The Inevitability of Religion and the Wisdom of Cooperation with Science

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Introduction

Religion is widely misunderstood. This matters because religion is an important cultural force and misunderstandings about it have produced seriously mistaken predictions about its future and flawed social policies. For example, the western intellectual creations of Marxism and so-called "secularization theory" both contain interpretations of religion that predict its demise, yet religion is flourishing in almost every part of the world, full of promise and danger. The USA's federal law enforcement agencies have tended to treat religious fanatics like criminals, seriously misjudging how they will react in several infamous confrontations in recent years. The international war on terrorism stresses security and underemphasizes the miserable life conditions that inspire terrorism because of a mistaken assumption that force can control religious belief. The academic study of religion has much to offer those seeking a truer and deeper understanding of religion.

Science is another widely misunderstood cultural force. The philosophical and historical study of science has produced many helpful insights but these are mostly ignored by commentators on culture. Science is often presented either as the long-term solution to all human ills or as the ultimate cause of all our moral and social problems. Unrealistic hopes for science and hostility to science are both intellectually mistaken and socially disastrous, provoking culture wars but not contributing much to help us solve the problems we face.

Misunderstandings of science and religion individually also exacerbate the impression of conflict between science and religion, and actually cause costly conflicts that better informed cultural leaders could avoid. By taking advantage of the bodies of knowledge generated by expert study of religion and the scholarly study of science, it should be possible to produce a reasonable interpretation of the sorts of relationships we can expect science and religion to have.

This defines the aim and structure of this essay. Beginning with a summary of what religious studies has discovered about religion, I discuss what philosophy of science has discovered about science, and then ask what relationship can and should hold between science and religion. There are many subtleties along the way but even in a short essay it is possible to obtain a reasonably clear impression of religion, of science, and of relationships between them.

The relevance of this essay drives from the following theses: (1) religion is inevitable, (2) science is inevitable, and so (3) we had better have a clear idea of how they relate. The proposal I defend concerning science-religion relations is: (1) "independent domains" is a good first approximation of the relation between science and religion but finally unsatisfactory because of domain overlap; (2) interaction can and must occur, whether as conflict, dialogue, synthesis, or cooperation; and (3) the highest value of the science-religion specialization lies in its ability to facilitate cooperation aimed at solving urgent and complex problems that transcend individual scholarly disciplines.

What is Religion?

The academic study of religion within the western world is only about two-hundred years old. The leading scholarly society for the study of religion is the American Academy of Religion. Founded in 1909 as the "Association of Biblical Instructors," this organization initially had a distinctly Christian profile. Its members were mostly Christian teachers and Christian interests determined the subjects of its study. By 1964, when it took the name "American Academy of Religion," it had exchanged the Christian profile for a religiously neutral one in which scholars of all religions or no religion could study all religions and every aspect of religion. In 2004, the leadership of the American Academy of Religion further strengthened this neutral posture by deciding to end its practice of holding annual meetings jointly with the Society of Biblical Literature, which naturally had retained an emphasis on the Bible and so on Judaism and Christianity.

Most religious studies departments in North America are only a few decades old.[1] At the present time there are over 1,400 universities and colleges in North America with undergraduate programs in religion. There has been an equally impressive investment in graduate education in religion. According to American Academy of Religion statistics, the thirty years from 1972 through 2002 yielded about 165,000 doctorates in the humanities within North American universities. Of these, 6,805 (4.1%) were in religious studies and 6,411 (3.9%) in theology or religious education. Presumably, religion was also a major theme in many other doctorates, especially in the psychological and social sciences.

It is fair to ask what we have learned from this vast academic commitment to the study of religion. For instance, do we have a clear idea of what religion is? One of the few points of almost universal consensus that has emerged from this huge scholarly effort is that there is no easy way to define religion.[2] If we define religion in terms of a metaphysical world view (say, as engagement with the transcendent), then we can effortlessly point to religions that do not share this worldview. If we define religion in terms of God or gods (say, Lucretius' definition that religion is the fear of the gods and the cause of all evil), we omit many forms of Buddhism and Daoism that do not have these things. If we define religion in social terms (say, Emile Durkheim's definition that religion is the codification and cosmologization of a group's fundamental moral norms) we leave out individual spirituality. If we define religion in terms of individual feelings and thoughts (say, Alfred North Whitehead's definition that religion is what an individual does with his or her own solitariness), then we leave out the social dimension. If we define religion in terms of ideas (say, Georg Hegel's definition that religion is the knowledge possessed by the finite mind of its nature as absolute mind), we leave out practices. If we define religion in terms of harmonizing ourselves with cosmic forces (say, William James' definition that religion is the belief that there is an unseen order, and that our supreme good lies in harmoniously adjusting ourselves thereto), we do not register religions whose essence seems to be to support human resistance to forces of nature, to contradict rather than accept the way things are.

The general conclusion from these fascinating facts should be that religion is too diverse and complex to sustain a universal definition. Perhaps the best we can do is to confess that our ideas of religion are like members of a family: they share certain recurring features—a head shape or a personality style or a body type—but no one feature is shared by all family members or captures

the essence of that family's appearance. In the same way, there is no universal essence that makes religion what it is, but there are family resemblance characteristics of religion.

What are these widely but not universally shared features of religion? There are many subtleties here and any list is controversial. Here are five important widely shared features of religion. Of course, the list could be longer.[3]

- Religion often involves a way to relate every aspect of life to something ultimate and fundamental, in terms of ideas (theology), values (ethics), and practices (worship).
- Religion often involves an answer to concerns about death and immortality, including the ultimate origins, fate, and meaning of human life and all of reality.
- Religion often involves a means of bonding human beings tightly together through obligation, responsibility, and ritual, in order to stabilize social life and create peace and happiness.
- Religion often involves a solution to the problem of human evil and a means of healing, liberation, social transformation, and personal self-cultivation.
- Religion often involves a source of orienting narratives by which we discern our place in a cosmological framework and gather the courage to make moral decisions.

Nineteenth-century German philosopher Karl Marx, following in the footsteps of left-wing Hegelian luminaries such as Ludwig Feuerbach, viewed religion as a symptom of alienation—in Marx's case, the consequence especially of oppressive social and economic circumstances. Remove the causes of suffering and misery through social and economic revolution, thought Marx, and religion will wither like Summer grapes left unpicked on the vine. Though the process of overcoming the causes of suffering in human societies is far from over, Marx appears to have been factually wrong about the demise of religion. Yet he certainly was correct that religion draws some of its power from human misery and suffering.

Marx's insights have been absorbed by religious studies and also critiqued. The academic study of religion shows that Marx's view of religion was only partially correct. It demands that we distinguish between aspects of religion that may well disappear when and where social and economic conditions reduce human misery and suffering, and features of religion that are independent of such social and economic transformations. Features of religion that seem tied to human pain and injustice include the following:

(1) religious rationalizations for war and violence;

(2) superstitious religious beliefs that fly in the face of universally accepted scientific and medical knowledge about the world; and

(3) religious escapism, or religiously supported avoidance of taking responsibility for social changes needed to alleviate suffering.

But the five characteristics listed above do not depend on human suffering and misery. They are aspects of human life that persist even when life is safe and peaceful, healthy and happy. If Marx had enjoyed the knowledge of religion that we possess today, it is not too much to expect that he would have made such a distinction himself, regarding some parts of religion as symptoms of social ills and other parts as potential allies for social transformation.

Secularization theory was proposed in the 1960's to explain the precipitous decline of institutional religious involvement in Europe since the Second World War.[4] Like Marxism, it also predicted the decline of religion under specific conditions, on the basis of an insightful but flawed understanding of religion. The idea of religion that forms the theoretical basis for secularization theory includes the following propositions (along with predictions for religion given specific social changes in parentheses).

(1) Vital religion is dependent on widespread ignorance about the world's workings (prediction: education should reduce interest in religion).

(2) Religion is about authority and social control (prediction: as nation states create freedom of opinion, this should loosen the vice grip of religious authority, and people will exercise their freedom by ignoring religion).

(3) Religion can't compete rationally with other forms of knowledge, including science (prediction: as science creates knowledge about the world that contradicts religious truth claims, religion should retreat from intellectual confrontation or else engage it with reactionary authoritarianism, in either case becoming increasingly irrelevant to educated people from all classes and cultures).

(4) Religion compensates for lack of perceived goods and needs poverty to make people willing to submit to its authority (prediction: as stable economies create comfortable lifestyles, religion should become superfluous, merely a cultural curiosity).

But religion has defied the predictions of secularization theory. Sociologist Peter Berger, one of the chief architects of secularization theory, has recently tried to investigate where secularization theory went wrong. Acknowledging that the data contradict all of the major predictions of secularization theory, Berger says, "The world today is massively religious, is *anything but* the secularized world that had been predicted (whether joyfully or despondently) by so many analysts of modernity."[5]

Why did secularization theory largely fail? In much the same way as Marxism oversimplified religion, secularization theory reduced religion to a few of its important factors, improperly essentializing and universalizing those factors while neglecting others, including those listed above in the five characteristics. An incomplete or distorted theory will lead to distorted predictions.[6]

The evidence suggests that the price of misunderstanding religion can be high. A sounder conclusion, based more deeply in the whole sweep of the academic study of religion, is that religion is rationally and socially flexible, and that some parts of religion are more vulnerable to social change than others. In some form, therefore, religion is inevitable in human life. It will persist no matter what social and economic organization we adopt, and regardless of how comfortable or educated we become. Religion, in other words, is inevitable.

What is Science?

Science has been many things in many cultures. Even today, globalized science, originating in the west but adopted all over the world, is extremely diverse in content and method. This makes generalized definitions difficult. Even so, and despite the social complexity of its procedures, science is simpler than religion in the sense that it has shared features that recur in virtually every instance of scientific practice. When an activity lacks these features, scientists quickly dub the

activity pseudo-science or reject its claim to be science altogether. This concern for boundaries and definition does not exist in religion as a whole; it is found only in individual religious groups.

What are these defining features that modern science displays? There are some traps to avoid here. We might be tempted to say "science requires experimentation" but this neglects historically oriented sciences such as evolution and geology. Alternatively, we might say "science requires mathematization" but not all sciences work that way. Discussions of six of the most important universal features of science follow.

- *The subject matter of science is the public world around and within us, but not internal thoughts and feelings that cannot be made subject to public scrutiny.* For example, the motivations of a scientist, the personality and social skills of a scientist, or the source of a scientist's breakthrough idea are not important for science as such. They are crucial as fodder for the analysis of historians and philosophers of science, as well as sociologists and cultural anthropologists interested in science as a socio-cultural activity, but science limits itself to the public world about which scientists can agree and disagree.
- *The aim of science is to devise theories that explain origins and development, structure and function, patterns and characteristics of aspects of that public world.* The word "explain" is infamously vague so philosophers of science have invented complex theories of scientific knowledge in order to explain the various ways that science does in fact explain. They key is relating theories about one thing to theories about already understood things so as to simplify the organization of knowledge, to make more elegant the presentation of its basic principles, or to predict new facts.
- *The procedures of science are optimized to generate consensus relatively efficiently through correcting and improving theories.* The fundamental reason that scientists value consensus is that they seek explanations with the strongest claim to truth. In practice, scientific confidence in the value consensus is continually reinforced by the fact that the vast majority of science is not controversial. This beings a tremendous amount of cultural authority to scientists in an era when humanists don't seem to be able to agree on much at all. The subtlety here is that, for the purposes of defining science, consensus about particular scientific theories is less important than consensus on how to do science—on scientific practices, on scientific values, and on criteria for selecting among competing hypotheses. Scientific identity turns more on knowing how to do and think about science than on the particular results of the effort. Of course, the broad consensus on scientific theories reflects and reinforces the deeper consensus on procedures, values, and criteria for theory choice.
- *The theories of science quantify and mathematize theories where possible in order to produce measurement predictions and predictions about causal relationships.* While quantification and mathematization is not always possible in science, it is crucial most of the time because it is the basis for making and evaluating the predictions of scientific theories. This emphasis constantly leads to oversimplifying phenomena, of course, because many things of value cannot be mathematized or quantified. But so long as scientists and cultural interpreters of science do not forget that science only has partial access to phenomena of interest, there is no harm in this limitation. Unfortunately, forgetfulness seems common, as when economists focus on features of economic life for

which they have mathematical models to the neglect of equally important features for which they do not have mathematical models. Alfred North Whitehead called this "the fallacy of misplaced concreteness" and it is up to scientists and non-scientists alike to object when science errs in this way.

- *The ethic of science involves fidelity to evidence, commitment to seeking public consensus, creativity, honesty, and cooperation.* Note that science does not produce such values so much as it inherits them from a wider social fabric. It is in this sense especially that science is a cultural achievement. If world cultures stop producing young people willing to be faithful to evidence, honest, and cooperative, science would collapse virtually overnight. Just as economic life depends on values of prudence and initiative that economies themselves cannot produce, so scientific practice feeds on particular values in order to survive and thrive.
- *Where the possibility of efficient consensus is threatened, scientific practice reaches its own limits and disciplines itself through debating its own boundaries.* For example, scientists in general despise and harshly punish the deliberate dishonesty of fellow scientists in search solely of fame and glory. Less obviously, many scientists regard the incredibly abstract theories of quantum cosmology (bizarrely called "theories of everything," as if they can explain the meaning of life itself) with deep suspicion. To the extent that these theories are speculative mathematical creations that cannot be corrected by any conceivable observation, some scientists have risen up to say that they belong to the domain of metaphysics and not science.

Now that we know how to do it, it seems obvious that science is an inevitable and mostly welcome expression of human curiosity about reality. It is limited in its reach but most of us are willing to accept the limitations of science in return for expert agreement on how the natural world works, so long as scientific knowledge does not endanger our survival, pose as an authority on topics beyond its reach, or pretend that reality is limited to what science can handle with its specialized methods.

Religion, too, is inevitable, even in a paradise world free of misery and untimely death. Religion is, in part, one way we express and explore who we are and how we should live. We can no more do without religion than we can suppress our natural scientific curiosity about the world we inhabit. Of course, religion has many undesirable features, also, and some features that would become less prominent if human societies find a way to eliminate needless suffering and injustice. But the spiritual and value questions that inspire and haunt human beings will persist, so religion is inevitable.

How, then, can science and religion relate?

How Can Science and Religion Relate?

One of the recurring goals of the science-religion specialization has been to understand whether and how science and religion can relate to one another. Many views on this question exist, and surveying the main proposals helps to introduce the specialization, to show how each of these views has some insight, and to frame the case I want to make on behalf of the wisdom and value of cooperation between religion and science.

Independence

One of the principle hypotheses about science-religion relations is the "independence thesis." The premier recent defense of the independence thesis may be Stephen J. Gould's *Rocks of Ages*.[7] The independence thesis claims that religion rules in one domain, science rules in another domain, and the two domains do not overlap.

The independence thesis is quite appealing, at least initially. After all, there are significant differences between science and religion that seem to mark out separated territories. Science emphasizes potentially universal consensus and has to contract its sphere of attention to make sure it only studies matters that can support this sort of consensus. This requires setting aside questions of existential relevance and personal anxieties, for example. Much of religion ponders the whole length and breadth of reality, and concerns itself with how we fit into that ultimate picture of things, even though such an ambitious venture will spark colorful disagreements and defy ultimate consensus. This sharp difference about the way consensus is valued mirrors the equally sharp difference on the way existential questions of life's meaning and purpose register in religion and do not register in science. Scientists themselves frequently operate by drawing a sharp distinction between the science part and the religion part of their lives, treating science and religion as independent and non-interacting ventures. No wonder scientists such as Gould so passionately defend the independence thesis.

Moreover, the independence thesis helps to explain conflict between science and religion. If science and religion do appear to conflict, according to the independence thesis, it can only be because (a) science has left its home domain and is advancing a metaphysical theory that can interact with religion, or (b) religion has left its home domain and it advancing a theory about the public, physical world that can interact with science. Consider one example of each mistake.

On the one hand, scientism is an example of science leaving its home domain and advancing a materialist, reductionist worldview as if it were just science. But scientism takes an extra step—really, a vast leap—outside the domain of science, despite all denials to the contrary. Science does not entail a single metaphysical worldview; science is compatible with many different metaphysical worldviews. Scientism pretends that a particular metaphysics just is science and, according to the independence thesis, we should analyze the resulting conflict with religion as avoidable if scientism were honest about the fact that it is not science. It is a conflict in the domain of metaphysics, not a conflict between science and religion.

On the other hand, religious fundamentalism often provides examples of religion leaving its home domain and advancing claims about the natural world that can conflict with science. Fundamentalism does this on the basis of a basic belief that sacred religious texts contain information about the natural world that is more reliable than the information we can obtain from science. But the vast majority of people believe that science, though limited in its reach, is a more reliable way to find out about the parts of reality that it can handle than sacred religious texts accepted as scientifically accurate on supposedly divine authority. The way to resolve the conflict, according to the independence thesis, is for religious fundamentalism to retract its claims about the natural world. That might not happen in practice, of course, but at least the independence thesis offers an appealing interpretation of the conflict.

Advocates of the independence thesis give varied explanations for the separation of domains. Some say it reflects differences in the languages of science and religion, in which case it is called the "Two-Languages" approach. Others say it reflects differences in the domains of reality

engaged by science and religion, in which case it is called the “Two-Worlds” approach. Either way, the independence thesis is an important view in the literature on this subject. It is popular among scientists who either feel sympathetic to religion or want to control religion and prevent it from interfering with cultural activities like science. It is similarly popular with humanists who want to acknowledge the importance and value of science while preventing it from arrogantly reducing the marvelous reality we inhabit to a flattened-out cartoon of a world that science can most easily handle with its specialized methods.

Despite the initial plausibility of the independence thesis, it turns out to be oversimplified. Sometimes the domains of science and religion really do overlap. This is least true in the hard sciences of physics and chemistry, perhaps, though even there a wealth of research has demonstrated the possibility of interaction. But it becomes increasingly difficult to avoid domain overlap as the sciences deal with more obviously human realities, as they do in the social sciences. We should regard the independence thesis as a good first approximation but acknowledge that things are not so neat at the level of detail.

The International Society for Science and Religion, founded in 2002, is dominated by scholars who think that things are more complicated than the independence thesis suggests. Accepting that interaction between scientific and religious claims about reality is inevitable, the Society is committed to sponsoring science-religion research. But how can or should interaction occur? There are at least four ways to be discussed in what follows: conflict, dialogue, synthesis, and cooperation.

Conflict

Conflict in science and religion is sometimes caused by domain violation, as analyzed in terms of the independence thesis above. A case in point is the seventeenth-century conflict between Italian scientist Galileo Galilei and the Catholic Church, represented by Cardinal Bellarmine, over the organization of the solar system and biblical interpretation. Bellarmine was the subtler thinker and correct in many points of detail about Galileo’s mistaken claims about scientific theories. But the Catholic analysis of Galileo’s work as a domain violation by science proved mistaken, and in the long term the Catholic Church acknowledged that the conflict was in fact due to a domain violation by religion, despite the extenuating circumstances of Galileo’s deliberate provocation of the Church.

In other cases, conflict seems to be a matter of domain overlap rather than domain violoation. For example, the last decade has seen intensive investigation of religious beliefs about the efficacy for human health of meditation and prayer. The data is extremely complex and the methods of study extremely controversial. But a rough consensus seems to be emerging that both confirms and conflicts with traditional religious beliefs in different respects. In respect of the kinds of religious practices that can have mind-body and immune system benefits, from some forms of meditation to rich forms of social involvement, religious claims to sustain health appear to be borne out by analysis of the data. In respect of stronger claims, such as the efficacy of long-distance anonymous prayer, the data seems less supportive. The interpretation of data is controversial on both of these results. But the resulting conflict between medical science and religion seems to be a matter of domain overlap rather than domain violation by religion.

The possibility of conflicts due to domain overlap is a complicated one. For instance, keeping in mind the speed with which science can change, it is not difficult to imagine situations in which

religion may opt to hold onto a scientifically unpopular claim, betting that science will eventually correct itself and end up confirming a controversial religious claim. After all, the health effects of religious involvement were one dismissed as religious hysteria but now are fairly well established medical facts, albeit on medically intelligible rather than any supernatural grounds.

Dialogue

Whether religious and scientific domains are separated or not, and by whatever degree, we can often place science and religion in dialogue. Suppose, for example, that we are interested in a comprehensive theory of cosmic reality, including its origins, its history, and its likely future development. We would want to know what scientific cosmology has to say about all that. But the limits of science mean that scientific cosmology by definition cannot tell us everything of interest to us about the cosmos, even though what it does tell us will be wonderfully detailed. Around the edges of scientific theories are many "boundary questions" that are beyond the reach of current science, and perhaps permanently beyond the reach of any science we can ever undertake. So we can reach out to religious cosmology for a view of reality that is larger in scope and more existentially relevant, a religious worldview that can address boundary questions which science cannot. To see what this means, consider that, by means of Einstein's general theory of relativity, big-bang cosmology can lead our imaginations back in time very close to an apparent singularity in the space-time structure of the universe, but further than that it cannot go. Even quantum cosmological investigations of the extremely early universe (within an infinitesimal fraction of a second after the big bang) cannot answer boundary questions of why there is something rather than nothing, or how human beings should organize themselves socially, morally, and existentially in this strange world that has unfolded from the early universe. Limit the question in just the right way and science can answer it. Consider the question in its broadest form and religious ideas about reality need to play a role.

Such dialogues will not produce new scientific theories and sometimes agreement may not even be possible. But the point of dialogue is not consensus between science and religion so much as mutual understanding. And there can be many subtle effects of such dialogue. For instance, considerations of the science-religion-dialogue sort have inspired scientists to explore some ideas rather than others. German-American physicist Albert Einstein defended a particular interpretation of quantum phenomena on the basis of a religious belief, probably deriving from a kind of Spinozistic determinism, that "God does not play dice" with the universe. British mathematical physicist Stephen Hawking sought to develop an early quantum cosmology explicitly to avoid the apparent religious implications of the Big Bang theory, namely, that God must have created the universe—implications, it must be said, that were drawn far too hastily by physicists and religious leaders alike.

The dialogue between science and religion is a peculiar one. It is not like dialogue between equal partners, such as representatives of nations, nor like dialogue between strangers, in which the point is mutual exploration. Rather, it is a dialogue between points of view. To understand this, consider the following adaptation of an illustration often used by famous American religious studies scholar Huston Smith. Science is like looking at the Himalayan Mountains through a telescope: you can see only a small patch but you can see marvelous details. Religion is like setting the telescope aside and looking at the whole vista of the Himalayas, drawing in a deep breath as you do so, appreciating the whole view for its beauty and majesty. The science-religion

dialogue is a conversation between complementary and contrasting views: a detailed but limited view and a vaguer but comprehensive view.

It takes special skills to participate effectively in such a dialogue. Not surprisingly, some science-religion dialogues are more successful and others less so, according to whether these skills are in place among the dialogue participants. One of the most successful dialogues has been the Divine Action Project, very much a theistic and Christian venture, which produced many volumes of results and in many ways sets the standard for dialogue ventures in science and religion. But this was a difficult undertaking, demanding new skills of the scientists, philosophers, and theologians involved. And the effort involved was not that of a mere weekend conference. The Divine Action Project involved intense conferences and writing feedback processes over a fifteen-year span.

Synthesis

The most aggressive theorists in the science-religion field attempt to synthesize the claims of science and religion into an overarching metaphysical and existential worldview. This is quite different from dialogue, where the more modest goal is mutual understanding and possibly mutual constraint on theory building. The synthesizers, by contrast, aim to create worldviews completely consistent with the natural and social sciences while taking account of the humanities and arts, and doing justice to the wisdom of religious traditions in every culture. This is a bold intellectual venture, even within the scope of a single religious tradition, and has rarely been undertaken even with that limited scope. It has *never* been accomplished while paying attention to all of the major religious traditions and the details of the social and natural sciences at the same time; the task is simply too great.

In recent times, Whitehead attempted this in a metaphysics embracing many of the humanities, arts, and sciences in his *Process and Reality*, but made little attempt to connect to the specific wisdom of world religions and cultures. More recently, American scientist E.O. Wilson tried the same in his book, *Consilience*, though not in the metaphysical mode, with similar limitations. Perhaps the most ambitious attempt underway at the present time is the growing body of writings pouring forth from philosopher-theologian Robert Cummings Neville, who calls himself both a Boston-Confucian and a Christian, and explicitly tries to embrace the sciences, humanities, arts, and world religions in a comprehensive synthesis of all human knowledge and activity.

Cooperation

The most practical way to conceive of interaction between science and religion is in terms of cooperation. Curiosity may be served by investigating the relations that are possible between science and religion. But it is far more important to use both science and religion simultaneously to handle important problems that face us in this complex world of ours. The real value of the science-religion specialization, as well as its most meaningful future work, lies not in endlessly fascinating studies of comparative method and articulation of possible science-religion relations, but in the direction of cooperative, multidisciplinary problem solving.

Consider a problem such as ecological sustainability. This problem may be threatening the survival both of our species and of the biosphere itself. But there is no way the problem can be solved by science alone or by religion alone—or, for that matter, by politics alone or economics alone. Science is learning how to tell us what will happen if we cut down forests and what will happen if we plant trees, what will happen if we pollute the air and what will happen if we

reduce carbon-dioxide emissions associated with energy production and use. But science cannot tell us what to do. It cannot tell us how to balance the values of enhancing human civilization and conserving the natural environment on which we depend for our survival. That is a social decision made on the basis of worldviews in which such values are coordinated—such as religious worldviews. Thus, existentially potent religious perspectives need to be brought together with scientific knowledge if we are to meet the ecological challenge. Indeed, many scientists and religious experts are working on this as we speak.

Large-scale ecological change can be enforced to some extent through government legislation. Indeed, we will get nowhere on the ecological threat without international treaties that protect the rights of developing nations to change their economies and lifestyles through increased energy use while demanding that developed nations invest in new energy sources and find solutions for everyone. But change can also be driven in other ways, and religious convictions about the natural world can play a role. For instance, the tree-planting movement in southern Africa has transformed the natural landscape by linking ecological action with the Christian sacramental ritual of Eucharist or Holy Communion. It is not possible to control attitudes through government legislation, but transformation of attitudes is the heart and soul of religious practice.

Consider another example of cooperation between science and religion—this time, an intellectual rather than a practical problem. Suppose we want to understand the role religious experience plays in human life. Neurological and psychological studies of human beings are crucial in such an effort because they gather solid data that is relatively free of the distortions of hearsay and the bias of individual experience. But religious beliefs about the meaning and value of religious experience are also important. If we limit our study to religious convictions about potent experiences, we will be lacking accurate neurological information and survey data about religious experiences. If we limit our study to psychological, cognitive, and behavioral factors, we will marginalize consideration of the importance and meaning of religious experience for individuals and the groups that they form, making for an impoverished theory. Both scientific and religious perspectives are essential for a well-founded and relevant account.

The examples of cooperation are endless.[8] The lesson is that it is possible for science and religion to have largely separated domains and yet to make contributions at different levels and in different ways to solving complicated problems that do not belong solely to religion or solely to science. In fact, most of the truly interesting and complex problems facing us in this wonderfully challenging world of ours have this discipline-transcending quality. Recognizing this has given birth to the interdisciplinary specialty of religious studies, and subsequently to the interdisciplinary specialty of science and religion. These are both instances of large-scale efforts to bend human intellect to achieve a better understanding of complex realities. Intellectuals can no longer afford to stay in their ivory towers of mono-disciplinary security. Every power we possess—including those powers that are ours because of expertise in science and religion—must be bent to address the challenges now bearing down upon us.

Because of the science-religion specialty, scientists and experts in religion have a valuable avenue of cooperation in solving complex everyday problems. Surely these are among the most important obligations of intellectuals: to deepen our understanding of the world around us in all of its dimensions, to resist the extremes of scientism and fundamentalism, to serve others with our knowledge, and to make the world a better place in the process. Cooperation between science and religion helps intellectuals to discharge these obligations in an especially powerful way.

Thus, in my view, cooperation defines the fundamental value of the science-religion specialization.

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[1] See http://www.aarweb.org/about/history.asp for a brief history of the American Academy of Religion and http://www.aarweb.org/profession/default.asp for surveys of religious studies programs in the North America.

[2] The Religious Tolerance website offers dozens of definitions, with citations, asserting that none is fully satisfying. See http://www.religioustolerance.org/rel_defn.htm.

[3] The "Religion" entry in the *Encyclopedia of Philosophy* (New York: Collier-Macmillan, 1967) lists the following nine characteristics: "1. Belief in something sacred (gods or other supernatural beings). 2. A distinction between sacred and profane objects. 3. Ritual acts focused on sacred objects. 4. A moral code believed to have a sacred or supernatural basis. 5. Characteristically religious feelings (awe, sense of mystery, sense of guilt, adoration), which tend to be aroused in the presence of sacred objects and during the practice of ritual. 6. Prayer and other forms of communication with the supernatural. 7. A worldview, or a general picture of the world as a whole and the place of the individual therein. This picture contains some specification of an over-all purpose or point of the world and an indication of how the individual fits into it. 8. A more or less total organization of one's life based on the world view. 9. A social group bound together by the above."

[4] The classic historical work is Owen Chadwick, *The Secularization of the European Mind in the Nineteenth Century* (London and New York: Cambridge University Press, 1975), and the classic sociological study is at the end of Peter L. Berger, *The Sacred Canopy: Elements of a Sociological Theory of Religion* (Garden City, New York: Doubleday, 1967).

[5] Peter L. Berger, ed., *The Desecularization of the World: Resurgent Religion and World Politics* (Washington, DC: Ethics and Public Policy Center; Grand Rapids, Michigan: W.B. Eerdmans Publishing Company, 1999): 9.

[6] Elsewhere, I have argued in detail that secularization theory misjudged the rational flexibility of religion because of its emphasis on some social factors in religion to the neglect of others, such as the ability of religious groups to maintain local plausibility structures. See "The Resilience of Religion in Secular Social Environments: A Pragmatic Analysis," in Thomas Schmidt, ed., *Religion in Dialogue with Science: Tradition and Plural Cultures* (Frankfurt: Mohr-Sieback, 2005), and a Chinese translation of part of this article in *Studies in Dialectics of Nature* 12/20 (2004): 79-84.

[7] Stephen J. Gould, *Rocks of Ages: Science and Religion in the Fullness of Life* (New York: Ballantine Publishing Group, 1999).

[8] The doctoral program in Science, Philosophy, and Religion at Boston University (Boston, USA) presumes this analysis of the value of cooperation. It is designed to train students explicitly in the sciences and humanities, including philosophy of religion and religious studies more broadly, in such a way that their own science-religion research embodies the goals and virtues of cooperation as described here. For more details, see http://people.bu.edu/wwildman/WeirdWildWeb/deg_phd_spr.htm (core faculty are Alisa Bokulich, Catherine Harris, John Hart, Bob Neville, Jon Roberts, Kirk Wegter-McNelly, and Wesley Wildman, with many other faculty involved more peripherally in the program). A number of other doctoral programs, though not explicitly in Science, Philosophy, and Religion, offer strong resources to support students wanting to develop skills in science-religion research. Notable among these (with key faculty resources in parentheses) are those at the Graduate Theological Union, Berkeley, USA (Robert Russell and Ted Peters); Oxford University, Oxford, UK (John Hedley Brooke); and Cambridge University, Cambridge, UK (Fraser Watts); Princeton Theological Seminary, Princeton, USA (Wentzel van Huyssteen); Fuller Theological Seminary (Nancey Murphy); and Claremont School of Theology (Philip Clayton).