Review Articles

DIVINING "DIVINE ACTION" IN THEOLOGY-AND-SCIENCE: A REVIEW ESSAY

by Amos Yong

Abstract. The topic of divine action has been central to the theology-and-science discussion over the last twenty years. Some tentative conclusions are currently being drawn in light of research initiatives that have been engaged on this topic. I review three recent books that have responded in some way to the ongoing discussion. These responses show that, notwithstanding the advances made in the conversation, much work remains to be done before a plausible theory of divine action emerges at the interface of theology and science.

Keywords: causal joint; Divine Action Project; interventionism; quantum cosmology; theology of nature

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Divine Action and Modern Science. By Nicholas Saunders. Cambridge: Cambridge Univ. Press, 2002. xviii + 234 pages. Paper. $27.99.

Chaos, Complexity, and God: Divine Action and Scientism. By Taede A. Smedes. Leuven, Paris, and Dudley, Mass.: Peeters, 2004. xii + 287 pages. Paper. $33.00.

Divine Action in the Framework of Scientific Thinking: From Quantum Theory to Divine Action. By Christoph Lameter. Newark, Calif.: Christianity in the 21st Century, 2006. xvi + 297 pages. Paper. $29.95.

Discussion about divine action in theology and science circles has been proceeding at a steady pace since the launch of the "Divine Action Project" almost twenty years ago.[1] While we still await publication of the Project's

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summary conclusions, other assessments of the Project have begun to appear (such as Wildman 2004 and the five essays in part 2 of Peters and Hallanger 2006). In this essay, we review three recent volumes on divine action that, although not formulated in direct response to the Project, have proceeded from, interacted with, or reacted in some way to its proposals. While each response to the question of divine action is distinctive, there are various indications that, notwithstanding the advances made in the discussion through the Project's achievements, much work remains to be done before a plausible theory of divine action emerges at the interface of science and theology.

Proceeding in order of publication date, we begin with Nicholas Saunders' *Divine Action and Modern Science*. In eight substantive chapters, Saunders overviews the scriptural accounts of God's activity in the world and discusses, in order, previous theological approaches to divine action, the laws of nature and the nature of miracles, the question of determinism in relationship to special divine action (SDA), quantum theory and SDA (initial proposals and more recent articulations), chaos theory (focused on the work of John Polkinghorne), and whole-part models of SDA (focused on the work of Arthur Peacocke). The conclusions drawn are not favorable to advocates of scientifically informed views of divine action: "all the existing claims for quantum SDA in relation to current understandings of quantum theory fail" (p. 170), and "on the terms of our current understanding of quantum theory, incompatibilist non-interventionist quantum SDA is not theoretically possible" (p. 172).

To understand the reasons for Saunders' pessimistic conclusions, we need to briefly unpack what he means by "incompatibilist non-interventionist quantum SDA." Two points are worth noting. First, whereas compatibilist models would insist that God's activity in the world is not in the least threatened by the world's preexisting deterministic causal sequences, incompatibilists counter that these views undermine the notion of "special" divine action by collapsing such within the broader framework of general divine action (GDA). If nature's causal connections are fully determined, God's action has to be understood either in deistic terms[2] or in terms that "concur" with or even occur through the world's causal processes.[3] The price paid, however, may be too great: that compatibilism makes it very difficult to think about how God interacts with and responds to the world in the sense depicted by the biblical narratives. Hence, incompatibilists argue that any viable notion of divine action has to assume an indeterministic rather than a deterministic natural world.

The second question about interventionism addresses two further sets of concerns—that regarding the nature of divine action and that regarding the laws of nature. The former issue has to do with whether or not God has to "break into" or intervene in the causal nexus of the world in order to act specially. The latter has to do with our understanding of natural laws: Are

they understood to generally regulate the way the world is or what happens (in which case their violation is illogical since there are no hard-and-fast laws to violate)? Are they to be understood instrumentally as laws of science rather than as laws of nature? Perhaps the laws of nature necessarily determine events without exception (which raises the compatibilist question again)? Or are they probabilistic and statistical in nature? Many advocates of quantum SDA, including most involved in the Divine Action Project, are attracted to the idea of natural laws as irreducibly probabilistic because this allows God to work in and through the "openness" of nature rather than having to intervene from without. The indeterminate and probabilistically operating quantum realm provides just such "room" for noninterventionistic divine action.[4]

But is it the case that quantum indeterminacy allows for incompatibilist noninterventionist divine action? Saunders suggests that the viability of this idea hinges on how the "causal joint" of God's action at the quantum level is explicated. There are four ways this could be understood: (1) God provides new possibilities beyond what exists; (2) God changes the probability factors for the wave function so as to alter the probability of obtaining some particular result; (3) God's "measurement" collapses the wave function; and (4) God "ignores" the wave function's probabilities and simply determines the result of the measurement.

Saunders argues that each option is problematic. Options 1 and 2 result in God's changing the wave function itself and hence undermine the noninterventionist aspect of such divine action. Option 3 preserves noninterventionism but leaves the outcome to chance (the probabilistic indeterminism of the quantum measurement), so it is unable to guarantee that the result will be what God intended to bring about. Option 4 actually assumes a regulatarian view of natural laws that, ironically, renders superfluous the need for a noninterventionist notion of divine action in the first place. Beyond these difficulties, Saunders points out that even if God could intervene at the quantum level, this does not easily translate into the divine intentions' being realized at the macroscopic level because of the huge differential scale between the quantum domain and the world of classical objects (Saunders 2002, 171–72; cf. Saunders 2000, 517–44).

What about chaos theory and the whole-part model? Saunders is sympathetic to Polkinghorne's suggestions that chaos theory allows for the divine input of "active information" (rather than of energy), which adjusts the "initial conditions" of dynamic and dissipative systems so as to produce outcomes different than would have occurred without such input.[5] But there are unresolved questions related to the deterministic nature of chaos, as well as the seeming requirement that Polkinghorne adopts some kind of quantum chaos model for his proposal to work. In the latter framework, the previous challenges to quantum SDA reappear (Saunders 2002, 205–6). In the case of Peacocke's proposal that God interacts with the

world-system as a whole—in a sort of trickle-down manner analogous to how the human mind acts upon the body—Saunders thinks that "as things currently stand it [Peacocke's model] remains the best we have" (p. 213). However, there remain unresolved questions about mental (or downward) causation as well as about how such top-down causation works with regard to the laws of nature.

Whereas Saunders' criticisms of the extant theories of divine action are based on modern scientific criteria, Taede Smedes' skepticism derives from distinctively theological convictions. He argues that it is a category mistake to speak of SDA in scientific terms (the "negative" conclusion) and that "Religious beliefs should not be judged by standards coming from alien frameworks such as science, but should be judged by their own internal standards. . . . Accordingly, scientists and religious believers literally see the world differently, they see different aspects"—the constructive argument (Smedes 2004, 232). Smedes' thesis is that science and religion operate according to "different logics" (p. 176) and that when this distinction is overlooked, *scientism* results, so that what is considered physically or scientifically im/possible determines what is theologically im/possible.

To demonstrate his thesis, the main body of Smedes' book focuses on showing that the divine action theories of Polkinghorne and Peacocke are misguided because "Both theologians . . . make a double move of using science to counter scientistic claims that exclude divine action, and in so doing [unwittingly] assume and strengthen scientism" (p. 186). The problem is not just that Polkinghorne and Peacocke fail to render coherent and plausible theories of divine action but that they both attempt to formulate notions of divine action in scientific frameworks and that the results compromise the distinctively theological convictions of orthodox Christian teaching.

In Smedes' analysis, egregious theological errors in Polkinghorne and Peacocke's scientifically dominated worldviews have to do with their reinterpretation of the traditional doctrine of *kenosis*, so that the self-limitation of God undermines the classical doctrines of divine omnipotence and omniscience. Now, it is true that both scientist-theologians have long argued that these limitations are the logical corollaries of a noninterventionist model of divine action even as they also alleviate the force of the problem of evil. Further, such an understanding of kenosis allows them to talk about God's suffering in and with the world, especially in the cross of Christ. Finally, divine self-limitations are essential to preserve creaturely freedom and responsibility.

For Smedes, however, the religious and theological cost of these proposals is too high, both in terms of God's power to bring about the requisite eschatological ends and in terms of the worthiness and worshipability of God. To sustain this claim, Smedes argues that it is a category mistake to subject kenosis to an interpretation constrained by scientific understand-

ings of the God-world relationship. Although it is permissible to talk about the limitations of divine omnipotence in terms of self-restraint (we can understand what it means to have power at one's disposal without using such power), it is theologically questionable to insist that the limitations regarding divine omniscience are imposed on God by the nature of time. On the one hand, it makes little sense to say that God somehow chooses not to know the future; on the other hand, it is problematic to think that God's limited knowledge of the future is the result of God's being confined to the present moment of time's arrow and having to anticipate, like other temporal creatures, the unactualized future. The upshot is that God is more like a prisoner of or in time than God is the lord of time. Further, rather than opening up "space" for divine action, the insistence of indeterminacy at either the quantum or the chaotic levels suggests that God's action "*competes* with the laws of nature [and is] on the same ontological level as the workings of the natural order" (Smedes 2004, 198).

Finally, if God's knowledge is discursive, like ours, and if God is considered to be just another agent in a world of many agents, Smedes concludes that "In Polkinghorne's and Peacocke's models, God is reduced to an ignorant, impotent, helpless, and reckless entity which has let things get out of control" (p. 187). Scientist-theologians such as Polkinghorne and Peacocke thus are guilty of subordinating theology to scientific modes of thinking. Following the distinctive logics of science and religion, the conclusion is not only that it is a category mistake to consult science about divine action but that, more strongly, "science *cannot* tell us anything about divine action" (p. 226; emphasis added).

In the end, Smedes cannot be faulted for his insistence that the science-and-religion dialogue take theology seriously, because for too long theology has had to play by the rules of the scientific game. At the same time, Smedes realizes that the distinction between science and theology should not be allowed to widen into a bifurcation such that there is no dialogue between the two. What then is the nature of the relationship?

In the closing pages of his book, Smedes suggests that science and theology may be "different, irreducible perspectives on reality" (p. 232), but their rapprochement requires that each side respect the other and approach the other as an equal in the conversation. At one level, perhaps this is the best we can do at present. At another level, Smedes' approach retains a Lutheran "two kingdoms" flavor[6] that may raise as many questions as his analysis of Polkinghorne and Peacocke did. If scientism threatens the projects of these two, fideism lurks in the shadows of Smedes' efforts to protect the legitimacy of religious language and its assumptions about God's relationship with the world. Is it possible for us to follow Smedes' prescription if it involves making theological claims that are immune from scientific or other forms of public criticism? How viable would such insulated theological ideas be in the wider social and cultural context of the twenty-first century?

If Smedes thinks divine action should not be explicated in scientific terms, and Saunders is unconvinced about the plausibility of incompatibilist, noninterventionist divine action, our third author, Christoph Lameter, goes against the grain in presenting a contemporary model of quantum divine action (QDA). In a revision of his Fuller Theological Seminary doctoral dissertation, completed in 2004 under the guidance of philosopher (and Divine Action Project participant) Nancey Murphy, Lameter suggests that the universe as a whole is a quantum wave function governed by innate propensities and probabilities and that God acts in the world as a personal agent through collapsing the universal wave function and thereby causing parts of the world to become definite.

There are a number of major components to Lameter's proposal. First, Lameter assumes the widely accepted (among physicists) Copenhagen interpretation of quantum mechanics, which regards the world as not only epistemologically but also ontologically indeterminate. But rather than limiting the applicability of quantum mechanics to the microscopic realm, the repeated confirmation of nonlocality and entanglement of quantum particles and the nonisolatable character of quantum systems, among other factors, suggest that the theory may be relevant for understanding macroscopic entities as well. Following such physicists as Hugh Everett III and Henry Stapp, then, Lameter proposes viewing the totality of the world as a single quantum system represented by a complex and probabilistic wave function of universal scope (Lameter 2006, 235–36).

Going down this road, however, raises the question of what collapses the wave function so that its probabilities become an actuality. Historically this has been called the measurement problem, because the experimental evidence suggests that a quantum system "exists" in a superposition of two or more outcomes until such time as an observation (a measurement) is made. Early on in the debate on quantum mechanics, John von Neumann proposed that the collapse of the wave function is associated with measurements performed by conscious observers, and he was followed in this view by others, including, more recently, Henry Stapp. In order to avoid this conclusion, other theories of wave function collapse have been proposed—spontaneous collapse models, quantum gravity, and environmental decoherence, among others—as well as the many-worlds interpretation, which speculates that every probability of the wave function is actualized, resulting in myriad worlds. Yet the consciousness model remains persuasive for theologians, Lameter suggests, especially because it invites an interpretation whereby God is the divine superobserver who, even when there are no other conscious observers around, is always active in collapsing the universal wave function in ways that bring about divinely intended outcomes.[7]

The theological results are well worth the effort. First, if the world is a single quantum system, a single wave function collapse accomplished by the divine observer can bring about macroscopic effects; this sidesteps the

criticism of Saunders and others that divine action at quantum levels arrives "too late" for God to interact with and respond to the world in general and to human free agents in particular. Second, the divine observer's working from the top down (or from the whole to the parts) provides a holistic approach to divine action rather than the more reductionist proposals of other QDA theories that assume that God is constrained to work at the microscopic level of quantum particles.[8] Third, this proposal solves the measurement problem, especially in the case when human observers are not present; thus the evolutionary history of the world is guided by the "observations" of the divine consciousness until the emergence of human minds.[9] Fourth, the consciousness model bridges the chasm between mind and matter that has existed since Descartes; if Enlightenment "objectivity" removed consciousness from the world (the view of classical physics), post-Enlightenment "subjectivity" now invites consciousness back into the world (the quantum theoretical model). Finally, and perhaps most important, God's capacity to collapse the universal wave function at the same time does not override but sustains the many other creaturely consciousnesses and their capacity to control their own physical and personal domains. This secures, at least in part, the integrity of the created world, especially the autonomy of free creaturely actions in their own (limited) spheres of influence.

In sum, Lameter proposes "to accept wave function collapse caused by *consciousness* (whether it be divine or human) as it interfaces with the *quantum world* as the *causal joint* for divine action" (2006, 21). But identifying divine action in terms of this, or any, causal joint risks reducing God anthropomorphically to being one actor in the world among others. Lameter responds that the difference consists in the fact that the divine observer is capable of doing what no other observers can do: collapse the wave function at the level of the totality of the world.

He acknowledges that there now emerge questions regarding his theory related especially to the problem of evil, and thus he proposes at least two options. On the one hand, God is the divine observer who collapses the wave function only in some instances, and this opens up both the possibility of distinguishing special QDA from God's more providential "action" of sustaining a world of free creatures[10] and of there being free agents who collapse the wave function in ways that leave them responsible for the ensuing evil. On the other hand, it may be that God is involved in the collapse of every wave function but that this process nevertheless does not override the "natural propensities of nature . . . and . . . the natural rights of the entities created" due to what is called (by Nancey Murphy, among others) the "under-determinateness" of the world's quantum processes (Lameter 2006, 247); in this case, God is not directly responsible for evil but only for creating a world of quantum events and free agents.

We need to be clear that Lameter's objective is neither to defend a type of natural theology nor to provide a new theistic proof from quantum theory. Rather, he admits up front that his goal is to develop a theology of nature in which, quoting Ian Barbour, "the God in whom we believe on other grounds might be conceived to act in ways consistent with scientific theories" (Lameter 2006, 1, citing Barbour 2000, 88). At this level, then, *Divine Action in the Framework of Scientific Thinking* can be understood as an extended work of *fides quaerens intellectum*, faith seeking understanding. Nevertheless, it may be asked if Lameter's proposals are not too dependent on scientific findings. Here the concern is not only about what happens if the underlying science changes (which it inevitably does) but also about whether Lameter's theory has any potential to either impact science or produce new hypotheses and research projects in theology.

The concern also arises that Lameter's project is subject to Smedes' criticism—that it is a category mistake to attempt to scientifically construe the religious and theological claims about God's activity in the world. In the end, if Lameter's hypothesis is one of faith seeking understanding, isn't it neither verifiable nor falsifiable? Are not divine-action claims finally theological in nature, so that if and when any such science to which they are wedded becomes outmoded, theologians quickly adjust their hypotheses according to newly developed criteria and plausibility structures? Is Smedes correct to say that theology and science are distinct languages so that whatever science turns up, theologians will ingeniously find God's action in the world? And if this is the case, are we not back to the point where theologians identify divine action only because they have the "eyes of faith"? Is divine action then (once again) a matter of epistemic subjectivism related to one's prior religious and theological commitments rather than an objective set of ontological events?

For both scientific (Saunders) and religious (Smedes) reasons, a plausible theory of divine action still lies beyond our reach. Lameter's proposals address some of the challenges arising from both science and theology, but it is not clear whether he speaks from the standpoint of science or of theology, and it is apparent that how we answer this question will determine whether we view his argument as credible. Yet these volumes by Saunders, Smedes, and Lameter help to clarify the issues at stake in the debate over divine action, and any future work on divine action at the intersection of science and theology should not ignore their contributions.

NOTES

1. The Divine Action Project has been coordinated throughout by Robert John Russell and his colleagues at the Center for Theology and the Natural Sciences, Berkeley, California, in collaboration with the Vatican Observatory. Five volumes of Project papers have been published to date, some of which I refer to in the following.
2. As in Wiles 1986.
3. As in a neo-Thomist theory of "double agency" or a neo-Calvinist theory of divine determinism; for representative arguments, see the essays in Hebblethwaite and Henderson 1990, and White 1985.
4. Of course, there are deterministic interpretations of quantum theory that, if true, would shut down the quest for incompatibilist, noninterventionist SDA. For a recent defense of quantum determinism (which remains a minority position among physicists), see Hodgson 2005 (esp. chap. 9), who appeals to Louis de Broglie's and David Bohm's pilot wave/hidden variable theory, the physical theories of stochastic electrodynamics, decoherent histories, and spontaneous localization experimentation.
5. Polkinghorne has developed this idea in various places, most recently and extensively in chapter 2 of *Exploring Reality: The Intertwining of Science and Religion* (2005).
6. A radical "two kingdoms" approach in effect partitions off the domains of science and theology, insisting that each concerns disparate realms of human experience and therefore their claims may neither conflict with one other nor be mutually illuminating; for discussion, see Pond 2000.
7. The details are argued by Lameter in *Divine Action*, chapter 7. There, and elsewhere in his book, Lameter cites Raymond Y. Chiao, a Divine Action Project participant, who had made a similar suggestion; see Chiao 2001, esp. pp. 37–39.
8. Lameter discusses not only Peacocke's whole-part theory of divine action but also George F. R. Ellis' top-down model; see Lameter 2006, chap. 5.4 and 5.8.
9. This is akin to the recent proposal of Russell that God acted in every single quantum event before the appearance of human beings but only in some quantum events since; see Russell 2003, esp. p. 366.
10. Here Lameter acknowledges Thomas Tracy's suggestion that God acts only in some quantum events; see Tracy 1995, esp. pp. 314–21.

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