Engaging Robert J. Russell's Alpha and Omega

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ROBERT JOHN RUSSELL VERSUS THE NEW ATHEISTS

by Nancey Murphy

Abstract. This essay compares Robert John Russell's work in his recent book *Cosmology from Alpha to Omega: The Creative Mutual Interaction of Theology and Science* (2008) to that of the authors known collectively as "the new atheists." I treat the latter as recent contributors to the modern tradition of scientific naturalism. This tradition makes claims to legitimacy on the basis of its close relations to the natural sciences. The purpose of this essay is to show up the poverty of the naturalist tradition's scientific credentials by contrasting it with Russell's careful account of positive relations between science and Christian theology.

Keywords: atheism; Richard Dawkins; Daniel Dennett; divine action; Sam Harris; Christopher Hitchens; Alasdair MacIntyre; naturalism; Robert John Russell; tradition

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This essay highlights the timeliness of Robert Russell's collection of essays titled *Cosmology from Alpha to Omega: The Creative Mutual Interaction of Theology and Science* (2008). Since 2004 a number of books have been published criticizing religion and promoting atheism (Dawkins 2006; Dennett 2006; Harris 2004, 2006; Hitchens 2007). This phenomenon, called the new atheism, is in part a response to the perception that terrorist attacks such as that on the World Trade Center in 2001 are motivated by religion.

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The relevance of Russell's work to this phenomenon is that the new atheists, either directly or by implication, suggest that their positions are not only consistent with science but (to varying degrees) also supported by science. I argue that the actual relations between science and the naturalist metaphysic and empiricist method that they advocate are highly problematic. In addition, the atheists are well aware of and inclined to exploit the antipathy toward science that has been demonstrated by some conservative Christians. Russell's work is of notable importance, then, for two reasons. First, he has shown (as have many others) that Christian theology is in fact consistent with science. Second, and more important, he has set out a model for understanding the various ways in which science and theology can and have interacted positively. This is in sharp contrast to the lack of attention given to the connections between science and naturalism.

Thus, my plan in this essay is to situate the new atheists as recent contributors to what I call the scientific naturalist tradition, using *tradition* as a philosophical term of art as described by Alasdair MacIntyre ([1981] 1984; 1988; 1990). I then describe briefly MacIntyre's account of how one can adjudicate rationally among competing traditions, even though their own internal accounts of rationality are different. A critical part of such adjudication is to examine the epistemological crises each tradition has faced and to determine whether the tradition has been able to overcome its own crises while remaining true to its origins. This assistance from MacIntyre puts me in position to describe the role of science in creating assorted epistemological crises for modern Christianity. These crises are well known. However, the liberal Protestant strategy for immunizing theology from science, while an attempt to overcome earlier crises, has created a new one by allowing the new atheists to convey the impression that Christian theology is incapable of incorporating the findings of science. It is at this point that I describe the value of Russell's work, by both exemplifying the incorporation of science into theology and displaying the impoverished thinking of the new atheists in addressing the epistemological relations between science and their naturalist metaphysics.

MacIntyrean Traditions

MacIntyre's account of rationality is the most sophisticated available. He did some early work in philosophy of religion in the 1950s using analytic methods. Later he moved into an area that, for want of a better term, I call ideology critique. He came independently to the same conclusion as Karl Popper: that Marxism and psychoanalysis were vacuous—but so too was liberal Protestantism!

My promotion of MacIntyre as an epistemologist often leaves my audiences unimpressed. Although this may be due to the obscurity of my writing or to the fact that his lengthy and dense books do not compress well, I

suspect that his achievement can best be appreciated against the background of the philosophy of science of the 1970s, with which many are unfamiliar; however, this material will be familiar to readers of this journal. The rationale for reading him in this light is that he offered an early account of his epistemological insights in a 1977 article, "Epistemological Crises, Dramatic Narrative, and the Philosophy of Science," in which he replied to Thomas Kuhn's philosophy of science and noted shortcomings in Imre Lakatos's response to Kuhn (MacIntyre [1977] 1989). I return to this shortly.

He is best known now for his work in philosophical ethics, and this was the primary stimulus for further development of epistemological insights. In *After Virtue* ([1981] 1984) he argued that moral positions could not be evaluated apart from *traditions* of moral enquiry. Yet, without a means of showing one such tradition to be rationally superior to its competitors, moral relativism would follow. In two succeeding books (1988; 1990) he has elaborated his concept of a tradition and has shown by example the possibilities for such comparative judgments.

Traditions generally originate with an authority of some sort, usually a text or set of texts. Recall the role of classic texts in Kuhn's paradigms ([1962] 1970). The tradition develops by means of successive attempts to interpret and apply the texts in new contexts. Application is essential; traditions are socially embodied in the life stories of the individuals and communities who share them, in institutions, and in social practices. (Think of Kuhn's standard experimental practices, normal science, and the role of the community.) A large-scale tradition also incorporates its own theories of knowledge. For example, MacIntyre contrasts the epistemologies embedded in the Augustinian and Thomist traditions of the Middle Ages—one a Platonic epistemology altered by Augustine's doctrine of original sin, the other Aristotelian. Thus, working *within* a given tradition there will be widely agreed practices and standards for justifying claims. The difficult and more interesting question is the one to be addressed here: how to justify these practices and standards themselves. Finally, such traditions, providing the essentials of an entire worldview, incorporate some account of ultimate reality, which in turn sheds light on the question of the meaning of life and provides a foundation for ethics.

MacIntyre makes the claim that, contrary to Enlightenment thought, which he characterizes ironically as the tradition of traditionless reason, all rationality is essentially tradition dependent. Outside of all traditions, one is morally *and intellectually* bankrupt. But must this not lead to radical relativism? Where could one stand to judge one tradition to be rationally superior to another? It is time to return to the relation between MacIntyre's insights and the philosophy of science.

Kuhn's *Structure of Scientific Revolutions* was criticized by many as presenting an irrationalist account of science. Lakatos (1970) responded with what he thought was a more rationalist account of scientific methodology.

He argued that one could choose between competing research programs on the basis of one being more progressive than its rival. Paul Feyerabend (1970) countered that this criterion is inapplicable because sometimes degenerating programs suddenly become progressive again, so one never knows when it is rational to give it up. I believe I am not alone in judging that Lakatos never gave a satisfactory answer to this challenge.

MacIntyre's central insight is to point out that there may be an asymmetry between the rivals. From the point of view of one program it may be possible to explain *why* the other program failed, and failed *at just the point it did.* One example is the competition between the Copernican and Ptolemaic programs. The crisis to which Galileo responded involved inconsistencies of Ptolemaic astronomy with both Platonic astronomical ideals and Aristotelian physics. The latter was inconsistent with empirical findings on terrestrial motions. Galileo resolved the crisis by reconceiving astronomy and mechanics and in the process redefined the place of experiment in natural science. At last, the history of late medieval science could be cast into a coherent narrative. In general, MacIntyre says,

> The criterion of a successful theory is that it enables us to understand its predecessors in a newly intelligible way. It, at one and the same time, enables us to understand precisely why its predecessors have to be rejected or modified and also why, without and before its illumination, past theory could have remained credible. It introduces new standards for evaluating the past. It recasts the narrative which constitutes the continuous reconstruction of the scientific tradition. ([1977]1989, 146)

> What the scientific genius, such as Galileo, achieves in this transition, then, is not only a new way of understanding nature, but also and inseparably a new way of understanding the old science's way of understanding nature. (p. 152)

The new science is taken to be more adequate than the old because it is only from the standpoint of the new science that the inadequacies of the old science can be characterized. "It is from the standpoint of the new science that the continuities of narrative history are re-established" (p. 152). Thus, MacIntyre claims that scientific reason turns out to be subordinate to, and intelligible only in terms of, historical reason and criticizes Kuhn for failing to highlight these narrative connections between successive paradigms.

MacIntyre's concern in his three volumes on philosophical ethics ([1981]1984; 1988; 1990) was to rejuvenate the Aristotelian-Thomist tradition of virtue ethics and to argue for its rational superiority to both the Enlightenment tradition and what he calls the genealogical tradition—Friedrich Nietzsche and his followers. In the process he developed an account of the possibilities for rational adjudication between such large-scale traditions. The comparison depends on there being participants within the traditions with enough empathy and imagination to understand the rival tradition's point of view in its own terms. All mature traditions face

epistemological crises, such as incoherence, new experience that cannot be explained, or simple inability to advance their inquiries beyond a certain point. Thus, one aspect of the adjudication between competing traditions is to construct a narrative account of each tradition—of the crises it has encountered and how it has or has not overcome them. Has it been possible to reformulate the tradition in such a way that it overcomes its crises without losing its identity? Comparison of these narratives may show that one tradition is clearly superior to another, that one tradition is making progress while its rival has become sterile (echoes of Lakatos here).

The important asymmetry, though, results when the superior tradition provides resources to characterize and explain the failings and defects of the other and does so more adequately than the protagonists of the failing tradition are able to do. It is this insight that moves the discussion of rationality beyond the Lakatos-Feyerabend stalemate.

Scientific Naturalism as a MacIntyrean Tradition

A central claim of this essay is that the question of theism versus naturalism needs to be reformulated in terms of rival traditions. I suggest that naturalism is something like a MacIntyrean tradition, now with important subtraditions within it, just as there are within Christianity. I say "something like" because most adherents of naturalism do not spend their time reinterpreting and applying David Hume's texts. However, within the subtraditions of Marxism and Freudianism there certainly has been this feature.

An irony of the history of unbelief is that the source of agnosticism can be traced to the Reformation. If one thinks of the agnostic not as one who simply has not formed a judgment on the existence of God but rather as one who has concluded that human reason is incapable of making such a judgment, the story traces back to Roman Catholic apologists in the Renaissance such as Michel de Montaigne. These apologists revived ancient skeptical methods to show that there is no rational way to decide between Protestant and Catholic claims. Therefore the only sensible course of action is to stay within the established (that is, Roman Catholic) faith. The availability of these skeptical arguments helped pave the way for atheism, of course: If one cannot tell whether the Protestant or Catholic version is correct, maybe none is (Popkin 2003, ch. 3). But a variety of other factors were needed to justify a positive rejection of religious belief.

Philosopher Merold Westphal (1993) helpfully distinguishes two sorts of atheism. One he calls evidential atheism, well represented by Bertrand Russell's account of what he would say if he were to meet God and God asked why he had not been a believer: Not enough evidence, God! Not enough evidence! Given the difficulties in adapting theological reasoning to modern canons of rationality, this response is readily understandable.

If religious claims are false, however, one needs an *explanation* of why they are so widely believed, just as, if there are no witches, we want to know what caused people to believe there were. David Hume (1757) in Britain and Baron d'Holbach (1770) in France in the eighteenth century began the attempt to explain the origin of religion naturalistically. They argued that religion is a response to fear of the unknown, coupled with superstitious attempts to control or propitiate unseen powers. Such attempts continue today in the writings of the new atheists.

But why does religion persist in the modern world, now that we understand natural causes? The explanations here come from Westphal's second variety of atheists, the masters of suspicion. Karl Marx, Nietzsche, and Sigmund Freud practice the hermeneutics of suspicion, the "attempt to expose the self-deceptions involved in hiding our actual operative motives from ourselves, individually or collectively, in order not to notice . . . how much our beliefs are shaped by values we profess to disown" (Westphal 1993, 13). These three develop their suspicion with primary emphasis, respectively, on political economics, bourgeois morality, and psychosexual development, but each also subjects the religion of Christendom to devastating critique.

Two further steps were needed to make atheism a truly viable position. It would be possible to say that religion is an illusion, but a harmless or even beneficial illusion in that it shores up morality. So two sorts of arguments were needed. One sort was to show that religion did not serve to reveal anything about the moral order that we could not get just as well by the use of human reason. Most of the work in philosophical ethics during the modern period had this as its aim. The other was to adduce historical evidence to the effect that religion has, in fact, promoted the worst evils in history—or at least more evil than good.

So, within the space of two and a half centuries, roughly from 1650 to 1890, unbelief became a live possibility. This is not merely the excision of God from an otherwise common worldview, however, but rather the slow development of a *rival* tradition alongside the various theistic traditions and subtraditions. A variety of names have been proposed: scientific atheism, scientific humanism, natural atheology (Dixon 2002, 380). I use the term *scientific naturalism*.

Recall that a tradition, as I am using the word, is essentially a worldview thought of in terms of its historical development. As such, it incorporates an account of ultimate reality and an account of what is most important in human life. The latter is essential as a foundation for ethics. It also involves an epistemology. A tradition is socially embodied in social practices and institutions. Let us consider some of these practices.

It is probably fair to say that the most important practices and institutions embodying the naturalist worldview are found in science. After the demise of the physico-theologies of the seventeenth century, the natural

sciences began to be distinguished from natural theology. Amos Funkenstein credits Immanuel Kant with the most systematic and complex endeavor "to emancipate science from its theological baggage" (1986, 346). Peter Harrison reports that the birth of modern science is now seen to have taken place during the nineteenth century, and that William Whewell first coined the term *scientist* (Harrison 2006, 86).

Historians may not think of themselves as engaging in a naturalist practice, but one of Hume's chief philosophical and historical goals was to supplant the traditional Christian story line of creation, fall, and redemption by a new unity of action based along secular and humanistic lines. His six-volume *History of England* was written from a purely secular point of view in order to show that history can be understood perfectly well without the "prophetic-providential" mode of interpretation that was common in his day (Livingston 1984). Now even Christian historians practice their craft on the basis of naturalist assumptions, and the methodological "atheism" of both historians and biblical critics has had a much more significant impact on Christian self-understanding than has that of the natural sciences.

These are practices parallel to those of Christian *scholars.* Of course there are also now secular versions of practices that used to belong solely to the church, such as marriage by a justice of the peace. A legal system has been developed that is independent of canon law. Psychotherapy competes with spiritual direction.

The naturalist account of ultimate reality, of course, is the universe itself. It is interesting that some naturalists give this thesis a religious tone and salvific trappings. For example, Carl Sagan offered a peculiar mix of science and what can only be called naturalistic religion. He begins with biology and cosmology but then uses concepts drawn from science to fill in what are essentially religious categories—categories that fall into a pattern surprisingly isomorphic with the Christian conceptual scheme. He has a concept of ultimate reality: "The Universe is all that is or ever was or ever will be" (1985, 1). He has an account of ultimate origins: Evolution with a capital E. He has an account of the origin of sin: the primitive reptilian structure in the brain. His account of salvation is gnostic in character—it assumes that salvation comes from knowledge, in this case scientific knowledge, perhaps advanced by contact with extraterrestrial life forms. Sagan's account of ethics is based on the worry that the human race will destroy itself. So the telos of human life is simply survival. Morality consists in overcoming our tendencies to see others as outsiders; knowledge of our intrinsic relatedness as natural beings (we are all made of the same star dust) can overcome our reptilian characteristics (Ross 1985).

Mary Midgley's book *Science as Salvation* (1992) provides an extended argument and set of examples to support the claim that naturalism is more than a philosophical position allied with the sciences themselves but is rather a worldview and a way of life, with its own mythology and ultimate values.

The "New" Atheists

I recall a saying about those who are ignorant of history being doomed to repeat it. The so-called *new* atheists engage in all of the intellectual tasks of their more erudite predecessors: naturalistic theories of the origin and persistence of religion; arguments for the sufficiency of reason and lack of need for religion in the support of morality; and especially arguments for the ruinous consequences of religion throughout history.

The earliest was Sam Harris's *The End of Faith: Religion, Terror, and the Future of Reason* (2004), which he followed with his *Letter to a Christian Nation* (2006). Others include Richard Dawkins, *The God Delusion* (2006); Christopher Hitchens, *god is not Great: How Religion Poisons Everything* (2007); and Daniel C. Dennett, *Breaking the Spell: Religion as a Natural Phenomenon* (2006).

These books have a great deal in common. The most surprising commonality is the expression of attitudes that I (and I assume many others) find exceedingly unpleasant. I say that this is surprising because ordinarily editors at significant publishing companies do not allow their authors to get away with this sort of tone in a (supposedly) academic book. Hitchens is the worst. He is self-congratulatory in telling us how young he was when he saw through religious claims. He refers to a religion teacher from his childhood as "a pious old trout" (2007, 2) and says that his "little ankle-strap sandals curled with embarrassment for her" (p. 3). Religion, he says, comes from "the bawling and fearful infancy of our species, and is a baby-ish attempt to meet our incurable demand for knowledge (as well as for comfort, reassurance, and other infantile needs)" (p. 64). "As I write these words, and as you read them," he says, "people of faith are in their different ways planning yours and my destruction, and the destruction of all the hard-won human attainments. . . . *Religion poisons everything*" (p. 13).

Harris and Dawkins are less unpleasant to read. However, Dawkins often writes with an air of superiority. In discussing Anselm's argument for the existence of God he says: "The very idea that grand conclusions could follow from such . . . trickery offends me aesthetically, so I must take care to refrain from bandying words like 'fool'" (Dawkins 2006, 81).

Dennett claims to be offering a balanced investigation into the nature and causes of religion, but he manages to be annoyingly patronizing.

> Like the revivalist preacher, I say unto you, O religious folks who fear to break the taboo [this is the supposed taboo on studying religion]: Let go! Let go! You'll hardly notice the drop! The sooner we set about studying religion scientifically, the sooner your deepest fears will be allayed. But that is just a plea, not an argument, so I must persist with my case. I ask just that you try to keep an open mind and refrain from prejudging what I say because I am a godless philosopher, while I similarly do my best to understand you. (2006, 20–21)

So much for tone. These books have a number of themes in common. First, all argue for naturalistic rather than theistic accounts of the origin of

religion. I have already quoted Hitchens's claim that it comes from the infancy of the species. Dennett's book is interesting here; he gives an excellent overview of current work in the new discipline called the cognitive science of religion. I return to this topic below.

A second and related area of overlap is speculation about why people continue to hold religious beliefs now, even after we have had their "primitive" origins explained to us. Dawkins argues that humans have evolved so as to be gullible as children. Children need to acquire a great amount of information from parents and other authorities early in life and then ordinarily not question it. Because of this vulnerability, he believes that it is child abuse to teach religion to small children!

Third, the books are rich resources for information about some of the most ridiculous religious beliefs and practices that anthropologists have dug up. Three of them describe the cargo cults that originated on Pacific islands beginning in the nineteenth century. These were quasi-religious practices performed in the hope of provoking the return of European or American ships with their "supernatural" technology.

A fourth commonality is a double concern with the relation between religion and morality. All of the authors attack the idea that good morals depend on religion and then set out to show that, in fact, most of the evil in the world comes from religion. The question of the need for religion—or some account of ultimate reality—in order to resolve moral relativism is complex and important. Harris (2004) devotes the most sustained attention to the claim that moral judgments will be settled by science and that humans have sufficient innate goodness to comply.

We are all too familiar with the standard accounts of the evils of Christian history: crusades, inquisitions, burning witches. Hitchens, Harris, and Dawkins argue that religion can be found lurking behind nearly all of the evils of the world. Where many of us would argue that causes of conflict are economic, political, or ethnic and that religious differences become tools of one or both sides (see Ward 2006), Dawkins says that this is "pusillanimous reluctance to use religious names for warring factions. In Northern Ireland, Catholics and Protestants are euphemized to 'Nationalists' and 'Loyalists' respectively" (2006, 21). The so-called ethnic cleansing in the former Yugoslavia was really, he says, religious "cleansing"—Catholics, Muslims, and Orthodox. He even has an extended argument that Hitler was a Christian and that this served as his *main* motivation.

Competing Traditions; Competing Crises

I believe that one of the strengths of Christian scholarship is that we are so well aware of the intellectual crises our modern Western Christian tradition has faced. We also are aware of how issues stand in most cases in resolving the crises. There was the epistemological crisis created by the

application of critical textual scholarship to scripture and to other early Christian documents. The plurality of religions came to be seen as an epistemological crisis. The problem of natural evil (suffering in and through nature), which had been addressed by the ancient doctrine of the Fall, came to present a strong challenge in the modern period, especially after evolutionary biology and other branches of knowledge made it clear that suffering and death long preceded human sinfulness.

Many conservative Christians, particularly in the United States, and many nonreligious scientists believe that science and religion are essentially incompatible. This is based largely on the Galileo affair and on past and present controversies over teaching evolution in schools. However, these two cases were not *intellectual* crises, or, if they were, they were very short-lived. Even quite conservative theologians quickly found ways to integrate evolutionary theory into their accounts of creation (Livingstone 1987).

I include the rise of modern science as an intellectual crisis, though, for two reasons. First, it went hand in hand with epistemological changes, replacing an epistemology with room for authority as a valid source of knowledge (*opinio*) with modern empiricism (see Stout 1981). The history of philosophical theology in the modern era largely has been a struggle to come to terms with the new epistemology. I believe this to have been the most severe crisis for the Christian tradition and have dedicated much of my own writing to addressing it (Murphy 1990; 1994; 1999a).

Second, modern physics, particularly after Isaac Newton, presented a metaphysical picture of the cosmos as a closed causal order operating on the basis of natural laws. This created a problem for understanding God's role in earthly affairs once the universe had been created. Deism was a popular option: God has no ongoing role. Liberal theologians gave up on all notions of *special* divine action—miracles, answers to prayer, and so forth. Insofar as an event seems to be a special act of God, this is only because subjectively it reveals God's purposes more than the others. God's ongoing action is limited to upholding the whole natural order. Conservatives have insisted on an interventionist account of divine action, based on the perception that without special divine action in nature and history Christianity is gutted of its significance. And some in liberal Christian academia have expressed a sense of having reached something of a dead end; liberal theologians, to use MacIntyre's words, have found themselves unable to advance their inquiries beyond a certain point. Furthermore, the liberal attempt to insulate theology from science has given the impression that the Christian worldview is incapable of accommodating the developments of science. As I note below, Robert Russell has been in the forefront in addressing this issue (for an overview, see Russell, Murphy, and Stoeger 2008).

Enough said about the trials and tribulations of Christian scholarship. This should sufficiently illustrate an important claim that MacIntyre makes

against relativists. Relativists are likely to assume that proponents of one tradition will always see problems with rival traditions but be blind to problems with their own. This certainly is not the case, and many serious thinkers have judged one or more of these crises to be irresolvable and have rejected the tradition as a whole.

To my knowledge the contemporary proponents of scientific naturalism are unaware of intellectual crises facing their own tradition. The subtradition of Marxism is a notable exception. I suggest three places to look for trouble. The first is the persistence of religion, now that we are supposed to know of its primitive origins and the disguised motives that have kept us in its thrall. Like the Marxists' state, religion was supposed to wither away. The second difficulty is to provide an account of the "moral bindingness" of morality. The Enlightenment involved an experiment to see whether traditional morality could be justified on the basis of human reason alone, and MacIntyre is not alone in arguing that the experiment has failed ([1981] 1984). Current attempts to account for morality scientifically, such as in the works of sociobiologists, might succeed in explaining why humans are moral, but the greater their success in showing biological *causes* of moral behavior the less reason there is to take those behaviors to be obligatory (see Murphy 1998). Midgley (1992) claims that the prevalent moral stance of naturalism is valorization of the life of the scientist, but science cannot provide any rational *justification* for this point of view.

The inability of science per se to provide grounds for moral claims is but one instance of what I see to be the most significant of naturalism's problems. The claims made by so many naturalists to the effect that science is the only way to genuine knowledge are self-referentially incoherent. Scientific research cannot support this claim itself or any of the philosophical and quasi-religious ideology that constitutes the naturalist tradition. It is this issue that I pursue here, in order to point up the contrast with Russell's careful account of the epistemological relations between science and the Christian tradition.

The Self-Referential Incoherence of Scientific Naturalism

Naturalism has been surprisingly difficult to define positively: Should it be in terms of ontology or epistemology, and if epistemology, is it explanation in terms of the physics of today or the ideal physics at the end of time? It is still tempting, is it not, to define it negatively, as a nontheistic or nonsupernaturalistic worldview? Perhaps it could be defined epistemologically in terms of what could be comprehended by physics in the mind of an omniscient God—if only there were one.

In the 1930s and '40s naturalism was understood as a positive philosophical position (largely as opposed to idealism), and philosophers understood the need to argue for it, although the success of these arguments

remains debatable (see Passmore 1957, ch. 12). The current contributors to the tradition whom I am considering here tend to understand naturalism negatively. For instance, I heard a debate between Dawkins and Simon Conway Morris in which Dawkins exclaimed that he and Conway Morris had exactly the same understanding of science, and Dawkins kept asking Conway Morris why he insisted on adding God to it. The point of my claim that scientific naturalism is a tradition in its own right is to confirm the earlier recognition that it is a positive metaphysical doctrine that needs to be justified on its own terms and not taken to be simply the denial of religious claims.

Given the current negative understanding of naturalism, however, it is not surprising that the new atheists focus almost exclusively on arguments against religion. As noted above, these foci include naturalistic accounts of religion and arguments for the independence of morality from religious belief and for the evil of religion. They also stress the impossibility of providing rational justification for any religious beliefs. The short response to all of this is to point out, first, that arguments for the unsupportability of religious claims based on the assumption that science is the only form of rationality is simply to beg the question. Second, if it is outside science's capacity to justify the existence of God, all the more so is science incapable of supporting the nonexistence of God.

Dawkins, however, does supply an argument from science to the conclusion that the universe almost certainly could not have been designed by God. He states that the discovery that biological complexity can come about by a process of natural selection should have a consciousness-raising effect in that it primes us to expect to be able to explain how organized complexity in areas other than biology can come about without deliberate guidance (2006, 116). Evolution counters one of the oldest ideas we have: "that it takes a big fancy smart thing to make a lesser thing" (p. 117).

Dawkins then moves to the field of cosmology in order to rebut arguments for design based on the apparent fine-tuning of the cosmological constants. He notes that an alternative explanation is the many-universes hypothesis. He then rebuts the argument that the design hypothesis should be preferred because it is simple, whereas the multiverse hypothesis is extravagant:

> The key difference between the genuinely extravagant God hypothesis and the apparently extravagant multiverse hypothesis is one of statistical improbability. The multiverse, for all that it is extravagant, is simple. God, or any intelligent decision-taking, calculating agent, would have to be highly improbable in the very same statistical sense as the entities he is supposed to explain. The multiverse may seem extravagant in sheer *number* of universes. But if each one of those universes is simple in its fundamental laws, we are still not postulating anything highly improbable. The very opposite has to be said of any kind of intelligence. (2006, 146–47)

Earlier he had written, "as I keep saying and will say again, however little we know about God, the one thing we can be sure of is that he would have to be very, very complex and presumably irreducibly so" (p. 125)! Why theists do not recognize the equal (or more so) improbability of the existence of so complex a designer, he speculates, is that they have not had their consciousness raised by natural selection and its power to tame improbability (p. 143).

Dawkins describes the argument of this chapter as the central argument of his book, yet I find it puzzling because he is employing the idea that God would have to be a "big fancy smart thing to make a lesser thing" while at the same time telling us that natural selection has disabused us of this sort of thinking. The deeper problem is the failure to recognize the crossing of boundaries from science into metaphysics. Theologian Donald Gelpi once said that the source of the differences between process metaphysics and more traditional forms of theology is the judgment as to whether God should be the chief exemplar of categories needed to describe the world or the chief exception. Dawkins has simply assumed the former without argument, and, of course, no knowledge from science could serve to justify this starting point.

A second point at which science is taken to bear on the justification of the naturalist tradition is again negative. The central claim of Dennett's *Breaking the Spell* is that religion ought to be studied scientifically. Of course it has been studied for centuries using a variety of methodologies. What Dennett has to contribute to this long tradition is a report on the new discipline called the cognitive science of religion (CSR). I shall merely report on a part of the work of one significant figure in the movement, Pascal Boyer. An important feature of Boyer's work is what he calls "turning the question of the origin of religion upside down" (Boyer 2001, 31–32). We tend to seek for one origin of the many religions. Instead, he says, we need to recognize the vast number of *potential* religious concepts, beliefs, and practices and then explain why the ones that exist have survived. Is there something that religious concepts have in common that explains why they have been preserved and passed down to new generations?

One aspect of Boyer's work is his theory of religious concepts as "minimally counterintuitive." From cognitive science, Boyer introduces the idea of a template that allows for quick development of more particular concepts. We have only a small number of templates: *person, animal, artifact, polluting substance, natural object*. The template—for example, *animal*—specifies variables that need to be filled in to create a new concept, such as a giraffe: its general body shape, what it eats, where it lives, how it reproduces. The template itself carries a great deal of tacit knowledge. For example, if one female giraffe bears live young, all will be expected to do so.

Boyer's thesis regarding religious concepts is that they are anomalous, in that they add a special tag that violates one or a few characteristics contributed by the template. Some examples: A spirit violates the *person* template by adding to it that it has no body. A statue to which one prays uses the *artifact* template but adds anomalous cognitive powers. An omniscient God is created from the *person* template with added special cognitive powers.

Boyer and others have done research in several cultures to show that concepts that are anomalous in these minimal ways are more likely to be recalled by the subjects than either normal concepts or concepts that do not fit a template at all. So he claims that from among an effectively infinite number of possible religious concepts, the ones we find in the world have survived and spread because they have this feature of minimal anomalousness.

In addition, we have inference systems that are turned on by different kinds of entities. These are sometimes called cognitive modules. Some examples are an agency-detection system, closely related to a system for detecting goal-directed movement; a system for keeping track of who's who; and systems dealing with the physics of solid objects, physical causation, and linking function to structure. To the extent that religious concepts have enough in common with ordinary concepts, they set off these inference systems, and this makes some sets of beliefs about the relevant entities natural and therefore likely to be understood, remembered, elaborated in specific ways, and passed on to others. In short, human brains have evolved to work in ways that suited us for survival in our early environments. Religious concepts, beliefs, practices, and rituals are natural by-products of these cognitive processes.

Two questions need to be asked about this material. The first is whether it is truly scientific. So far there is a great deal of theorizing on the basis of a small amount of data, and Dennett himself claims that this is only the beginning of a productive way to study religion.

Second, recall that one aspect of the competition between rival traditions is to see whether one can explain the rival's point of view better than the rival can itself. Since the beginning of the naturalist tradition with Hume and d'Holbach in the eighteenth century, it has claimed to be better able to explain the existence of Christianity and the other religions than Christians can explain themselves. It has attempted to do so by means of a number of accounts of the natural causes of religious belief and by classifying Christianity as but one instance.

I have argued that the tables can be turned and the theories of CSR can in fact be incorporated into Christian theology (insofar as they turn out to be well supported) as an account of the human contribution to the development of religion, and in a way that is not inconsistent with an account of divine action in the process (Murphy 2009). For this purpose I report on Roman Catholic modernist George Tyrrell's theory of the development

of religion. Despite the 100-year time gap, Tyrrell shared with contemporary cognitive science of religion the understanding of religion as a natural phenomenon, developing in history according to "natural laws of religious psychology" (1907, 76–77). He recognized the tendency of religious representations to be distorted by these psychological laws and noted that Catholicism, at least, is not a rational, purified religion but rather an eclectic mixture, a jumble of levels, not all logically consistent.

So the integration of CSR into Tyrrell's theological account of religion turns out to be surprisingly easy. What CSR provides is the natural laws of religious psychology. Tyrrell's and Boyer's theories (along with many other contributions to CSR that I do not include here) are complementary. In addition, CSR provides rich resources for responding to the problem of religious pluralism.

A third attempt to support the naturalist tradition by means of science is Sam Harris's claim that science can answer all important moral questions. He begins with the claim that questions of right and wrong are all essentially questions about the happiness and suffering of sentient creatures (2004, 170–71). He denies that this is a version of utilitarianism: "I have decided to bypass categories of moral theory that usually frame any discussion of ethics" (p. 272, n. 2). (Is this perhaps in deference to a scientistic epistemology—if it is philosophy it is illegitimate?) The contribution of science to ethics is to determine which organisms are capable of suffering. As the data come in it is reasonable to expect that there will be convergence in views of morality. There is no major problem with moral motivation. "The fact that we want people we love to be happy, and are made happy by love in return, is an empirical observation. But such observations are the stuff of nascent science" (p. 187). People can be encouraged to widen the extent of their moral sympathies by being encouraged to be reasonable (p. 190).

Harris notes two problems. One is empirical evidence that our ethical intuitions are driven by considerations of proximity and emotional salience (p. 199); the other is that it is difficult to adjudicate "what counts as happiness, and which forms of happiness should supersede others . . . but so is every other problem worth thinking about" (p. 185). This second problem was the downfall of utilitarianism, and it is puzzling why Harris fails to see it as fatal to his own position.

I hope that I have been as fair to these authors as can be in so few pages. If I have been, I believe I have shown that science in fact has very little to do with their positions on ultimate reality, the meaning of life, and morality. Second, given that they take themselves to be standing firmly on scientific ground, they have not evinced in these works a particularly sophisticated understanding of either science or epistemology. I intend to highlight this lack of sophistication by turning now to Russell's recent book.

Creative Mutual Interaction

Russell has a highly comprehensive and sophisticated understanding of legitimate relations between theology and science. He has been deeply influenced by the philosophy of science of Lakatos. (A personal note: I had been convinced of the value of Lakatos's work on the basis of its relation to other philosophies of science; I was delighted when Bob told me that Lakatos's methodology perfectly described how he reasoned as a scientist.) So Russell understands both scientific and theological theories to be capable of rational reconstruction as Lakatosian research programs.

One of the most interesting features of Lakatos's philosophy of science is his recognition that the justification of a scientific methodology (that is, a theory about how scientific theories themselves are to be justified) needs to be isomorphic with the justification of scientific theories themselves. He argued that a research program was justified if it could be shown to be progressive over time; this involves saving the valid content of previous versions of the program while addressing anomalies in a non–ad hoc manner.

Philip Clayton (1999) has pointed out that theories regarding the proper relations between theology and science could be understood in terms of Lakatosian research programs as well. In light of that suggestion I described my own work as a stage in the development of the Barbour-Peacocke program (Murphy 1999b). The core of the program is the model of a nonreducible hierarchy of the sciences (representing a hierarchy of complex systems), along with the claim that theology belongs at the top of the hierarchy of sciences. This model entails that the relation of theology to any particular science should be analogous to the relation of any science in the hierarchy to its neighbors below.

I now want to argue that Russell's is the latest and most sophisticated version of this program. He has done more than anyone else to exploit the insight that the relations among the sciences in the hierarchy are asymmetrical. On the one hand, the characteristics of the lower-level entities and the laws governing their behavior constrain but usually do not determine higher-level phenomena. On the other hand, the higher-level phenomena tell us something about the lower level, namely, that they must be such as to *permit* the development and behavior of the higher-level entities.

With this model in mind, Russell looks at various components of both scientific and theological research programs. All involve data. In theology this includes scripture, religious experience, and historical events, but, because theology is the science of God in relation to all that is, it also includes other facts about the world. In science there are theories; in theology the theories are called doctrines. Theories are both supported and constrained by data. Finally, both science and theology are imbued with philosophical assumptions such as the order of nature and the meaning of time. These are possible components in epistemological relations between theol-

ogy and science. Another kind of relation is heuristic; theories are not deduced or induced from data but are human inventions requiring imagination. So another possible benefit from cross-disciplinary dialogue is the provision of new conceptual resources for theory development.

Based on the above, Russell describes eight possible "paths" or ways of relating theology to a particular science (2008, ch. 10). The first five are legitimate ways for science to inform theology; the last three are ways in which theology may inform science.

1. Scientific theories may serve as data that place *constraints* on theology.
2. Scientific theories may serve as *supporting* data for theology insofar as they are explained theologically.
3. *Philosophical interpretations* of scientific theories may serve as data for theology.
4. Scientific theories may serve as data for theology when they are incorporated into a *philosophy of nature.*
5. Scientific theories may function *heuristically* in theology by providing conceptual, experiential, practical/moral, or aesthetic inspiration.
6. Theology may provide some of the philosophical assumptions underlying science.
7. Theological theories may function heuristically in the construction of scientific theories.
8. Theological theories may lead to selection rules within the criteria of theory choice, that is, for choosing between existing scientific theories that all explain the available data, or for deciding what set of data the theory should seek to explain.

In summary, Russell writes:

> The *asymmetry* between theology and science should now be quite apparent: Theological theories do *not* act as data for science in the same way that scientific theories do for theology. This reflects the methodological assumption that the academic disciplines are structured in an epistemic hierarchy of constraints and irreducibility. It also safeguards science from any normative claims by theology. It does, though, allow for the possibility that philosophical or theological commitments can stimulate the search for new theories and can function as a source of "criteria for theory choice" among existing competing theories in the natural and social sciences. That this has happened historically is well known; that it can and is happening in contemporary scientific research is less generally recognized. Together these eight paths portray science and theology in a much more interactive, though still asymmetric, mode, which I call "the method of creative mutual interaction." In particular, the theologian must first face the challenge of science to his or her cognitive claims; yet the scientist may find that philosophical elements pervade his or her work in creative ways and stem, in turn, from implicit theological positions. Neither partner in the interaction assumes a literal reading of their theories or an unqualified authority in the mutual search for understanding;

both partners expect to gain from the interaction while pursuing their own specialties. (2002, 287–88)

In addition to these methodological concerns on the relations between theology and science Russell has addressed two of the major crises that I described as critical issues for the Christian tradition in the modern period. His is the most detailed approach to a noninterventionist account of special divine action (via immanent divine action at the quantum level) (2008, chs. 4, 5, 6). He has also written on the problem of natural evil (chs. 7, 8). In addition to his writings on these two issues, he was largely responsible for promoting a series of conferences, jointly sponsored by the Center for Theology and the Natural Sciences and the Vatican Observatory, addressing the divine action problem in six conferences and one (so far) on natural evil.

So, in contrast to the new atheists, Russell has a well justified account of scientific rationality. (Two of the atheists address philosophy of science briefly, mainly to note the relativist implications that have been seen in Kuhn's work.) In contrast to their assumption that there is no such thing as theological rationality, Russell presents a sophisticated account. In contrast to the assumption that religion and science are either unrelated or in constant conflict (or both at once), Russell has a powerful normative account of the actual and potential relations. In contrast to the new atheists, who often are unaware of the achievements of the giants in their own tradition, Russell is thoroughly informed of the history of his own tradition and is aware of both strengths and continuing intellectual crises.

A Way Ahead?

If I am correct in claiming that MacIntyre has in fact superseded Lakatos's understanding of scientific rationality, we may ask how his work might influence the further development of Russell's work and, through him, the rest of the theology-and-science world. One point that MacIntyre makes is that it is essential to relate ethics both to an account of ultimate reality and to the social sciences and biology. Russell could incorporate into his corpus an argument something like George F. R. Ellis's and mine on the placement of ethics in the hierarchy of the sciences, just below theology (Murphy and Ellis 1996). In this case he would be solving a problem that I predict the naturalist tradition will not, namely, how to account for the morally binding character of ethics.

Second, Russell and others of us in the field could begin to reflect on the sorts of questions that I have barely touched upon here: how to understand the contribution our work makes to the justification of our Christian tradition vis à vis the naturalist tradition that predominates in contemporary academia. In so doing we would strengthen the arguments

that already exist for the indispensability of the science-theology dialogue within Christian scholarship, and perhaps it would be possible to make a case for a more fair hearing among naturalist thinkers.

References

Boyer, Pascal. 2001. *Religion Explained: The Evolutionary Origins of Religious Thought.* New York: Basic Books.

Clayton, Philip. 1999. "Shaping the Field of Theology and Science: A Critique of Nancey Murphy." *Zygon: Journal of Religion and Science* 34:609–18.

Dawkins, Richard. 2006. *The God Delusion.* Boston and New York: Houghton Mifflin.

Dennett, Daniel C. 2006. *Breaking the Spell: Religion as a Natural Phenomenon*. New York: Viking.

Dixon, Thomas. 2002. "Scientific Atheism as a Faith Tradition." *Studies in History and Philosophy of Biology and Biomedical Sciences* 33:337–59.

Feyerabend, Paul. 1970. "Consolations for the Specialist." In *Criticism and the Growth of Knowledge,* ed. Imre Lakatos and Alan Musgrave, 197–230. Cambridge: Cambridge Univ. Press.

Funkenstein, Amos. 1986. *Theology and the Scientific Imagination from the Middle Ages to the Seventeenth Century.* Princeton, N.J.: Princeton Univ. Press.

Harris, Sam. 2004. *The End of Faith: Religion, Terror, and the Future of Reason.* New York: Norton.

———. 2006. *Letter to a Christian Nation.* New York: Vintage.

Harrison, Peter. 2006. "'Science' and 'Religion': Constructing the Boundaries." *Journal of Religion* 86:81–106.

Hitchens, Christopher. 2007. *God Is Not Great: How Religion Poisons Everything.* New York and Boston: Hachette.

Holbach, Paul-Henri Thiry, Baron d'. [1770] 1795–96. *The System of Nature; or, The Laws of the Moral and Physical World.* London.

Hume, David. 1757. *The Natural History of Religion.* London.

Kuhn, Thomas. [1962] 1970. *The Structure of Scientific Revolutions.* 2d ed. Chicago: Univ. of Chicago Press.

Lakatos, Imre. 1970. "Falsification and the Methodology of Scientific Research Programmes." In *Criticism and the Growth of Knowledge,* ed. Imre Lakatos and Alan Musgrave, 91–196. Cambridge: Cambridge Univ. Press.

Livingston, Donald. 1984. *Hume's Philosophy of Common Life.* Chicago: Univ. of Chicago Press.

Livingstone, David. 1987. *Darwin's Forgotten Defenders: The Encounter between Evangelical Theology and Evolutionary Thought.* Grand Rapids, Mich.: Eerdmans.

MacIntyre, Alasdair. [1977] 1989. "Epistemological Crises, Dramatic Narrative, and the Philosophy of Science." In *Why Narrative? Readings in Narrative Theology,* ed. S. Hauerwas and L. Jones, 138–57. Grand Rapids, Mich.: Eerdmans.

———. [1981] 1984. *After Virtue.* 2d ed. Notre Dame, Ind.: Univ. of Notre Dame Press.

———. 1988. *Whose Justice? Which Rationality?* Notre Dame, Ind.: Univ. of Notre Dame Press.

———. 1990. *Three Rival Versions of Moral Enquiry: Encyclopaedia, Genealogy, and Tradition.* Notre Dame, Ind.: Univ. of Notre Dame Press.

Midgley, Mary. 1992. *Science as Salvation: A Modern Myth and Its Meaning.* London and New York: Routledge.

Murphy, Nancey. 1990. *Theology in the Age of Scientific Reasoning.* Ithaca and London: Cornell Univ. Press.

———. 1994. *Reasoning and Rhetoric in Religion.* Valley Forge, Pa.: Trinity Press International.

———. 1998. "Supervenience and the Nonreducibility of Ethics to Biology." In *Evolutionary and Molecular Biology: Scientific Perspectives on Divine Action,* ed. R. J. Russell et al., 463–89. Vatican City State and Berkeley, Calif.: Vatican Observatory Press.

———. 1999a. "Overcoming Hume on His Own Terms." In *Religion and Hume's Legacy,* ed. D. Z. Phillips and T. Tessin, 206–20. London: Macmillan.
———. 1999b. "Theology and Science within a Lakatosian Program." *Zygon: Journal of Religion and Science* 34:629–42.
———. 2009. "Cognitive Science and the Evolution of Religion: A Philosophical and Theological Appraisal." In *The Believing Primate: Scientific, Philosophical, and Theological Perspectives on the Origin of Religion,* ed. J. Schloss and M. J. Murray, 265–77. Oxford: Oxford Univ. Press.
Murphy, Nancey, and George F. R. Ellis. 1996. *On the Moral Nature of the Universe: Theology, Cosmology, and Ethics.* Minneapolis: Fortress.
Passmore, John. 1957. *A Hundred Years of Philosophy.* London: Duckworth.
Popkin, Richard. 2003. *The History of Scepticism from Savanarola to Bayle.* Rev. and enlarged ed. Oxford: Oxford Univ. Press.
Ross, Thomas. 1985. "The Implicit Theology of Carl Sagan." *Pacific Theological Review* 18 (2): 24–32.
Russell, Robert John. 2002. "Eschatology and Physical Cosmology: A Preliminary Reflection." In *The Far-Future Universe: Eschatology from a Cosmic Perspective,* ed. George F. R. Ellis, 266–315. Philadelphia and London: Templeton Foundation Press.
———. 2008. *Cosmology from Alpha to Omega: The Creative Mutual Interaction of Theology and Science.* Minneapolis: Fortress.
Russell, Robert John, Nancey Murphy, and William R. Stoeger S.J., eds. 2008. *Scientific Perspectives on Divine Action: Twenty Years of Challenge and Progress.* Vatican City State: Vatican Observatory Press.
Sagan, Carl. 1985. *Cosmos*. New York: Balantine.
Stout, Jeffrey. 1981. *The Flight from Authority: Religion, Morality, and the Quest for Autonomy.* Notre Dame, Ind.: Univ. of Notre Dame Press.
Tyrrell, George. 1907. *Through Scylla and Charybdis, or The Old Theology and the New.* London: Longmans, Green.
Ward, Keith. 2006. *Is Religion Dangerous?* Grand Rapids, Mich.: Eerdmans.
Westphal, Merold. 1993. *Suspicion and Faith: The Religious Uses of Modern Atheism.* Grand Rapids, Mich.: Eerdmans.