptions of the universe, Peacocke's included. They led Peacocke to divide his observations of the evolving universe into "cosmic being," or "what there is" in the cosmos, and "cosmic becoming," or "what is going on" in the cosmos. This distinction between the being and becoming of the cosmos, according to Peacocke, impels theologians "to reckon with their one God's relation to a continuously developing world." This continuously developing world, moreover, implied "a continuously changing relation of God to the world . . . and [thus] . . . the possibility that God is not unchanging in certain respects" (Peacocke 1993, 100–101). To demonstrate this possibility, Peacocke applied the distinctions between cosmic being and becoming analogically to distinctions in the nature and attributes of God. He suggested that God be considered not solely in terms of Divine Being, who God is in Godself, but also in terms of Divine Becoming, how God expresses the divine purposes in the cosmos. Two things are clear in Peacocke's perspective. First, one cannot separate one's understandings of God from God's interaction with the world as conceived by the natural sciences. Second, the influence of the natural sciences calls for a change in the classical Christian understanding of God as all-powerful, unchangeable, and unaffected by the cosmos and its creatures.

Peacocke first focused on the being of the cosmos to speak about the Being of God (Peacocke 1993, 101–13). Because the cosmos is contingent and so depends on a source of Being beyond itself, Peacocke inferred that God is the transcendent Ground of the entities and processes of the finite universe. Because the cosmos displays both unity and diversity, its Source must be both essentially one and unfathomably rich. Given that the cosmos displays inherent order and regularity, this suggests a rationality underlying creation. However, the universe also demonstrates constant change. Therefore, God must act not only to sustain the cosmos but also to continuously create new entities and structures throughout the passage of time. Ultimately, from this continuous creativity and from the very stuff of creation, the human person emerges. In view of the emergence of human beings, Peacocke inferred that the Being of God must be at least personal or suprapersonal in nature.

Peacocke then shifted his focus to the becoming of the cosmos to propose a concept of Divine Becoming (Peacocke 1993, 113–35). The kaleidoscopic diversity of the cosmos suggests to Peacocke a God at play in the universe who takes joy and delight in creation. Since this diversity results not only from natural law but also from random events, Peacocke inferred that God is not only the Source of regularity but also the Source of chance. However, since the operation of chance is in principle unpredictable, Peacocke suggested that God cannot be considered unconditionally powerful, but rather as self-limited in divine power. Such self-limitation implies that God is a vulnerable God who is self-emptying and self-giving in love.

In conceiving God as ground and sustainer of cosmic being, as the foundation of its unity, and as the source of its supreme rationality, Peacocke affirmed the classical way that Christian theology, influenced by Greek philosophy, ordinarily speaks of God—as simple, rational, all-powerful, and unchangeable. However, in attending to the nature of God as continuous Creator in, with, and under the processes of the cosmos; as source of its change and diversity; and as personal and purposeful in nature, Peacocke recognized that the classical ways of speaking about God need revision and expansion by more dynamic understandings of God. In particular, the attributes associated with God in Divine Becoming—self-limitation, vulnerability, and temporality—stand in contrast to classical theology and require a model of God more in keeping with a dynamic worldview.

#### EVOLUTIONARY THEOLOGY IN A PANENTHEISTIC PARADIGM

The model that Peacocke chose to draw together the elements of his evolutionary and theological thought is that of *panentheism*. Peacocke defined panentheism as the belief that the Being of God includes and penetrates the whole of creation, so that every part of creation exists in God, but that God's Being is more than, and is not exhausted by, creation. For Peacocke, panentheism models the One God who embraces and permeates the cosmos in, with, and under its unfolding in time. Theologically, panentheism points to this one God as Trinity in transcendent, incarnate, and immanent relation to creation. Moreover, this model functions, in Peacocke's words, "by throwing light forward" (Peacocke 1984, 31) to envision the universe as sacrament, to affirm the intrinsic value of creation, and to support the concept of a God who suffers the travail of the cosmos and its creatures.

This model of course resonates with Peacocke's paradigmatic principles. First, if God as transcendent, incarnate, and immanent is understood in panentheistic terms, no aspect of God is detached from the God-world relationship. Consequently, the being and becoming of the cosmos is integral to the Being and Becoming of the Divine. Therefore, all events in the life of the cosmos are events in the life of God. "All that is created is embraced by the inner unity of the divine life of the Creator—Transcendent, Incarnate, and Immanent" (Peacocke 1983, 35).

Although Christian theology has not historically embraced a panentheistic model of God as Trinity in relation to the world, Peacocke's use of the paradigm is both credible and refreshing. The model enables theologians to embrace and reinterpret significant beliefs in the Christian theological tradition, such as the understanding of the Triune God as transcendent, incarnate, and immanent; as Creator and Source of cosmic being; as infinite, necessary, and free; and as all-powerful and ever-faithful sustainer of the cosmos. At the same time, the panentheistic model has the power to promote the creative reconstruction of theology in response to the insights of contemporary science. These insights include evolutionary cosmology

and biology; the freedom, autonomy, and self-creativity of the cosmos and its creatures; and the ubiquity of pain, suffering, and death inherent in the processes of evolution. Responding to some of Peacocke's most provocative panentheistic insights, my own work has developed a female procreative model of divine creativity, a model of midwifery for ecological ethics, and a trinitarian model of the suffering God (Schaab 2006; 2007a, b, c).

How has this revised model of the God-world relationship stimulated Peacocke's theology? It is exemplified in his theological reconstructions in the light of two evolutionary dynamics: the costliness of the evolutionary process and the open-endedness and unpredictability of cosmic creativity.

#### THE COSTLINESS OF EVOLUTION

One movement of Peacocke's theological reconstruction is rooted in understanding evolution as a costly process. While dismissing the caricature of "nature red in tooth and claw," Peacocke recognized "the structural necessity" that "new life can only emerge if other forms of life are . . . incorporated into, or sacrificed on behalf of, the higher forms" (Peacocke 1971, 137). Immersed in the Christian tradition, Peacocke first correlated this scientific insight with the theological insight of God's self-emptying and suffering love, and he does so in a trinitarian way. First, "God has to be described as 'love' because . . . he deliberately limits himself, by allowing a cosmos to remain in being which is other than himself, which is given its own autonomy and so limits his freedom." Second, God is affirmed as "self-offering love in the self-limitation which was his incarnation in Jesus Christ and in the self-offering of Jesus' human life." Finally, "God the Holy Spirit is characterized especially by his communicating to those who follow Christ the ability to love" (Peacocke 1993, 309).

Despite this understanding of God as self-emptying Love, Peacocke indicated that classical theism tends to image God "as existing in a space distinct from that of the world, [which implies] detachment from the world" (Peacocke 2001, 141). However, when the world is panentheistically conceived of as in God, it follows that the events of the world are internal to God's own Being (Peacocke 2004, 151). God envelops and enters into those events that characterize the costly processes of evolution, as well as the moral evil of human society. This concept of a God who is familiar with suffering and who bears cosmic grief challenges a classical theology that envisions God as unrelated, unaffected, and unmoved by creation and its creatures. Nevertheless, it is entirely consistent with a Christian theology of cross and resurrection. In the costliness of creation and the cross of Christ, suffering and death do not have the last word. The dynamic of cosmic creativity that transforms death to new life may be seen as a reflection of the divine creativity that raised Jesus from the dead. Both the evolutionary process and the paschal mystery reveal that life is changed, not ended. Suffering and death are transformed by the dynamic creativity of God.



THE OPEN-ENDEDNESS AND UNPREDICTABILITY OF  
COSMIC CREATIVITY

A second movement of Peacocke's theological reconstruction arises from the inherent open-endedness and unpredictability of the cosmos associated with the operation of chance and with quantum uncertainty suggested by the Heisenberg Principle. According to Peacocke, such unpredictability seems to challenge notions of unconditional divine power in creation. If there are autonomy, freedom, and unpredictability at all levels of the cosmos, if they are built in by a rational and loving Creator, and if they express themselves in cosmic self-creativity, one may conclude with Peacocke that "in order to achieve his purposes, [God] has allowed his omnipotence to be modified, restricted, and curtailed by the very open-endedness . . . bestowed upon creation" (Peacocke 1993, 121). In asserting God's self-limitation, Peacocke struck a balance between the freedom and autonomy of the Creator and the creation. Moreover, attributing self-limitation to God "render[s] it meaningful to speak of the vulnerability . . . the self-emptying . . . and [the] self-giving of God in creation" (1993, 123)—the very attributes of the God of Jesus Christ, of whom "self-offering 'love' [is the] most distinctive attribute" (Peacocke 1971, 137).

By divine intent, then, the universe is an "arena of improvisation" of chance within law, a creation made to realize its potentialities through self-exploration in autonomy and freedom. In such a universe, God acts transcendently, incarnately, and immanently but does not coerce or overrule. In such a universe, God guides purposefully and lovingly but respects the integrity of creation and preserves its autonomy. In Peacocke's signature example, in such a universe God is the Composer of the cosmic fugue, unfolding the inherent potentialities of the universe through convention, spontaneity, and surprise (Peacocke 1993, 174–75).

CONCLUSION

Through words that "strain, crack and sometimes break under the burden" (Eliot 1935) of the mysteries of God and the cosmos, this essay has navigated the essentials of Arthur Peacocke's paradigm as a means by which to speak rightly about the mystery of God in an evolutionary worldview. But to what advantage has it done so? I focus on but two of many benefits. First, Peacocke's paradigm affords a broader point of entry than scripture and tradition to the mystery of God in a religiously pluralistic world. As a result, it expands the scope of speech about God in a scientific age and promotes an intellectually honest dialogue between two disciplines often presumed to be at odds. Second, Peacocke's paradigm advances a sacramental vision of the universe as the primordial revelation of God and leads theologians to see that the fuller the range of knowledge, the fuller the revelation of the Divine. As a result, it stimulates new images of God and

the God-world relationship and deepens core Christian concepts such as the paschal mystery of Christ and the triune nature of God. As Peacocke wrote, "Theology has been most creative and long-lasting when it has responded most positively to the challenges of its times" (1993, 7).

In the work of Arthur Peacocke, Christian theology has surely seen one of its most positive and most creative responses to the challenges of our times. May he leave to those engaged in the dialogue between theology and science a double portion of his spirit of integrity and inquiry so that there may continue to "evolve a theology . . . refined . . . in the fires of the new perceptions of the world that the natural sciences have irreversibly established" (Peacocke 1993, ix).

#### NOTE

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