

Theological Perspectives

with Young Bin Moon, "God as a Communicative System Sui Generis"; Klaus Nürnberger, "Martin Luther's Theology as a Model for Faith-Science Relationships"; Bradford McCall, "Kenosis and Emergence: A Theological Synthesis"

KENOSIS AND EMERGENCE: A THEOLOGICAL SYNTHESIS

by Bradford McCall

Abstract. Emergence, a hot topic of discussion for the last several years, has implications not only for the study of science but also for theology. I survey Philip Clayton's book *Mind & Emergence*, drawing from it and applying some of its philosophical principles to a theological interpretation of emergence. This theological interpretation is supplemented by a brief examination of relevant biblical usages of the term *kenosis*. From this exploration of kenosis, I assert that the Spirit is kenotically poured into creation, which onsets the long and laborious process of prebiotic evolution, leading to biological evolution toward increasing complexity. The complexification of matter, then, has its ontological origin in and through the agency of the Spirit of God. As such, the concept of *creatio continua*, continuing creation, is defended. The Spirit enables emergence by endowing creation and creatures with the ability to unfold by apparent natural processes according to their own inherent potentialities and possibilities. This essay contributes to a systematic theology of creation by constructing a theological synthesis between kenosis and emergence.

Keywords: chaos; development; emergence; immanence; kenosis; pneumatology; potentialities; primary and secondary causation; reductive physicalism; substance dualism

Modern advances in science reveal a vastly more complicated world than the reductionist programs of the late nineteenth and twentieth centuries ever envisioned. So, as Philip Clayton writes in his book *Mind & Emergence*,

Bradford McCall has degrees in biology and divinity and is currently a Ph.D. student at Regent University School of Divinity, 1000 Regent University Dr., Virginia Beach, VA 23464; email bradmcc@regent.edu.

[*Zygon*, vol. 45, no. 1 (March 2010)]

© 2010 by the Joint Publication Board of *Zygon*. ISSN 0591-2385

www.zygonjournal.org

“It is unfortunate that in recent years the explosion of knowledge in molecular biology has caused all of biology to be painted with a reductionist stroke” (2004, 94). Clayton contends that emergence is a viable option in contrast to reductive physicalism and substance dualism, because reductive physicalism is inconsistent with standard research theories and practices within biology, and most forms of substance dualism are incoherent (2004, 66).¹ Reductive physicalism is also incompatible with emergence because it “rules out forms of natural causality that are more than merely a sum of physical forces” (2004, 174).

Although substance dualism was probably the dominant metaphysical view in Western history from Aristotle to Immanuel Kant, it may not be tenable to continue to seek explanation of all things as being of bipartite construction of physical components and spiritual components. Emergence is the view that novel and unpredictable occurrences are naturally produced in nature and that said novel structures, organs, and organisms are not reducible to their component parts. Clayton proffers that emergence is a fruitful paradigm in explaining evolutionary progress in the physical world, which represents explanatory power beyond that of physics alone. In fact, he notes that emergence provides a way for theists to speak of the response of agents to the divine while remaining consistent with the scientific study of natural history (Clayton 2006, 682).

Whereas Clayton has offered an explanative and informative survey of emergence theory, I want to supplement his account in this essay by interpreting the phenomena of emergence in an explicitly theological manner. I use his *Mind & Emergence* as the source of my extrapolations and contend that a richer theological interpretation of emergence ironically results in greater autonomy for the biological sciences.

Michael Welker in *Creation and Reality* offers “initial steps toward correcting both the classic theistic caricature of God the Creator and a corresponding religious understanding of reality” (1999, 2). New approaches to creation are a “burning theological interest,” for modern depictions are “boring, vapid, and banal” (p. 4).² Even when and where the Bible is granted authority in faith and practice, patrons seem to no longer read it attentively and imaginatively (Davis and Hays 2003, xv). In this essay I offer a new approach to creation, building upon the philosophical notions of emergence and kenosis. Pointedly, I proffer that the existence and viability of emergence theory depends upon the primal kenotic act of God the Spirit being *poured into* creation.

The essay has three distinct parts. In the first part, I review and interact with portions of Clayton’s *Mind & Emergence*. In the second, I present the biblical basis of kenosis of the Spirit *into* creation and discuss former conceptions of the kenosis and science connection. In the third part, I make my own contribution regarding the connections between kenosis of the Spirit into creation and emergence theory that hopefully adds at least minimally to the development of a systematic theology of creation.

A REVIEW OF CLAYTON'S UNDERSTANDING OF EMERGENCE

Clayton's *Mind & Emergence* explicitly covers the revolution brought about by the study of evolutionary emergence³ that may undercut both reductive physicalism and substance dualism (Clayton 2004, 1). Emergentists argue that the reductionary tendencies often found within the natural sciences are not profitable in the final analysis, that more is lost by holding such a theory than is gained. In fact, "actualizing the dream of a final reduction 'downwards', it now appears, has proven fundamentally impossible" (p. 70).

After reviewing and critiquing twentieth-century views of emergence (that is, strong and weak), Clayton offers his own view regarding emergence theory. In so doing, he radicalizes the immanence of God. He writes that emergence is "that which is produced by a combination of causes, but cannot be regarded as the sum of their individual effects" (p. 38). Moreover, "emergence is the theory that cosmic evolution repeatedly includes unpredictable, irreducible, and novel appearances" (p. 39).

Clayton then seeks to develop the *role* of emergence in the natural sciences and in evolution. This is his most important contribution to the dialogue between theology and science within this book. He notes that the biggest question facing scientists today is "how nature obtains order 'out of nothing', that is, how order is produced in the course of a system's evolution when it is not present in the initial conditions" (p. 73). Whereas "biological processes in general are the result of systems that create and maintain order (stasis) through massive energy input from their environment," Clayton argues, there comes a point of sufficient complexity after which a phase transition suddenly becomes almost inevitable (p. 78).⁴ Emergence in evolution therefore "consists of a collection of highly convoluted processes that produce a remarkably complex kind of combinatorial novelty" (p. 85; compare Deacon 2003, 273–308).

Clayton implies that the resurgence of emergence in the twentieth century has raised many questions regarding the *bottom-up* "new synthesis" that resulted from Watson and Crick's discovery of the DNA molecule in 1956 being linked to Darwinian evolutionary thought.⁵ However, due in part to the resurgence of emergence in the late twentieth century, the "new synthesis" is being refined and perhaps transformed into an "interactionist consensus" (referred to elsewhere as Meta-Darwinian⁶) in which neither genes nor environments, neither nature nor nurture, wholly suffice for the production of phenotypes. Within this interactionist paradigm, "fully adequate explanations of biological phenomena require the constant interplay of both bottom-up and top-down accounts" (Clayton 2004, 95). Genotypes produce phenotypes that interact with specific environments, which then reproduce genotypes (*ad infinitum*). Clayton agrees, and states that there "is increasing evidence that emergence represents a fruitful . . . meta-scientific . . . framework for comparing the relations between the diverse realms of the natural world" (p. 93).

As Neil Campbell, in his highly used introductory biology college textbook, writes,

with each upward step in the hierarchy of biological order, novel properties emerge that were not present at the simpler levels of organization. These emergent properties arise from interactions between the components. . . . Unique properties of organized matter arise from how the parts are arranged and interact . . . [inasmuch as] we cannot fully explain a higher level of organization by breaking it down to its parts. (Campbell 1991, 2–3)

FORMER CONCEPTIONS OF THE KENOSIS AND SCIENCE
CONNECTION AND THE BIBLICAL BASIS OF KENOSIS OF THE
SPIRIT INTO CREATION

In this section I build from Clayton's view of emergence, adding relevant biblical data that support the notion of the Spirit's kenosis into creation.

The Bible gives good grounds for illustrating the Spirit as the active agent of God in the world, particularly regarding the Spirit as life-giver and animator of all creation. For example, Paul asserts that the Spirit "gives life" in 2 Corinthians 3:6. My position is that just as the Spirit kenotically entered into the chaotic seas through which the Jews passed in their Exodus and parted them (Exodus 14:21), so the Spirit of God was parting the chaos of the primordial waters,⁷ thereby preparing creation to progress through the long processes of evolution thereafter (Genesis 1:2) (see Lodhal 1992, 43). The Spirit of life hovered over the primordial waters and transformed the *chaos* into the *cosmos*. As the Spirit blows, God speaks forth the creative Word, imparts information,⁸ and something that is separate from God is formed from chaos. Creation begins not with the Word per se but rather with the Spirit, as the Spirit's presence precedes and is presupposed by the speaking of the Word (Dabney 2006, 73).

One could perceive this creative activity of the Spirit as being either inside the chaos (picturing God as immanent)⁹ or as the Spirit reaching down to create order according to the laws of nature (picturing God as transcendent) (Crain 2006, 666). The Hebrew term *ruach* denotes God's active and creative presence throughout creation. According to Dunn, the term connotes the meanings of wind, breath, and power, usually with attendant connotations of strength or violence (Dunn 2006, 5).

In Genesis 1:2, the Spirit moved upon the face of the waters, which constitutes an obvious creative act. The Hebrew word used for "moved" is *rahap*, which literally means to vibrate—and vibration is energy. So, then, the Spirit introduced energy into the formless void.¹⁰ The verb depicts the presence of the Spirit hovering mysteriously over the waters, preparing for the acts of creation to follow. It is interesting to note that the Hebrew verb עָרָה has been translated "hovering" (as a bird over her young, see Deuteronomy 32:11), whereas the Syriac cognate term means "to brood over; to incubate." That the Spirit was hovering like a mother stork might hover

over her nest is a portent of life to come from the dark, murky depths of the chaos below. Additionally, the original terms *תוהו*, *tohu*, and *בוהו*, *bohu*, of Genesis 1:2, which often are translated as “without form and void,” are of uncertain etymology; but wherever they are used they convey the idea of confusion and disorder. So the Spirit, one may postulate, ultimately is responsible for the conditions for life as well as for life itself. The Spirit is the effectual arm of the Trinity that was active as the Son spoke each word in the primal creating moments recorded in Genesis 1.

Thus, the light that first illuminated the earth was caused by the impartation of information and order by the *inspiring* of the Spirit of God. When God *inspires* formless and chaotic matter, nothing becomes something and the disorderly becomes interlaced with order. Because the level of order required for the eventual derivation of complex life was high (as per Stuart Kauffman, cited in Popa 2004, 73), it is especially important to acknowledge that the Old Testament begins by presenting the function of the Spirit as being the giver and communicator of information.

A pneumatological rereading of Genesis 1 and 2 shows that the summarizing conceptions of creation are “very vague . . . even obscure” (Welker 1999, 6–7). I contend that creation in Genesis, according to a pneumatological rereading, is not a creation out of nothing, as a onetime event, but is instead a continuous creation (*creatio continua*), a transformative process of producing higher aggregate conditions from lower. *Creatio continua* operates as an enabling condition for all that occurs thereafter. As John Polkinghorne writes, “Part of a notion of *creatio continua* must surely be that an evolving universe is one which is theologically understood as being allowed, within divine providence, ‘to make itself’” (1995, 84). Rather than bringing into being a ready-made world of unalterable character, the Godhead allows the creation, kenotically empowered by the Spirit, to develop according to its own pace over a period of billions of years.

According to Welker, neither Genesis 1 nor 2 “describes God as a highest being who in pure self-sufficiency does nothing other than produce and cause creaturely being” (1999, 9). Moreover, he stipulates that in Genesis 1 and 2 God’s action corresponds to only a few ways in which we normally construe causation and production. Seven times God is listed as *evaluating* (Genesis 1:4, 10, 12, 18, 21, 25, 31). Three times God is listed as *naming* (1:5, 8, 10). Twice God is listed as *acting* upon what is already created in order to separate it and give it order (1:4, 7). The latter two instances of God’s action give credence to the notion of God acting upon formless matter (or nearly so) and thereby giving it order, structure, and complexity. Thus, the creating God is not merely an actor within creation but also a *reactor* to creation. Indeed, God’s action is an action that reacts and an action that lets itself be determined.

In the Genesis narrative, then, one is not able to clearly demarcate between God’s creativity and the creation’s activity (Welker 1999, 12). God’s

activity is clearly active in production and causation, but God is equally reactive to that which is created. An abstract, minimal definition of creation as related within the Genesis narrative stipulates that it is “the construction and maintenance of associations of different, interdependent creaturely realms” (Welker 1999, 13). The study of creation needs therefore to focus on the interdependencies of natural and providential processes. The reality and nature of creation as a whole continually flow into each other.

William H. Vanstone notes that the activity of the Spirit within creation proceeds by no assured program but is instead precarious (1977, 62). The evolving fertility is not a linear progression but is staggered, because the Spirit is not the manipulator of creation but rather its director. The Spirit makes things able to make themselves, which affirms a panentheistic perspective. Theologians today are correct, then, to perceive the long process of evolutionary emergence as God’s continued creation, mediated by the interplay of laws and chance, as any picture of creation must account for both the definitive and the continual creative work of the Spirit (Doncel 2004, 798).¹¹ As a consequence of positing *creatio continua*, Polkinghorne stipulates that one needs to consider God’s providential power as being manifest in the unfolding of creation in evolutionary history (2001, 96). The reality of creation deals with both origins and continual operation.

The Spirit is seen at various junctures within the Bible to operate via *proximate* causation. For example: “When you send forth your spirit, they are created; and you renew the face of the ground” (Psalm 104:30 NRSV). Here the term *create* (*bara*) is used not of the initial generation of life but of its continual regeneration, as the context speaks of the Spirit causing “grass to grow for the cattle, and plants for people to use” (v. 14). The Spirit “make[s] springs gush forth in the valleys; they flow between the hills” (v. 10), and the Spirit “make[s] darkness, [and] it is night” (v. 20). The Spirit continually provides food for all living things (v. 28). The repeated emphasis within Psalm 104 is the notion that God preserves the world, which presupposes that God creates through the power of the Spirit, as well as that the presence of the Spirit is the condition for both “potentialities and realities” of creation (Moltmann 1993a, 10). The psalmist knows nothing of outright spontaneous generation, for the Godhead sends forth the Spirit, and all things are created.¹²

The Greek verb *kenown*, from which the term *kenosis* is derived, can mean either “to empty” or “to pour out.” In the literal sense its Hebrew equivalent is used, for example, in Isaiah 32:15: “Until a spirit from on high is poured out on us. . . .” The various cognates of the verb translated in the Septuagint (LXX) by “kenosis” appear fourteen times in biblical Hebrew. In its original sense, the verb עָרַךְ refers to a cause of movement leading to a mass being poured out of a container. Thus, the word means “to pour out” in reference to Rebekah’s pouring out water from her pitcher

into the trough (Genesis 24:20; the verb in the LXX is *exekenōsen*). In the original Hebrew of Genesis 24:20 the term is **עָרַב**, a primitive root, meaning to be (that is, causatively to make). Hence, it is appropriate to translate the term as either “to empty” or “to pour out.” Whereas the pitcher was emptied, the trough was made full (which is an addition in a sense) by the emptying of the pitcher. It is therefore a fruitful approach to understand the verb *kenown* as also meaning “to pour out.” I posit that the kenosis of the Spirit *into* creation had an effect similar to Rebekah’s pouring out water *into* the trough.

Christ poured himself *into* humanity so that it could be reconciled to the Father and that it might become acceptable to the Father (Philippians 2:5–11). God the Son enters *into* the limited, finite situation of humankind, descending *into* it, thereby embracing the whole of human existence in his being (Moltmann 1993b, 176). The kenosis of the Son referred to in Philippians 2:5–11 should thus be understood not as a mere *subtraction* of deity but also as the *addition* of humanity. In this passage, the verb often translated as “emptied” is explained, expanded, and extrapolated by three participles that directly follow it: (1) *taking* the form of a servant, (2) *becoming* in the likeness of humans, and (3) *being found* in fashion as a human.¹³ This reference to christological kenosis has the net effect of *addition*.

Furthermore, the Philippians usage of the term kenosis resembles that which is found in Isaiah 53:12, which reads that the righteous one “poured out himself to death” (NRSV). What God does *particularly* and *punctiliously* by the kenosis of the Son into human form, I posit, God does generally and continually by the kenosis of the Spirit into creation. The Spirit is the breath of life, the very giver of life, and thus is the creative power of the Father. The Spirit is the vital energy that enlivens as well as the potent force that enervates innovation. The kenosis of the Spirit *into* creation, the *pouring out* of life, makes possible not only otherness as properly conceived but also its actualization. A principle that one may draw from the usage of kenosis in reference to God the Son is illustrative of the kenosis in reference to God the Spirit.¹⁴ There is an inherent others’-centeredness in kenosis, as we see in Rebekah’s case as well as in Christ’s. It may be extrapolated, further, that the same others’-centeredness is present with the Spirit’s kenosis into creation.

The science-and-religion dialogue has long wrestled with the topic of God’s action in the world, and models for conceiving divine action heretofore have been unsatisfactory. Classical interventionism should be dismissed as illogical because God’s action in the world would be inconsistently intermittent if actualized as pure intervention; God acting only as the Creator of the world is deistic and thereby delimits divine action in perpetuity. Thomistic understandings of God as the primary Cause and creatures as secondary causes results in unnecessary bifurcations. A full-blown Process theology is unable to sustain the eschatological guarantees of God as revealed

in Scripture.¹⁵ The resurgence of kenotic theology thus has been helpful in reformulating divine action in an evolutionary world.

Some years ago a collection of essays by theologians and scientists explored creation as *The Work of Love* (Polkinghorne 2001), pointing to divine action as kenosis. In this book Polkinghorne asserts that kenosis is an affirmation of God's voluntary self-limitation,¹⁶ which allows creatures to enjoy their own power and freedom. Classical theology, according to Polkinghorne, envisions God in total control and invulnerable such that there is no reciprocal effect of creatures upon the divine nature. In Polkinghorne's view, the kenotic Creator interacts with creatures. "Interact" is preferable to "intervene" in this volume, apparently because intervene carries connotations of the interruption of the natural order. For Polkinghorne, kenosis seemingly connotes the risk of the creating Spirit in submitting to the quasi-free process of evolutionary creation, which in a kenotic way qualifies the operation of the Spirit. Similarly, Arthur Peacocke asserts that the Spirit was "taking a risk," as it were, in creating a world kenotically, for it necessarily involves both chance and randomness through the processes of evolution (Peacocke 2001b, 27). Polkinghorne notes that the kenotic Spirit is the exemplar of humility because the Spirit kenotically interacted with the created world and, at least in some qualified sense, limits eternity and omnipotence (2001, 106). He conceives of kenosis as God's entirely voluntary self-limitation.

Polkinghorne's view of kenosis is similar to Jürgen Moltmann's view of kenosis, in which kenotic self-surrender is "God's Trinitarian nature, and is therefore the mark of all his works 'outward'" (Moltmann 2001, 141). Seen as such, the kenotic creating Spirit does not overrule the creation or its creatures but instead continuously interacts with them. Polkinghorne summarizes his view by intimating that God allows the created other to be and to act, so that, although all that happens is permitted by God's general providence, not all that happens is in accordance with God's will or brought about by divine special providence (Polkinghorne 2001, 106). Such an understanding is basic to the interpretation of evolutionary history as creation making itself.

CONNECTION BETWEEN KENOSIS OF THE SPIRIT INTO CREATION AND EMERGENCE THEORY

I find Polkinghorne's theory of kenosis as found within *The Work of Love* helpful but incomplete, especially when one considers the problem of evil. The kenotic theology informed by emergence and set forth in the present essay maintains that the Spirit is completely shared and imparted *into* creation. I am in general agreement with Antje Jackelén (2006, 624), for whom emergence is attractive because it keeps novelty and predictability in balance: enough surprise to keep boredom away and enough orderliness to keep

chaos at bay. The Spirit of God is “poured into” creation, thereby causing it to leap forth from chaos and become a system interlaced with order, which fosters the eventual rise of life-bearing entities billions of years later.

As a result of this *breath* of God imparted, after much groaning and even more time, nature eventually gives birth to life, and *life-bearing* creatures burst upon the environ (Rolston 2001, 58). The Spirit is the life-giving force that enables creation to strive toward becoming its fullness via the long and grueling process of evolution. The complexification of matter has its ontological origin in and through the agency of the Spirit of God. Creation is thus a kenotic act of *self-offering*. One may accurately posit that creation in a qualified sense possesses the Spirit of God from its very origin. The Spirit could be seen, then, to be embedded within the creation. Instead of reducing the created world into a pantheistic entity, however, God is an all-embracing unity and the world exists “in” God (panentheism) in the sense that God is the ground of being for the created world. Being panentheistic in relation, there is both distinction and relatedness between the Spirit and creation.

According to Kathryn Tanner, the Spirit historically has been seen to work either immediately or gradually (2006, 87). The Spirit could then be seen just as much at work in the ordinary events of history as in its unusual happenings. Just as God usually works within rather than overriding the normal course of human affairs (which leaves large gaps of time in which it appears that God is inactive), so God works within the natural processes of nature.¹⁷ The Spirit works modestly, in a continuous fashion in and through natural processes. The notion of emergence is compatible with the impersonal kenotic working of the Spirit in empowering creation from within in an almost hidden manner. This should not be misconstrued as claiming that emergence *entails* theism, but it is consistent with it (Broad 1925, 94). Hiddenness is at the heart of kenosis, notes Ernest Simmons (1999, 11–16).

Nicola Creegan argues that God’s trinitarian nature, God’s hiddenness, and God’s incarnation give us reason to believe that we should be able to discern divine presence in the natural world, but only within the natural processes and thereby only in a somewhat obscured fashion (2007, 500). By the Spirit’s kenosis into creation, creation itself is then enabled (using Clayton’s language) to participate in the processes of production and reproduction.

In the following two sections I explore further the notion of the Spirit’s kenosis into virtually unordered matter in discussing primordial chaos as well as the potentialities that are inherent within matter.

Kenosis and Primordial Chaos. In discussing the contributions of pneumatology to the broad notion of divine action, Amos Yong (2006, 183–204) invokes the Spirit of God as acting upon primordial chaos, the great confusion of matter out of which the Spirit, by kenosis, generated order, structure, and ultimately all of life. In and of itself, primordial chaos

is incapable of producing an ordered, structured, and functional collocation of atoms because it is by definition random processes. Indeed, primordial chaos lacks the favorable environment required for enduring and functional patterns of matter to emerge. In primordial chaos—indeterminate and unconditioned disorder—matter did not even exist as such.

According to Yong, the Spirit causes the emergence of order and presides over it from within through the processes of division, distinction, differentiation, and particularization (2006, 194–95, 202). The Spirit did this creating by infusing the primordial chaos with information, which resulted in an evolutionary process that was imbued with fertility. Gregory Peterson notes that “Nonreductive physicalists, as well as other emergentists, sometimes identify emergent entities with information” (2006, 702). Yong’s assertion gains support from Harold Morowitz, who argues that the Spirit powers—even *empowers*—emergence by *being* the selection rules between God’s immanence and the development of the earth: “emergence selects the restricted world of the real from the super-immense world of the possible” (2002, 197).

For Sergius Bulgakov, ordered matter is the direct result of the kenotic action of the Spirit of God into creation (2004, 345). Thus, one may asseverate that the Spirit is the *agent of causation* by the interjection of both concretion and specification through information (Polkinghorne 2006, 169). One could picture the Spirit as the intermediary between physical laws and chaotic matter. In this sense, the Spirit acted as a *liaison* between the primordial chaos, which was the source of variation and novelty, and the resultant ordered and structured creation of the Genesis account. According to James E. Huchingson, primordial chaos would remain forever indeterminate and unstructured without an input of information by the Spirit of God (2002, 395–414). So, then, the movement from chaos to cosmos was directed by the Spirit.

Kenosis and Creation Understood as Potentiality. Primordial chaos, because of its intrinsic unpredictabilities, allows the *Possibility of God*—that is, the Spirit¹⁸—much leeway in action. Primordial chaos was essential to God’s subsequent creation because it was the source of innumerable potentialities and novelties, without which the immense variety of nature would not be possible (Huchingson 2002, 398). (Note that within this section I use the terms *potentialities* and *possibilities* synonymously.) So then, the Spirit’s kenosis into creation leads to the realization of manifold potentialities. The divine *Possibility* swept over the primordial chaotic abyss, and by kenosis *into* this primal creation, the complex activity of ordering within the chaotic primordial waters was begun. Because of the Spirit hovering over the waters, “the chaos becomes promise” (Montague 1976, 67).

In creation, the Spirit kenotically bestows both potentiality and being (“Let there be . . .”). The way in which “chance” operates within the world

to produce new structures, new entities, and even new species can be understood only as an actualization of the potentialities that the creating Spirit imbibed *within* creation.¹⁹ Thus, the creating Spirit's intention and purpose is actualized through the operation of "chance" and "random" events. One can perceive God within evolution, then, as the processes themselves, unveiled by the biological sciences, are God-acting-as-Creator. Chaotic systems, perhaps wrongfully labeled, interlace both order and disorder. If the system is too far on the orderly side, the possibility for novelty is greatly reduced because the system itself is too rigid for anything except a rearrangement of what already exists. If the system strays too far on the side of disorder, a random world of proverbial anarchy results (Polkinghorne 2006, 174). The potential for novelty and relative stability lies between the two poles of order and disorder within chaotic systems.

In dialogue with Polkinghorne, I suggest that the endowment of both potentiality and regularity was instituted by, and relies upon, the kenosis of the Spirit into creation. The Spirit, in this kenotic model, is seen as working within the seeming openness of nature in conjunction with the unfolding of potentiality. Moreover, the Spirit enables emergence by endowing creation and creatures with the ability to unfold by apparent natural processes according to their own inherent potentialities and possibilities.

George G. Simpson writes that "within the framework of the evolutionary history of life, there have been not one but many different kinds of progress," which is a correlate to the notion of the actualization of possibilities (1971, 236). Karl Popper points out that the realization of possibilities, which may be random, depends on the total situation within which the possibilities are being actualized so that there "exist weighted possibilities which are more than mere possibilities, but [at the same time are] . . . tendencies or propensities to become real" (1990, 12).

Peacocke suggests that there are propensities in evolution, of this Popperian sense, toward the possession of certain features and characteristics, propensities that are built into the evolutionary process. Among these propensities of evolution, he notes, are "complexity" and "information-processing and storage-ability" (2001b, 29–30). Regarding these propensities, Stephen J. Gould contends that there can be overall direction and implanation of divine purpose through what may popularly be called chance that operates within a rule-obeying context (1989, 51).

I posit that there is a definitive lure of the Spirit within the propensities of nature that seamlessly coalesces with the notion of the Spirit's kenosis into creation, for this potential is directed by the ongoing activity of the Spirit. By creating in a kenotic manner, the Spirit both allows and invites the input of creatures in the activity of creation and reacts according to that input. Thus, God has chosen to allow the other to act and has chosen to invite creation into a cooperative relationship. Indeed, the Spirit did not create in a manipulative, single act but instead set in motion a process

in which creation was allowed to develop over a large amount of time. For example, if we coalesce pneumatology with the Big Bang theory, the Spirit can be viewed as the Originator, creating unformed matter, setting the Big Bang in motion, and then working with it over the billions of years of prebiotic and biological evolution to produce complexity. Instead of creating a finished product by divine fiat, the Spirit allows the world to develop within the framework the Godhead set up.

This notion of creation through development also leads to an understanding of biological evolution in which the Spirit is seen as developing creatures via a type of continuing creation. Overwhelming evidence exists that the universe is marked by development, which points to creation by kenosis. And note that the Spirit is present “in, with, and under” the processes of biological evolution within the created world (Peacocke 2001a, 32, 86). The kenotic creating Spirit is present within the historical *continuity* of evolution as well as its lawful *regularity* (Polkinghorne 2001, 96). Seen in this manner, the Spirit acts—exclusively perhaps—within the causal nexus of creation (natural law, providence, and later human action). The Spirit did not bring about creation in a single, definitive action but instead used the long process of evolution guided by natural laws.

CONCLUSION

The earth is an active, empowering environment, even an empowering agent, that brings forth life by various independent processes of self-reproduction. Evolution is the overall process, but emergence punctuates the steps of the evolutionary epic. At the same time, the earth must be seen as an environment of various heterogeneous life-processes. The earth brings forth, but it does not bring forth itself. By releasing the power of the self-directed earth, the Spirit enables—potentially—the continual production, variation, and sustenance of vegetable and animal life (Welker 1999, 42).

Moreover, in order to be consistent within the causal nexus, the Spirit of God kenotically bestows causal power on the created order and in effect thereafter becomes the chief Cause among causes, a position that necessarily entails a degree of immanence within, and vulnerability to, the created order (Polkinghorne 2001, 104). However, the created world is docile before the Spirit and therefore ever open to the Spirit’s causal influence. I contend that this radicalization of immanence comports well with my advocacy of kenosis of the Spirit *into* creation, for in my notion the Spirit is intimately interior to nature as its source, sustenance, and end. (If theism is to be more than mere deism, it must allow for some sort of divine involvement in the natural world, which leads to the plausibility of some degree of immanence.)

The entire mission of the Spirit could be succinctly envisioned as one of kenosis (Lucien 1997, 116). By extrapolation, one may infer that the Spirit

was poured into creation so that it might develop in complexity. By focusing on the Spirit as both originator and operator of creation, via kenosis into it, one can see that the Spirit is both directly and indirectly involved in the world from beginning to end. So, whereas the Spirit is the *primary* cause of all things, the Spirit also works through secondary causes. This implies that what are commonly referred to as natural processes, or even random processes, are in reality the indirect acts of the Spirit through secondary causes. I propose here that distinctive, seemingly nondependent, actions are in fact Spirit-caused, although they may appear to be secondarily caused.²⁰ The apparent secondary causation in large part results from the fact that the Spirit is the agent of discovery within the various *possibilities* of God (Dabney 2001, 58). In this secondary capacity, the Spirit is the remote cause while natural forces are proximate causes of events. The Spirit ennobles creation to possess emergent capabilities. The Spirit imparts propensities into creation that eventuate the rise of higher forms of life. The breath of life enables and empowers the emergence of creation and creatures. Moreover, this Spirit of emergence endows creation with the ability to unfold by “natural” processes according to their inherent potentialities.

In this essay I have reviewed and interacted with Clayton’s *Mind & Emergence*, in which he contends that emergence is a viable option in contrast to both reductive physicalism and substance dualism. In using Clayton’s text as the source of my extrapolations, I have contended that a richer theological interpretation of emergence ironically results in greater autonomy for the biological sciences. I have presented the biblical basis of kenosis of the Spirit *into* creation and argued that the Bible presents the Spirit as being the active agent of God in the world, particularly regarding the Spirit as life-giver and animator of all creation. I also have drawn upon the philosophical understanding of emergence in articulating a theological interpretation of it, one that highlights the connections between kenosis of the Spirit into creation and emergence theory. This complements Clayton’s explanative survey of emergence theory and hopefully makes a positive contribution toward a systematic theology of creation.

NOTES

1. Note that both reductive physicalism and dualism, to varying degrees, are based on an Enlightenment model of science. Emergence, however, moves beyond the Enlightenment model.

2. Part of the reason why theology today is often boring, vapid, and banal is that it has “misconstrued the role of texts and the role of interpreters” (Green 2000, 30).

3. Interestingly, Terrence Deacon notes that emergence is the “term that is most often used by scientists to describe the spontaneous appearance of unprecedented orderliness in nature” (2006, 121).

4. Note Clayton’s general agreement with Stuart Kauffman (2000, 35).

5. This implication is suggested by Clayton’s placement of the section describing the “new synthesis” in biology into this chapter. The “new synthesis” posits that the behavior of organisms—and even ecosystems—can be explained solely by referencing the gene reproduction and mutation that underlies them.

6. Thomas B. Fowler and Daniel Kuebler (2006) delineate four schools of thought regarding the evolutionary controversy: the Neo-Darwinian advocates, the Intelligent Design proponents, the Creationists, and the promoters of the Meta-Darwinian interpretation. Fowler and Kuebler seemingly, but not explicitly, believe that the Meta-Darwinian paradigm of evolutionary change is the most coherent. And although Fowler and Kuebler may in effect equate the four schools of thought, in reality the Neo-Darwinian school is still dominant and most coherent, although the Meta-Darwinian school may be gaining ground.

7. Donald J. Goergen asserts, quite rightly in my opinion, that without and apart from the Spirit there would be absolute chaos in the material world (Goergen 2006, 108).

8. Sjoerd L. Bonting attempts to bring the various activities ascribed to the Spirit (Hebrew *ruach*, Greek *pneuma*) under one heading, which he identifies as the transmission of information (Bonting 2006, 713). The Spirit, in this conception, functions as a transmitter of information—from God to us and from us to God.

9. Much recent theology, like that of Jürgen Moltmann (1993a), John Haught (2003), and Denis Edwards (2004), speaks eloquently of God's immanence in nature.

10. That the Spirit is God's *energeia*, through which God the Father calls all aspects of creation into being, fits very well with modern cosmological theory according to Bonting (2006, 721). He goes on to claim that in reference to the Big Bang, the Spirit brings in the information needed to transform the explosion into the fruitful process of cosmic evolution (p. 723).

11. For this understanding of the ongoing evolution of the creation as being God's manner of creation from the viewpoint of a theologian, see Goergen 2006, 89–105.

12. Moltmann gives the Spirit a near monopoly in creation. From Psalm 104:30 he concludes that "God always creates through and in the power of his Spirit" (1993a, 9).

13. One can discern that I do not hold to the notion that Christ *emptied* himself of his divinity on the cross, as popularly understood. Rather, I perceive him to have *poured it out*. This position somewhat challenges the prevailing interpretation of the christological kenosis. However, I believe it to be in keeping with what Ellen Davis writes of critical traditioning. She states that such traditioning "denotes the willingness to engage in radical rethinking of a formerly accepted theological position" so that we may "learn something previously unimaginable about the fundamentals of life with God" (2003, 170, 177).

14. This kenosis also can be seen in the Spirit's descent upon Jesus at his baptism. Indeed, the Spirit was *poured into* Jesus so as to empower Jesus for his crucial ministry of imparting life to the masses, which resulted in Jesus' own temporal and bodily death.

15. This is the argument of Amos Yong (2005).

16. Although I do not exactly agree with the understanding of kenosis as mere self-limitation, I nonetheless find much value in the essays contained within the Polkinghorne volume.

17. Goergen contends (2006, 106), and I agree, that as the source of creative evolution the Spirit works from *within* creation to generate ever-increasing complexity, as opposed to externally compelling and manipulating creation. The gradual model of the working of the Spirit requires methods of inquiry typical of modern science and holds great promise for the science-and-religion dialogue (Tanner 2006, 105).

18. For justification of this terminology see Dabney 2001, 58. Michael Lodahl also notes that the "Spirit of God is identified as the possibility of God" (2004, 4).

19. Perhaps these potentials are delimited through what Polkinghorne refers to as "informational causality" (2001, 99), which bears some similarity to the formal cause of Aristotle.

20. Compare this postulation with a Neo-Thomist conception of Divine "double agency," as mentioned by Christopher Southgate (2005, 281).

REFERENCES

- Bonting, Sjoerd L. 2006. "Spirit and Creation." *Zygon: Journal of Religion and Science* 41:713–26.
- Broad, C. D. 1925. *The Mind and Its Place in Nature*. London: Routledge and Keegan Paul.
- Bulgakov, Sergius. 2004. *The Comforter*. Trans. Boris Jakim. Grand Rapids, Mich.: Eerdmans.
- Campbell, Neil A. 1991. *Biology*. 3d ed. Menlo Park, Calif.: Benjamin Cummings.
- Clayton, Philip. 2004. *Mind and Emergence: From Quantum to Consciousness*. Oxford: Oxford Univ. Press.
- . 2006. "Emergence from Physics to Theology: Toward a Panoramic View." *Zygon: Journal of Religion and Science* 41:675–88.
- Crain, Steven D. 2006. "God Embodied in, God Bodying Forth the World: Emergence and Christian Theology." *Zygon: Journal of Religion and Science* 41:665–73.
- Creegan, Nicola H. 2007. "A Christian Theology of Evolution and Participation." *Zygon: Journal of Religion and Science* 42:499–518.
- Dabney, D. Lyle. 2001. "Naming the Spirit: Towards a Pneumatology of the Cross." In *Starting with the Spirit*, ed. Gordon Preece and Stephen Pickard, 28–58. Adelaide, Australia: Openbook.
- . 2006. "The Nature of the Spirit: Creation as a Premonition of God." In *The Work of the Spirit*, ed. Michael Welker, 71–86. Grand Rapids, Mich.: Eerdmans.
- Davis, Ellen F. 2003. "Critical Traditioning." In *The Art of Reading Scripture*, ed. Ellen F. Davis and Richard B. Hays, 163–80. Grand Rapids, Mich.: Eerdmans.
- Davis, Ellen F., and Richard B. Hays, eds. 2003. *The Art of Reading Scripture*. Grand Rapids, Mich.: Eerdmans.
- Deacon, Terrence W. 2003. "The Hierarchic Logic of Emergence." In *Evolution and Learning*, ed. Bruce H. Weber and David J. Depew, 273–308. Cambridge: MIT Press.
- Deacon, Terrence W. 2006. "Emergence: The Hole at the Wheel's Hub." In *The Re-emergence of Emergence: The Emergentist Hypothesis from Science to Religion*, ed. Phillip Clayton and Paul C. Davies, 111–50. Oxford: Oxford Univ. Press.
- Doncel, Manuel G. 2004. "The Kenosis of the Creator and of the Created Co-creator." *Zygon: Journal of Religion and Science* 39:791–800.
- Dunn, James D. G. 2006. "Towards the Spirit of Christ: The Emergence of the Distinctive Features of Christian Pneumatology." In *The Work of the Spirit*, ed. Michael Welker, 3–26. Grand Rapids, Mich.: Eerdmans.
- Edwards, Denis. 2004. *Breath of Life: A Theology of the Creator Spirit*. Maryknoll, N.Y.: Orbis.
- Fowler, Thomas B., and Daniel Kuebler. 2006. *The Evolution Controversy*. Grand Rapids, Mich.: Baker Academic.
- Goergen, Donald J. 2006. *Fire of Love: Encountering the Holy Spirit*. New York: Paulist.
- Gould, Stephen J. 1989. *Wonderful Life: The Burgess Shale and the Nature of History*. London: Penguin.
- Green, Joel B. 2000. "Scripture and Theology: Uniting the Two So Long Divided." In *Between Two Horizons: Spanning New Testament Studies and Systematic Theology*, ed. Joel B. Green and Max Turner, 23–43. Grand Rapids, Mich.: Eerdmans.
- Haight, John F. 2003. *Deeper than Darwin: The Prospect for Religion in the Age of Evolution*. Cambridge: Westview.
- Huchingson, James E. 2002. "Chaos, Communications Theory, and God's Abundance." *Zygon: Journal of Religion and Science* 37:395–414.
- Jackelén, Antje. 2006. "Emergence Everywhere?! Reflections on Philip Clayton's *Mind and Emergence*." *Zygon: Journal of Religion and Science* 41:623–32.
- Kauffman, Stuart. 2000. *Investigations*. Oxford: Oxford Univ. Press.
- Lodahl, Michael. 1992. *Shekhinah/Spirit: Divine Presence in Jewish and Christian Religion*. New York: Paulist.
- . 2004. *God of Nature and of Grace: Reading the World in a Wesleyan Way*. Nashville: Abingdon.
- Lucien, Richard. 1997. *Kenosis and Creation*. New York: Paulist.
- Moltmann, Jürgen. 1993a. *God in Creation: A New Theology of Creation and the Spirit of God*. Minneapolis: Fortress.
- . 1993b. *The Crucified God: The Cross of Christ as the Foundation and Criticism of Christian Theology*. Minneapolis: Fortress.

- . 2001. "Kenosis in the Creation and the Consummation of the World." In *The Work of Love: Creation As Kenosis*, ed. John Polkinghorne, 137–51. Grand Rapids, Mich.: Eerdmans.
- Montague, G. T. 1976. *The Holy Spirit: Growth of a Biblical Tradition*. New York: Paulist.
- Morowitz, Harold J. 2002. *The Emergence of Everything*. Oxford: Oxford Univ. Press.
- Peacocke, Arthur. 2001a. *Paths from Science Towards God: The End of All Our Exploring*. Oxford: One World.
- . 2001b. "The Cost of New Life." In *The Work of Love: Creation as Kenosis*, ed. John Polkinghorne, 21–42. Grand Rapids, Mich.: Eerdmans.
- Peterson, Gregory R. 2006. "Species of Emergence." *Zygon: Journal of Religion and Science* 41:689–712.
- Polkinghorne, John. 1995. *Serious Talk*. Philadelphia: Trinity.
- . 2001. "Kenotic Creation and Divine Action." In *The Work of Love: Creation as Kenosis*, ed. John Polkinghorne, 90–106. Grand Rapids, Mich.: Eerdmans.
- . 2006. "The Hidden Spirit and the Cosmos." In *The Work of the Spirit*, ed. Michael Welker, 169–82. Grand Rapids, Mich.: Eerdmans.
- Popa, Radu. 2004. *Between Necessity and Probability: Searching for the Definition and Origin of Life*. New York: Springer-Verlag.
- Popper, Karl. 1990. *A World of Propensities*. Bristol, U.K.: Thoemmes.
- Rolston, Holmes, III. 2001. "Kenosis and Nature." In *The Work of Love: Creation as Kenosis*, ed. John Polkinghorne, 43–65. Grand Rapids, Mich.: Eerdmans.
- Simmons, Ernest. 1999. "Towards Kenotic Pneumatology: Quantum Field Theory and the Theology of the Cross." *CTNS Bulletin* 19 (2): 11–16.
- Simpson, G. G. 1971. *The Meaning of Evolution*. New Haven: Yale Univ. Press.
- Southgate, Christopher. 2005. *God, Humanity, and the Cosmos*. New York: T & T Clark.
- Tanner, Kathryn. 2006. "Workings of the Spirit: Simplicity or Complexity?" In *The Work of the Spirit*, ed. Michael Welker, 87–105. Grand Rapids, Mich.: Eerdmans.
- Vanstone, William H. 1977. *Love's Endeavor, Love's Expense*. London: Darton, Longman and Todd.
- Welker, Michael. 1999. *Creation and Reality*. Minneapolis: Augsburg Fortress.
- Yong, Amos. 2005. "From Quantum Mechanics to the Eucharistic Meal: John Polkinghorne's Vision of Science and Theology." *The Global Spiral: A Publication of Metanexus Institute* 5 (5). www.metanexus.net/.
- . 2006. "Ruach, the Primordial Chaos, and the Breath of Life: Emergence Theory and the Creation Narratives in Pneumatological Perspective." In *The Work of the Spirit*, ed. Michael Welker, 183–204. Grand Rapids, Mich.: Eerdmans.