

A Post-Enchantment Program for Relating Science to Faith

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[NOTE: This is the text of Nancey's lecture. It is not a formal paper and its referencing is incomplete.]

Introduction

It's challenging to be the last speaker at this varied and interesting conference. I'd like to spend all of my time rehearsing and commenting on the valuable perspectives and information that have been presented here. I don't have time to do this, of course, but I will mention just a few of what I picked out as take-home messages—in no particular order:

First, the rejection of fairies and demons does not preclude awe and wonder; science can provide for a sense of wonder, abetting religion's understanding of the wonders of God's creation.

Second, even in the age of reason, courageous reformers, such as Wesley, affirmed miracles and divine healing—so can we still do so? This is one of the issues I'll be addressing in this lecture. I'll discuss whether and how we can still speak of special divine actions in a world thought to be governed by uniform laws of nature.

Third, the extra-scientific misuse of science has led to disenchantment with science itself; there have been important proposals to reverse this and to check scientists' claims to absolute knowledge.

Fourth, the scientific study of religion is not necessarily toxic to religion.

Fifth, we do not need to accept paganistic proposals for the re-enchantment of nature in order to address ecological problems.

Sixth, we can see why the spiritual dimension of life needs to be incorporated into healthcare.

Seventh, we are challenged to rescue religious claims from the relativism of contemporary culture, and at the same time rescue both religion and science from dead, literalistic readings.

As already mentioned, one of the topics I'll deal with is the credibility of what I'll be calling "special divine action" in nature and history. I choose this term over "miracles" since the latter has been thoroughly corrupted in modern thought by identifying a miracle specifically as a violation of a law of nature. I've selected this topic as a follow-up to my first paper. There I focused on the erosion of the credibility of special divine action in both Deism and liberal theology, and in the process, the evisceration of Christian theology, to the extent that it became both uninteresting and unbelievable. I concluded that this, ironically, was the outcome of accepting the wonderful providential deism of the seventeenth-century natural philosophers.

This topic of special divine action will lead to a second topic, theodicy—that is, the attempt to respond to the problem of evil. The unhappy fact is that the better job a theologian does in arguing for the possibility of special divine action, the harder it is to answer the question of why God does *not* perform more special acts—answer more prayers—to alleviate suffering. I'll present some scientific results, different from those of the providential deists, that still offer us a way of understanding natural processes, including natural disasters, as within the providence of God.

However, there has been a significant theological move to declare that the project of theodicy itself is an evil. I'll explain their reasoning, and then ask, if these thinkers are right, what should be our Christian response to evil in the world. Here I think that my reflections will be consonant with Bill Walker's in his paper "Power, Re-Enchantment, and

the Gospel.” The challenge for Christians today is to use the power available to us to transform human life, give hope, and, in particular, to use the knowledge and technology available to us to become God’s agents for change in the world. I’ll introduce my series of topics with a quotation from Christopher Walton in an essay titled “Is Disenchantment the End of Religion?” His answer is no, and in one fairly short quotation I think he captures much of what has been said here about the proper limits of science, and the conclusion I want to make about the implications for Christian ethics that follow, at this point in history.

Walton writes:

We may not be approaching the re-enchantment of the world, but we may be approaching the end of the disenchantment of the world.

The world is stranger and holds more possibilities than our compartmentalized rationalizations acknowledge. [Max] Weber assumes that technical means and calculation will serve human needs. . . . but Weber must have a limited view of what is really at play in human life. Not all needs can be served by calculated, technical means. A vital religion will certainly not seek to overthrow rationalization, nor will it seek to reestablish a lost world. Instead, a truly vital religion will link the human desire for ultimate meaning—the ultimate human need—with a rationally disciplined ethic. (Christopher C. Walton, “Is Disenchantment the End of Religion?”

www.philocrites.com/essays/weber.html; accessed July 16, 2011).

Sec. 1: The Modern Problem of Special Divine Action

In my first paper I linked disenchantment to Charles Taylor’s concept of “providential deism,” and then to consequent trajectories to Deism itself and then agnosticism and

atheism. It's the tragic progression *from* a grander, more ubiquitous, sovereign God's universal providence, *to* the invisible God of Deism, who was only needed, after creation, to punish sinners. Then, when the Augustinian emphasis on damnation became morally repugnant, to a God with nothing at all to do. And a God who does nothing is empirically indistinguishable from no God at all.

I traced a similar progression among theologians who intended to maintain the traditional language of Christian theism, but who also rejected a "tinkering" God as inferior to one who governs all by means of uniform laws of nature. This God, too, is empirically indistinguishable from no God at all. My judgment on theologians who attempted to continue to make sense of Christian doctrines without any concept of special divine action is that, while many employed ingenious strategies, their theologies were all intellectually tortured, and in the end ineffective. In MacIntyre's tart phrase, they ended up "giving the atheist less and less in which to disbelieve."

My plan here is to cover the developments on the topic of divine action over the past twenty years by describing a series of conferences I was involved in, sponsored by the Vatican Observatory and the Center for Theology and the Natural Sciences in Berkeley. This involved a core group of theologians, philosophers, and scientists, supplemented at each conference with additional scientists from the relevant disciplines. The theologians involved were not satisfied with either the interventionist or immanentist theories of divine action, which I attributed in my first lecture to the conservative and liberal types of theologies, respectively. Recall that the interventionist position is that while God does work though the laws he established, in addition he occasionally violates or overrides those laws to perform miracles. However, while most of the members of the core group were

educated in the liberal tradition, they were equally dissatisfied with the immanentist approach, wherein there are no “objective” special divine acts, only something like Maurice Wiles’ account of people more apt to perceive God at work in certain events. We all agreed that in the end Christian theology cannot maintain its integrity or its claim on anyone’s attention without some account of special divine actions in nature, and especially in history—Israel’s exodus, the special circumstances of Jesus’ life, his resurrection, and the remarkable spread of the church.

The project began when Pope John Paul II requested the Observatory, a hundred-year-old astronomical research institution, to devote part of its staff time and finances to study of the relations between Christian theology and the sciences. I was invited to a planning meeting in 1987. It turned out that all of the topics suggested as foci for the project had to do in one way or another with the problem of divine action. Also, we recognized that the problem itself originated with the mechanistic picture of the world developed from Newtonian physics. Since science itself had progressed so far beyond Newton, the question was: are there recent scientific advances that might contribute positively to understanding special divine action? So we held conferences, approximately every two years, on the following scientific developments: first, the quantum cosmology of physicists such as Stephen Hawking, who argues that the big bang can be explained scientifically, and hence that there is no need for a God to explain it. In addition, we studied the so-called fine-tuning of the cosmological constants: this is the conclusion that, had any of the basic numbers of physics been different, in some cases as little as one part in a billion, the universe would have developed in such a different manner that no life would have been possible. I’ll return to this topic shortly.

Second, we investigated the relevance of the new understanding of chaotic systems; this was prompted largely by John Polkinghorne's claim that in chaotic systems there is genuine indeterminacy, and thus a place for God's action that would not involve violation of any natural laws.

Third, we looked at evolutionary and molecular biology. Fourth, at neuroscience and its implications for the nature of the human person, and thus for the question of how God interacts with humans. Fifth, we examined quantum mechanics and its relevance to the problem of divine action. We held a sixth conference to discuss the outcomes of the work we'd done.

It was clear by the end that there had been four approaches to special divine action in play. The first was the traditional Catholic distinction between God as primary cause, and natural causes as secondary. The second, already mentioned, was Polkinghorne's theory of divine action in chaotic systems. The third was the late Arthur Peacocke's theory that God's action could be understood by analogy to the way complex systems, such as human beings, exercise "top-down" control over their own parts. He argued that while God is immanent in the world, the world is also, in a sense, in God. Therefore the system of God-and-the-world is the most complex system possible, and there should be top-down effects from God on the world itself. The fourth approach was to hypothesize that God works at the quantum level of nature, determining otherwise indeterminate processes. By proper orchestration of countless micro-events, God produces special effects in the macro-world.

Here is an overview of how each of these theories fared, to which many but not all of the participants would agree.

There was no direct criticism of the primary-secondary causal theory. But I believe it does not adequately take into account the radical change in our understanding of the world brought about by modern science. Here is one way of explaining what I mean. The most often used example of primary and secondary causes *in* creation is that of the carpenter—the primary cause—and the hammer he uses to drive a nail. But the hammer is a discrete entity, and its use has no implications for what happens elsewhere. The Newtonian world is much more like a thoroughly mechanized assembly line. The manager pushes a button, the assembly line goes into action. While it is running, where is there a role for human participation that would not be more like “throwing a monkey wrench” into it than assisting it in its operation? This seems an apt current analogue for the clockwork universe of post-Newtonian physics.

The discussion of divine action in chaotic systems began with Polkinghorne’s argument summarized as follows: In quantum mechanics, it is well known that many particular events are unpredictable (this is a claim about human knowledge—epistemology). The philosophical interpretation of the significance of this unpredictability engaged many of the best minds of the twentieth century. There were at least three major contenders: There was the hidden variables theory, claiming that we just don’t yet know the most basic physics, and when we do, we will be able use it to predict what is now unpredictable. There was the “many worlds” interpretation, according to which every time an event appears to be random, in fact the other option or options do occur in branches of parallel universes. Finally, there was the claim that the quantum world is genuinely indeterminate. So these are three theories about the nature of reality itself—three ontologies. The third interpretation has pretty much won the day among physicists.

Polkinghorne takes this as an example of a motto he coined: “epistemology models ontology.” Since chaotic systems are also unpredictable—epistemology again—he concluded that they must also be ontologically indeterminate. Thus, God could act upon these systems without violating any natural laws.

The first objection to this argument was to point out that the evolution of chaotic systems is modeled by using a deterministic equation. Hence, the systems themselves must be determinate. The most important development at this conference was Bob Russell’s argument that just *because* chaotic systems are unpredictable, it is never possible to tell whether or not they obey the logistic equation. So the question of whether they are determinate or indeterminate is unanswerable. Polkinghorne subsequently changed his position: he later argued that because we cannot know one way or the other, the judgment that such systems are determinate is merely a metaphysical hypothesis. I agree with this last claim. However, there is still no answer here to where and how God acts within the chaotic systems.

I was very sympathetic to Peacocke’s theory because I have learned so much from him regarding downward causation within the created world. Complex systems do constrain the behavior of their own components. However, the claim that God’s action is analogous to this downward causation within creation fails unless one adopts a form of pantheism such that parts of the universe are in fact parts of God.

The theory that God acts by determining otherwise indeterminate quantum events is initially appealing due to the fact that quantum events obey only statistical laws, and there is no way to violate a statistical law. However, this move has an ad hoc flavor. My own argument for quantum divine action is based primarily on a theological argument. Most

Christians accept the claim that God is both transcendent—beyond creation—and also immanent within all creatures, and this necessarily includes the most basic entities and processes known to physics.

It has been common at least since Augustine's day to define God's action in all entities in terms of three concepts: sustenance, cooperation, and governance. Typical immanentist theories of divine action can easily account for sustenance and cooperation: God constantly keeps all things in being and cooperates with their natural causal powers. But now we are back to the same old problem of divine action: what can we make of God's governance if all entities are already governed by the laws of nature? This is where quantum indeterminacy is relevant, since these entities and processes are not already determined by laws. So God, immanent within the most basic constituents of physical reality provides direction, yet this activity will always be invisible to physics, since outcomes will be attributable to chance.

Notice that this understanding of the operation of the physical world is contrary to Boyle's and his contemporaries' drive to understand God as entirely transcendent. It puts God back into matter in a way somewhat akin to the rejected spiritualist tradition that I described in my first lecture.

There have been numerous criticisms of the quantum divine action theory, some superficial and easily answered, but others are based on technical interpretations of quantum mechanics itself that go beyond my ability to adjudicate. However, several proponents of quantum divine action, Bob Russell and George Ellis, do have the expertise in physics and do not see any criticisms so far as fatal. So this theory is still a live option.

Given that we have insufficient knowledge of how quantum events *en masse* produce the processes we observe at the macro-level, it is interesting to speculate about what sorts of macro-events could result from quantum divine action. Bob Russell has argued that because some of the mutations that provide variation for the evolutionary process are quantum-level events, there is the possibility for subtle divine direction of evolution. My colleague, neuropsychologist Warren Brown, claims that quantum-level events can also have subtle influences on brain processes,¹ and so I argue that this is the likely route toward understanding human religious experience.

One criticism of quantum divine action is that it appears to give God so few options for directing macro-level events. However, this may actually be a major strength of the theory. If God has indeed chosen to work in and through nature only in this subtle manner, rather than to intervene directly at the macro-level, this may answer the question of why God in fact appears to act so seldom to alleviate suffering. I noted earlier that there is an intrinsic relation between the problem of divine action and the problem of evil.

Sec. 2: Fine-Tuning and the Problem of Evil

It has been traditional to distinguish three types of evil. The first is moral evil, that is, human sin. The second is natural evil, the suffering of humans and animals that results from disease, famine, fires, and other natural processes. The third is metaphysical evil; that is, the fact of finitude and limitation. The typical response to sin has been the free-will defense. That is, God cannot prevent human sin without depriving us of the free will that also enables a free and loving response to God. Metaphysical evil has not received much attention, the argument being that finitude is a necessary feature of any creature.

¹ See also Mark Balaguer, *Free Will as an Open Scientific Question*, ch. 4.

My focus here is on natural evil. Augustine explained it as a result of the fall, first of the angels and then of Adam and Eve. Their disobedience broke the chain of command between God and the natural world. He also claimed that, due to guilt inherited from Adam, all humans were deserving of suffering as punishment. According to Taylor, Christians in the 1500s attributed natural disasters to God's punishment of the community when it tolerated sin or heresy in its midst. As late as the Lisbon earthquake in 1755, while a few intellectuals were attempting to explain it in terms of natural causes, the majority still assumed it was the work of a wrathful God. After the tsunami on December 26, 2004, a reporter from Time Magazine asked religious authorities from all of the faiths of the region how their congregants would interpret the event. Most of the answers involved divine punishment or the testing of their faith.

The obvious need for a better account of God's relation to natural evil prompted the initiation of a second series of conferences at the Vatican Observatory. The one we have held so far focused on the role of fine-tuning in giving an account of much of the suffering in the world as a necessary but unwanted by-product of God's providential ordering of the entire universe.

Most of this audience is probably already familiar with what is usually dealt with under the heading of the anthropic principle, but what I prefer to call the fine-tuning of the cosmological constants. I'll provide just a brief account here. Beginning in the 1970s, cosmologists and other scientists have been calculating how the universe would have developed differently after the Big Bang if the basic laws and constants of physics had been different. Here is one example: Stephen Hawking writes, "If the rate of expansion [of the universe] one second after the Big Bang had been smaller by even one part in a hundred

thousand million million it would have recollapsed before it reached its present size.” On the other hand, if it had been greater by one part in a million, the universe would have expanded too rapidly for stars and planets to form. The expansion rate itself depends on many factors, such as the initial explosive energy, the mass of the universe, and the strength of the gravitational force. The cosmos seems to be balanced on a knife edge.²

There is now a vast literature filled with calculations regarding other factors that had to be just right in order to have a universe in which life is possible. The degree of apparent fine-tuning has shocked some non-theistic scientists, but of course it is not shocking to those who believe in creation. The seventeenth-century philosopher Leibniz argued, on the basis of the goodness of God, that this must be the best of all possible worlds. If we believe that one of God’s primary purposes in creating was to have a universe with creatures such as ourselves, who could respond to him in love, then this is one of a vanishingly small set of best possible worlds.

Many religious thinkers justify the existence of natural evil by saying that God intends it to bring about positive results for humans, and I do agree that *some* suffering is necessary for us to develop moral character and faith. However, this explanation cannot account for animal suffering, and there seem to be too many cases where there is no possible benefit to the humans involved. The diagram that I’ve handed out is intended to show that much evil can be considered to be what I call a “by-product” of God’s willing that this life-bearing universe should exist at all. The term “by-product” is often used in a neutral sense, such as to say that chaff is a by-product of the threshing of grain. But there are also negative by-products, such as when a doctor prescribes chemo-therapy for a cancer

² Ian Barbour, *Religion in an Age of Science: The Gifford Lectures, Volume One* (San Francisco: Harper & Row, 1990), 135; quoting Stephen Hawking, *A Brief History of Time* (New York: Bantam, 1988), 121.

patient, knowing that it will cause additional suffering. I suggest that much natural evil is a negative by-product in this sense.

This diagram is something like a decision tree, showing “decisions” that God seems to have made in creation, but also showing the inevitable negative consequences as well. The first set of options is to create, in biblical terms, either a cosmos or a chaos—in scientific terms, a universe that is either law-like in its operations or not. The reasons why a chaotic universe would fail to produce creatures capable of relating to God are too numerous to consider.

Next, as you move down the diagram, given a law-like universe, then it must be either fine-tuned for life or not. However, an important ingredient in the fine-tuning is the second law of thermodynamics. This is the law that states that closed systems will always go from greater order to less order. It is a necessary condition for life, but the by-product is that all creatures are subject to damage and decay. It is the reason that we constantly need food, shelter, rest, and ultimately die. I believe that this sort of frailty is what Augustine meant by metaphysical evil.

Now, among living things there are very simple organisms that behave deterministically, such as plants, and others, such as insects, that operate on instinct—and none of these have the capacity to feel pain. For complex creatures with a wide repertoire of behaviors, there needs to be something that prevents them from harming themselves—for example, withdrawing from hot objects. Pain serves that purpose. I cannot argue for this here, but I claim that the ability to feel pain is a necessary prerequisite for freedom and meaningful human action. But of course it is one of the main features that gives us the capacity for suffering—the natural evil at the bottom of the diagram. However, even given

our capacity for pain, we could have been created without free will, and hence no *free* response to God. As I've already noted, an essential ingredient in many approaches to the problem of evil is to argue that free will, although an intrinsic good, inevitably brings with it the possibility of human sin. And, of course, we recognize that sin causes much of the world's suffering.

In addition to the three traditional categories of evil, I have added into the diagram the concept of structural evil. Without the development of social structures, I believe that meaningful *human* action would be impossible. However, in addition to making possible a great amount of good, social structures also promote evil actions. So my diagram indicates a complex interaction between human freedom and social structures, and I call the negative results structural evil. Here I am thinking of, for example, economic systems that result in terrible poverty for many people. Structural evil also combines with natural processes to exacerbate suffering. The most horrific example going on as I was writing this lecture is the prevention of food aid in South Sudan by jinjaweed militants during one of one of the worst droughts in the area.

I believe that an argument such as the one I've represented in this diagram makes it possible to understand all that happens in nature as God's doing, but to make suffering at the hands of nature easier to reconcile with God's compassion. Just as humans act in order to bring about good, but often recognize that there will be regrettable side-effects, we can say something analogous about God. God has acted in creation, and continues to act by upholding natural processes, but with the knowledge of the terrible side-effects of those natural processes. I believe that God sometimes means us to suffer for a good effect—to strengthen our faith, to develop our resolve to pursue a life of obedience. But we must also

say that God often merely *permits* terrible suffering as a necessary by-product of his good choices in creating the only kind of universe in which our existence is possible.

Sec. 3: Theodicy, Providence, and Ethics

The task I set for myself in this lecture is to address the question of how we might move forward, beyond disenchantment, to create a new sense of divine providence, a sense based on the union of science and Christian belief.

It has been traditional to speak of both general and special providence. General providence is well represented by Jesus pointing out that his Father makes the rain to fall on the just and unjust alike. Special providence has included answers to petitionary prayers, communications from God intended to guide specific individuals and groups. In the worlds of the physico-theologians we saw a beautiful extension of the concept of general providence, albeit with a removal of God's intentional agency both spatially and temporally. God is no longer acting in rain clouds, but only indirectly through the laws of nature, decreed at the beginning of Creation. For the Deists and liberal theologians alike, special providence disappeared altogether.

The two preceding sections of my lecture address providence in light of current science. If the arguments of the quantum divine action theorists are correct, there is room in our scientific worldview for a God who acts to bring about special, providential events. It's clear that secular scientists will object strenuously to my position in particular, because it reverses them modern physico-theologians' sharp separation of matter from God. I'm saying, in effect, that the most basic entities in the cosmos have a God-shaped vacuum in them, that their actions can't be understood apart from God's continuous presence and

governance. This position will even be as distasteful to some theists as the spiritualist tradition was to Boyle.

My second section addresses general providence on a grander scale than Newton and Leibniz were able to do. By locating God's general providence in determining the basic laws and constants that govern at the level of the entire universe, and by adding the theological claim that one of God's chief aims in creating was to create creatures like ourselves who could respond to him in love, we do have empirical reasons to say that Leibniz was right. This is (or is very close to) the best possible world, and the more we know about its interconnectedness, as Leibniz predicted, the more we understand that individual evils (such as earthquakes) cannot be eliminated without massive changes to the whole system. Thus, as Nicola Hoggard Creegan has argued, we must expect a world of wheat and tares.

I mentioned in my introduction that there has been a recent movement in theology to condemn projects in theodicy, to which I've attempted to contribute here, as themselves evil. In his book *The Evils of Theodicy*, Terrence Tilley's central objection is that most of these projects in the modern period have attempted to explain evil, abstractly, as an instrumental good. For example, John Hick's famous book, *Evil and the God of Love*, relied heavily on his "soul-making" argument. Hick says that without the suffering and dangers that we find in this world, humans would never develop into the moral and spiritual beings God has intended. So what at first appears evil to us is reinterpreted as an instrumental good.

Tilley's second objection is that once evil has been explained away in this manner, it tends to remove the moral outrage that Christians should feel and act upon in the face of

specific evils. I've given a chilling example of this in my first lecture. Adam Smith's *laissez-faire* capitalism and his metaphor of the hidden hand, when combined with Anglican clergyman Thomas Malthus's principle of population, led to an explanation of the suffering of the poor as an instrumental good in that it promoted industry and self-control. In consequence, it was argued, not only was it not necessary to help the poor, to do so would violate God's plan. Malthus argued for a law stating that no child born more than a year after the law was passed should be entitled to parish assistance, thus making Christian charity illegal!

So is every attempt to provide a naturalistic account of events that cause suffering an evil practice? Tilley's targets are largely authors in the modern period writing from an individualistic perspective. In my diagram I added the category of structural evil, and noted briefly that much suffering is the result of interaction between natural processes and social structures. One advantage of humans' increasing ability to understand natural processes, such as plate tectonics and weather patterns, along with the social structures that contribute to their negative effects, is that we can finally end the blaming of the victim, which was universal in the 1500s, and still prevalent after the Lisbon earthquake in 1755. It has even occurred recently in the U.S. when homosexuals have been blamed by televangelists for both AIDS and Hurricane Katrina.

A second advantage of combined knowledge of social structures and natural processes is that we can come to see who the perpetrators of some natural disasters really are. By means of such analyses, we may come to see that we ourselves are complicit in some of these systems, and attempt to disentangle ourselves from them. The refusal to buy products that are produced without regard for the safety of workers is but one example.

Finally, Christians have been called to care for the least of the brethren, and in so doing to care for Jesus himself. It has been two thousand years, and still the hungry starve to death, millions are left homeless after quakes, floods, desertification. Ghastly illnesses such as Guinea worm still exist. Christians have given of their time, expertise, and money to help alleviate suffering, but we have not been very effective. I attended an interesting event a few years ago, called a Renaissance Weekend. It was sponsored by a private foundation to bring together people from all disciplines and professions to discuss important issues. I had the opportunity to listen to a panel of representatives from a number of the major aid organizations. They reported that not only was each organization becoming better at using its resources effectively, but that the organizations themselves had created a meta-organization in order to maximize effectiveness. I asked if, given this new coordination, along with exponentially growing knowledge about economics of poverty, and other relevant issues, we might be at what I called a tipping point: the point at which those of us who have been called to care for the needy are in position to have a major effect in the world. No one there ventured to answer, but I hope I'm right. Let us, armed with much better knowledge from both science and our theology of evil, be doers of God's providential actions in the world.