

Response: Ian Barbour on Typologies

ON TYPOLOGIES FOR RELATING SCIENCE AND RELIGION

by Ian G. Barbour

Abstract. Geoffrey Cantor and Chris Kenny have criticized attempts to classify various ways of relating science and religion. They hold that all typologies are too simple and too static to illuminate the complex and changing historical interactions of science and religion. I argue that typologies serve a useful pedagogical function even though every particular interaction must be seen in its historical context. I acknowledge the problems in making distinctions between categories of classification and examine some alternative typologies that have been proposed. I leave as an open question whether my fourfold typology is applicable to differing religious traditions. Finally I consider some parallels between typologies for science-religion interactions and typologies for relationships between religions. Can our discussions be both interdisciplinary and interreligious without the danger of imposing the conceptual framework of one discipline or religious tradition on another discipline or tradition?

Keywords: Geoffrey Cantor; Chris Kenny; religious pluralism; Science and the Spiritual Quest (SSQ); typologies.

In 1990 I proposed four ways in which science and religion might be related to each other: Conflict, Independence, Dialogue, and Integration. In 2000 I used these classifications throughout a volume examining issues arising from a variety of scientific disciplines (Barbour 2000). This typology is criticized in a recent article by Geoffrey Cantor and Chris Kenny, "Barbour's Fourfold Way: Problems with His Taxonomy of Science-Religion Relationships" (Cantor and Kenny 2001). In this article I respond to

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their criticisms and examine some problematic classifications and some alternative categories of classification. Then I ask about the applicability of the typology to differing religious traditions and consider contrasting views of the relations between religious traditions. These questions assume a new importance as interest in the science-religion interaction is extending around the world.

TYPOLOGIES IN THE INTERPRETATION OF HISTORY

I believe that historical studies are of great value in any attempt to understand the interaction of science and religion today. My earliest volume (Barbour 1965) included three historical chapters, as did the expanded version of my Gifford lectures (Barbour 1997). I believe that even in an introductory course dealing primarily with contemporary issues some attention needs to be given to the previous centuries, which have so often set the terms for the current discussion.

In their Gifford lectures, John Headley Brooke and Geoffrey Cantor described the dangers of *essentialism* in interpreting the history of the interaction of science and religion.

In the opening chapters we characterized the essentialist position which attributes fixed defining qualities to both science and religion. Essentialists then proceed to postulate a unique relationship between them. However, it should be clear that this approach is thoroughly a-historical and flies in the face of the diversity displayed through the study of history. (Brooke and Cantor 1998, 275)

After describing my four categories they continue:

While Barbour does not appear to be committed to essentialism, his taxonomy may encourage this position and each of his four options can be, and has been, read as connoting the essence of the science-religion relationship.

From the historian's point of view, we find Barbour's taxonomy problematic if each of his four stances is taken as an exclusive alternative, each mapping on to an essentialist definition of both science and religion. Instead we wish to emphasise the role of human agency working in history and in society. Biography is particularly useful in sustaining this approach, since in the preceding case-studies we see that individuals were not restricted to any single essentialist position. Instead, in each case the scientist made use of more than one of Barbour's stances. (Brooke and Cantor 1998, 276)

Brooke and Cantor are criticizing the possible misuse of my taxonomy, since they say "Barbour does not appear to be committed to essentialism." They see problems "if each of his four stances is taken as an exclusive alternative," but they do not claim that I take them to be mutually exclusive.

The article by Cantor and Kenny, however, rejects not just the misuse of typologies but any use of them in historical studies.

. . . neither science nor religion (nor the conjunction "science and religion") possesses clear historical continuity. . . . In spite of the unbounded and fluid extensions of the categories *science* and *religion*, many writers treat them as distinct classes

with fixed, temporally independent, and self-evident meanings. This is particularly irksome for the historian of science who investigates in detail the diachronic and synchronic alterations in both the extension and the intension of these continually transforming terms. . . . Historians of science have not succeeded in framing a universal definition of *science*, and it is now recognized that any such attempt is futile. (Cantor and Kenny 2001, 771)

Is it really the case that in Western history since Galileo (the topic of their writing and mine) neither science nor religion possesses “clear historical continuity”? Even historians find the terms useful: the subtitle of the Brooke and Cantor volume is *The Engagement of Science and Religion*.

Cantor and Kenny are particularly critical of the historical use of the category of Conflict, which they say is “an anachronistic use of the term” (p. 767). They also assume that I take the categories to be mutually exclusive. It is disappointing that they do not make a single reference to my actual treatment of historical cases. For example, in a chapter on the seventeenth century I described the conflict thesis and wrote:

In recent decades this *conflict thesis* has been extensively criticized as a selective and oversimplified historical account. Science and religion were not unified forces opposing each other like armies on a battlefield. Often, as in the case of Newton, scientific and religious ideas interacted in complex ways within the life of the same person. Many of the debates occurred among scientists and among theologians and not just between the groups, as we will see again in the varied responses to Darwin in both communities. There were also significant differences in the way the issues were approached within particular national cultures—in England, France, and Germany, for instance. (Barbour 1997, 25)

Concerning the limitations of the typology I wrote: “Particular authors may not fall neatly under one heading; a person may agree with adherents of a position on some issues but not on others” (Barbour 1997, 77). More recently I gave a similar disclaimer before discussing Galileo and Darwin: “Let me first describe two historical cases often cited as examples of Conflict. In both cases the historical record reveals a more complex relationship” (Barbour 2000, 7).

Cantor and Kenny recommend biography as the best way of approaching such issues.

In contrast to Barbour’s attempt to construct both science and religion as categories abstracted from historical dynamics, we suggest that the individual human life—i.e., biography—can provide a major locus for studying science-religion interactions. . . . While there are certainly other legitimate approaches, the study and writing of biography can produce a sophisticated understanding of science-religion relationships and provide a strong argument against accepting Barbour’s four-fold way. (Cantor and Kenny 2001, 779)

To be sure, students can gain a sophisticated understanding of science-religion relationships through biographies of scientists, but typologies might still be useful in introductory courses if their limitations are pointed out. Especially in dealing with contemporary thought students need to be aware

of a wide range of alternative views that would be difficult to treat biographically in the limited time that is usually available.

The relationships between science and religion are indeed context-dependent. Nevertheless a broad overview of a range of possible relationships can be helpful to readers new to this interdisciplinary field, even though an overview inevitably oversimplifies the complexities of the real world. A guidebook to any territory is not intended as a substitute for firsthand exploration but is intended to help people find their way around. Guidebooks can be organized in a variety of ways, and they are necessarily selective. In dealing with various sciences and historical periods we can acknowledge common patterns (or “family resemblances,” as the philosopher Ludwig Wittgenstein calls them) without ignoring the distinctiveness of each scientific discipline or historical situation.

Sociologist Max Weber held that an “ideal type” is a useful intellectual construct in research in the social sciences even though individual cases may diverge from it. “The goal of ideal-typical concept-construction is always to make clearly explicit not the class or average character but rather the unique individual character of cultural phenomena” (Weber 1949, 101). One of his influential examples is the distinction between institutional churches and religious sects (the latter characterized by informal organization, demanding standards, exclusivist attitudes, and so on). Weber recognized that there are borderline cases and historical changes, such as sects, that in later generations become institutionalized. In a volume devoted entirely to typologies in the social sciences, John McKinney concludes: “It would seem evident that the primary function of types is to identify, simplify, and order the concrete data so that they may be described in terms that make them comparable” (McKinney 1996, 216). Bryan Wilson argues that the use of an ideal type can help us see particular historical features that depart somewhat—but not too much—from the type. “Within a certain compass, the type construct is used precisely to sensitize the analyst to such anomalies and ambiguities. But just how far a case may deviate from the type without impairing its utility (and ultimately reducing the analysis to distortion by the application of a grossly inappropriate ideal-typical model) is a matter for judgment” (Wilson 1982, 112). He points to the danger that a typology may be overextended to suggest timeless and universal social structures, a danger that can be avoided only by continual return to empirical data.

In an encyclopedia article on “Definition,” Raziel Abelson classifies widely held views of definition under three headings: Essentialist, Prescriptive, and Linguistic. He defends a fourth view, Pragmatic-Contextualist, in which a definition is evaluated by its ability to fulfill the particular purposes for which it will be used, not by an unchanging essence, an arbitrary symbolic convention, or the prevailing linguistic behavior. He says that

his own fourfold classification is only “a useful schema for stating some problems and disputes” (Abelson 1967, 314). Perhaps typologies for science and religion should be evaluated in a similar way.

PROBLEMS IN CLASSIFYING

When Science Meets Religion (Barbour 2000) uses the fourfold typology as section headings in successive chapters dealing with issues arising in particular fields of science. The category of Conflict may be particularly problematic because it groups together two views at opposite ends of the theological spectrum: biblical literalism and scientific materialism. Adherents of these positions themselves use the language of conflict, and each group defends itself by vehemently opposing the other. But how should one classify persons who say that they are not rejecting science itself but only scientism (the claim that science is the only valid path to knowledge, which I also reject), yet who go on to make claims that conflict with theories accepted by virtually all scientists? To classify them under Conflict is clearly a judgment call, since these people do not apply the term to themselves.

Michael Behe, for example, is a well-informed biochemist who accepts many features of prevailing evolutionary accounts. But he argues that organized complexity in biological systems must be the direct product of intelligent design because such systems are functional only as complete units and therefore could not be the result of gradual evolutionary improvements in simpler systems (Behe 1998). He postulates that all the information needed for modern organisms may have been present in the earliest single cells. In my judgment this would conflict with the basic assumption of all evolutionary theories that the ongoing interactions of organisms with their changing environments play a major role in the appearance of new life forms. The recent attempt of the standards committee of the Ohio Board of Education to require the teaching of intelligent design along with evolutionary theory in public school biology classes has been strongly opposed by the scientific community.

At the other end of the theological spectrum, proponents of scientific materialism see themselves as inescapably in conflict with all forms of religion. But some more moderate advocates of philosophical naturalism are very appreciative of the role of religion in human life. Willem Drees, for example, holds that religions have served an important function in uniting communities and in helping people see their lives in a wider framework of meaning—though he believes that “religious naturalism” can better fulfill those functions today (Drees 1996). At times he seems to endorse a functionalist or instrumentalist interpretation: religion is to be judged only by its ability to fulfill social and personal needs, not by its truth claims. This would ally him with the analytical philosophers who say that science and

religion are language systems that serve differing functions (a form of Independence). But in his last chapter Drees makes stronger ontological claims for naturalism that do seem to conflict with almost all traditional religions—though he leaves open at least the possibility of a cosmic principle transcending nature.

Nor can a clear line be drawn between Independence and Dialogue. Authors who describe science and religion as “complementary perspectives” say that they cannot conflict because they are independent of each other. They stress the limitations of human knowledge and the inadequacy of our imaginative models (as exemplified in the wave-particle dualism and other expressions of the Complementarity Principle in physics). But often these authors end up acknowledging that if complementary perspectives refer to the same world they cannot be totally unrelated, and indirect relationships between the two disciplines can be explored as defenders of Dialogue recommend (see Watts 1998, for example).

The line between Dialogue and Integration is also somewhat arbitrary. Dialogue refers to comparisons of presuppositions or methods in science and in religion, or the use of concepts in one field that are analogous to those in the other. I take Integration to involve a greater conceptual unity between the fields, often by a more systematic and extensive reformulation of traditional theological concepts. One might take Arthur Peacocke’s thesis that God’s action on the world is a form of “top-down causality” (or “whole-part causality”) to be an *analogy* between divine causality and the causality between levels (or parts) within an organism—which would be a form of dialogic comparison. But Peacocke holds that God is literally the highest of a hierarchy of levels and the most inclusive whole. He reformulates traditional concepts extensively. As an alternative to both theism and pantheism he defends panentheism, the belief that God includes but is more than the world (Peacocke 1990, 57–59). I therefore take his views to be an example of Integration rather than Dialogue. Peacocke does not abandon the central message of the gospel concerning God’s love, so his reformulation is not so drastic that it should be viewed as Conflict.

The same question arises with respect to John Polkinghorne’s use of the scientific concept of information in his thesis that God’s action in the world is “an input of information” (Polkinghorne 1994, 77–78). But in his case there is less extensive reformulation of traditional doctrines, so at least this aspect of his thought could be seen as Dialogue. Classifying any of these authors is not an end in itself but a tool to help us understand them more accurately and compare them with other authors.

The Dialogue and Integration positions seem to be more common among physicists and cosmologists than among biologists, judging by recent books and conferences. This might lead one to question the applicability of the typology across scientific disciplines, but I believe it reflects the history and the characteristics of these particular fields. Physicists encounter strange

events in the world of the very small and the very large that are not directly observable, and they may recognize more readily that models are not pictures of reality. The Big Bang is an almost unimaginable event to which we respond with awe and humility. In the history of science powerful new theories have often been initially extrapolated beyond their proper domain. In the eighteenth century many scientists thought that Newtonian physics could in principle account for all phenomena, but in the twentieth century quantum physics showed the limits of predictability. Today the new field of molecular biology is an immensely fruitful research program, and one may be tempted to think it can explain the behavior of all living things. But new ideas concerning complexity, self-organization, the action of higher levels of organization in organisms, and the problem of consciousness may encourage a more widespread questioning of reductionist assumptions in biology.

ALTERNATIVE TYPOLOGIES

In my earliest volume (Barbour 1965) I used three categories in a chapter introducing twentieth-century thought: contrasts of theology and science, parallels of theology and science, and derivations of theology from science. "Contrasts" had three subsections on theological schools that were prominent at the time: neo-orthodoxy, existentialism, and linguistic analysis, all of which were later included under the rubric Independence. That chapter, and the book as a whole, gave insufficient attention to biblical literalism and scientific materialism, though evolutionary naturalism was discussed in a chapter on evolution.

In introducing a collection of essays in 1981 Arthur Peacocke listed alternative views of science and religion: as referring to different realms, as using different languages, as interacting or noninteracting approaches to the same reality, as generated by differing attitudes, or as open to conceptual integration or interpretation within a common metaphysics (Peacocke 1981, xiii). In his introduction to a later volume he stated his own view that science and religion are "mutually interacting approaches to reality" (Peacocke 1990, 21).

John Haught seems to have been the first person to use a typology as the organizing structure for every chapter in a systematic survey of topics in science and religion (Haught 1995). His typology differs slightly from mine, and it may be easier to remember because all the terms start with the same letter. His first two categories, Conflict and Contrast, are identical with those in my scheme. His third category, Contact, combines most of the themes in what I have called Dialogue and Integration. He introduces a fourth heading, Confirmation, by which he means not the confirmation of particular theological doctrines (as one might assume) but rather the vindication by science of background assumptions originally derived from

theology—for example, belief in the rationality and intelligibility of the world, which I treat as a form of Dialogue.

Ted Peters has proposed a more elaborate eightfold classification (Peters 1997). For example, he splits Conflict into three separate categories: Scientism, Scientific Creationism, and Ecclesiastical Authoritarianism. He adds the category of New Age Spirituality. He also adds the category of Ethical Overlap, which is of course crucial in discussing applied science and technology. My typology was designed to refer only to fundamental science as a form of knowledge, not to applied science, which has a more direct impact on society and nature—though of course basic science is often driven by potential applications, as I acknowledge in my second Gifford volume, *Ethics in an Age of Technology* (Barbour 1993). There is some advantage in using a larger number of classifications, as Peters does, to allow greater discrimination. The disadvantage of introducing more categories is that the scheme becomes rather complicated. Defining each category more narrowly yields greater precision, but one is more likely to find additional views that do not fit under any of them. Broader categories can include diverse cases more readily, but at the price of precision.

Willem Drees criticizes my category of Conflict for including two schools of thought as diverse as biblical literalism and scientific materialism. He continues:

Clustering by strategical stance also lumps together various views of *independence*. This too is unsatisfactory, as underlying views of religion may be very different. For instance, some pleas for independence are based upon the distinction between primary and secondary causation, maintaining a metaphysical understanding of religion as dealing with the Primary Cause of everything. But independence might also be the strategy adopted when religion is understood as dealing with moral and emotional issues in human existence. It is not illuminating to treat such different ways of separating science and religion together. (Drees 1996, 43)

Drees proposes a ninefold classification arranged in three rows and three columns. The three columns distinguish characterizations of religion in terms of cognition, experience, and tradition respectively. The rows distinguish three kinds of challenges from science: new knowledge, new views of knowledge, and new appreciation of the world.

It is true that in discussing the theological implications of particular fields of science I am primarily interested in the cognitive aspects of religion. But in my methodological chapters and at intervals in later chapters I do discuss religious experience and tradition. I state that intellectual beliefs are only one aspect of the life of a religious community, though perhaps I too often lose sight of this wider context in addressing particular issues:

A religious tradition is not just a set of intellectual beliefs or abstract ideas. It is a way of life for its members. Every religious community has its distinctive forms of individual experience, communal ritual, and ethical concerns. Above all, religion

aims at the transformation of personal life, particularly by liberation from self-centeredness through commitment to a more inclusive center of devotion. Yet each of these patterns of life and practice presupposes a structure of shared beliefs. When the credibility of central religious beliefs is questioned, other aspects of religion are also challenged. (Barbour 1990, xiii)

An alternative classification is offered by Robert Russell, who lists eight kinds of constructive interaction between theology and science; for this purpose he does not need to include Conflict or Independence in his scheme (Russell 2001). Five of these relationships represent an influence *from science to theology*. Science may constrain or confirm theological ideas (e.g., the Big Bang and creation), it may reflect philosophical assumptions which in turn influence theology (e.g., determinism or indeterminism), contribute to a philosophy of nature that influences theology (e.g., process philosophy), or inspire new conceptual models or moral and aesthetic responses among theologians. Russell's proposal is distinctive in including three forms of influence in the opposite direction, *from theology to science*. Assumptions in theology can influence philosophical assumptions in science (e.g., the rationality and contingency of nature implicit in the doctrine of creation were assumed in early modern science). Next, theological writers can be a source of inspiration for scientists (as Spinoza was for Einstein, and Kierkegaard for Bohr). Finally, theological convictions may influence choices between scientific theories (e.g., belief in free will may lead to an interest in indeterministic versions of quantum theory). But Russell insists that both scientists and theologians must judge the fruitfulness of any of these interactions by the criteria of their own fields. His typology is proposed primarily for Christian theology, though it could be applied to other religious traditions.

SCIENCE AND THE WORLD'S RELIGIONS

My own writing, like that of most people who have written about science and religion, has dealt primarily with Christianity and atheism in the Western context. My 1997 volume had a section on "Nature-centered Spirituality" and one on "Physics and Eastern Mysticism," along with occasional references to Hinduism and Buddhism, but no systematic treatment of non-Christian traditions. Judaism was represented only by the Hebrew scriptures, with no reference to rabbinic or contemporary Jewish thought. The most important task today is the expansion of the science-religion dialogue in a religiously pluralistic world. Might my fourfold typology have a role in that task, or is it too Western and Christian in its assumptions to be useful in cultures with other faiths?

The question is now raised for me personally by the fact that translations of my two most recent volumes have been published or will appear soon in eight languages. In his preface to a Chinese translation of *When*

Science Meets Religion, Frank Budenholzer maintains that my four types are relevant to the way science can be related to the religious traditions of China. He has argued elsewhere that in teaching in the context of Chinese culture human nature is a more promising topic than divine action, which has been prominent in Western discussions (Budenholzer 2001). This may also be true in Japan and other cultures influenced by Buddhism.

In the course program of the Center for Theology and the Natural Sciences (CTNS), staff members leading workshops in other countries have said that participants have found this book helpful in understanding the religious traditions of their own cultures. However, some participants at a workshop in Pune, India, said that in a Hindu culture a fifth category is needed: tolerance. Should tolerance be added as a new category? Or does tolerance take either a more passive and permissive form, which resembles Independence, or a more actively engaged form, namely Dialogue? Or are all typologies a product of the Western interest in intellectual distinctions? Eastern traditions are more aware of the limitations of language and more likely to emphasize religious experience and ritual observance than theological doctrines.

The category of Conflict seems to have new relevance with the resurgence of fundamentalism around the world, even though fundamentalism takes very diverse forms in different cultures. In many Islamic nations the conflict of religious leaders with science is part of a wider resistance to the impact of modernization on traditional social patterns. The spread of consumerism and the cultural imperialism of media dominated by the West seem to threaten cultural integrity as well as national self-determination. National ministries of education have sometimes acceded to pressure from mullahs concerning the teaching of science in schools. At CTNS workshops, several scientists from Islamic countries expressed views of evolution that they said were in conflict with the prevailing views in their cultures. The distinctive character of Hindu creationism was discussed by C. MacKenzie Brown in a recent *Zygon* article (Brown 2002).

CTNS has organized a series of interfaith conferences entitled Science and the Spiritual Quest (SSQ). The first series in 1997–1998 brought together scientists from the monotheistic traditions—Judaism, Christianity, and Islam—and met in the United States. The second series in 2000–2002 included scientists from other religious traditions in symposia in the U.S., France, Spain, Israel, India, and Japan, and smaller conferences in other countries. The SSQ program has pursued two kinds of interaction simultaneously: the interaction of science and religion and the interaction among religious traditions. Under the leadership of Philip Clayton and Mark Richardson, prominent scientists from various religious traditions met first in smaller consultations grouped by scientific disciplines and then in a series of public symposia (Richardson, Russell, Clayton, and Wegter-McNelly 2002). These were not the typical exchanges between scientists

and theologians but dialogues within the life of each scientist, shared first with each other and then with a wider audience. Several of the participants said they were more open to the insights of other religions because they respected each other as scientists and shared a common knowledge of science. Like most scientists they assumed the universality of science, which has been questioned by postmodern philosophers and sociologists who claim that science is culturally relative because it is a social construction. At SSQ meetings there seemed also to be a carryover of the spirit of inquiry from science to religion, despite the recognition that these are very different forms of inquiry. Most of the participants represented liberal or moderate positions within their own faith communities and face a common problem in trying to communicate with adherents of conservative positions.

The newly formed International Society for Science and Religion, chaired by John Polkinghorne, has set itself the challenging goal of being at the same time interdisciplinary, interreligious, and international. If it is to avoid the danger of imposing on other religious faiths the conceptual frameworks developed primarily in relation to Christianity, it will have to encourage detailed scholarship within these other religious traditions. International conferences will have to draw from participants in local and regional conferences held in nations around the world.

TYPOLOGIES FOR RELATIONS BETWEEN RELIGIONS

Let me finally suggest more speculatively some parallels if we were to compare ways of relating science and religion with ways of relating diverse religions. These are of course two very different questions, but a person's view of one of them may affect his or her understanding of the other.

Conflict. Corresponding to a conflictual view of science and religion is *religious absolutism*, which finds only conflicts between religions. Absolutism claims that there is only one true religion and all others are simply false; there is one exclusive path to salvation. In Christianity, the uniqueness of the incarnation was the basis for the traditional assertion that salvation is possible only through Christ. In classical Roman Catholicism it was said, "Outside the church, no salvation." In Protestant fundamentalism, exclusivism is based on belief in a uniquely revealed book. Critics point to the danger of absolutizing any finite expressions of the infinite, whether in a doctrine, an institution, or a book. They also point out that such views have led to intolerance, crusades, inquisitions, the rationalization of colonialism, and violence in the name of religion that continues today. The grim history of Christian persecution of Jews is one consequence of such absolutism. Religious imperialism is particularly dangerous in a nuclear age.

A much more moderate version of Conflict is the assertion that various religions represent *differing approximations to truth*. Other religions are believed to hold elements of the truth that is more fully presented in one's own tradition. Christianity is said to be the fulfillment of what is implicit or only partially understood in other religions. God is at work in these other traditions, which are genuine responses to God and real ways of salvation for their adherents, despite their limitations. There are prefigurations of Christ, not just in the Old Testament (Hebrew Scriptures) but in all the major world religions. This is a common view in Protestant liberalism. Catholic authors since Vatican II have said that in other traditions there is "the hidden Christ" (Raymond Panikkar), "the anonymous Christian" (Karl Rahner), or, in an older terminology, "the latent church," whereby the salvation won by Christ is available to all humankind.

This view goes far toward mitigating the intolerance of the absolutist position. The range of issues in conflict is greatly reduced, and some exponents may claim that there is no real conflict (not unlike the borderline cases in science and religion such as Michael Behe, whom I reluctantly classified under Conflict). However, the differing-approximations view tends to be somewhat condescending toward other traditions. Presumably it would see no value in Dialogue except to persuade the other party. We have nothing to learn if our tradition already possesses the full truth, which is only partially available elsewhere.

Independence. Corresponding to the instrumentalist or linguistic versions of the Independence of science and religion is the assertion of the *cultural relativism* of religious traditions. Anthropologists study cultures in their totality, and they view religion as an expression of culture. Each religion functions in its own cultural setting. Linguistic analysts hold that religious symbols and concepts shape our experience; since cultural and linguistic forms vary widely, it is not surprising that there is considerable diversity in religious experience. Forms of life and their associated "language games" are self-contained, culturally relative, and incommensurable. The primary religious language is prayer and liturgy, to which doctrines are secondary. Here the central place of particular myths and rituals in worship and practice can be appreciated.

The great strength of linguistic analysis is its recognition of the multiple functions of religion as a way of life. Moreover, a relativistic approach clearly avoids the problems presented by claims of superiority. It affirms the particularity of each tradition as well as its internal diversity. But it also makes the study of another religion of limited relevance. Little can be learned that might illuminate our lives in a different cultural setting. There is no motive to try to transcend the limitations and blind spots of our own culture. Acceptance of tradition would predominate over critical reflection and reformulation, as tends to happen in the parallel case when science and religion are viewed as totally independent.

Dialogue. Advocacy of *pluralistic dialogue* between religions has much in common with advocacy of dialogue between science and religion. The starting point here is affirmation of the presence of the divine in the lives of persons in other traditions. We can be sensitive to people in other cultures and try to see the world from their point of view, even though we can never totally leave behind our cultural assumptions. We can take a confessional approach and testify to what has happened in our own lives without passing judgment on others. Loyalty to our own tradition can be combined with respect for other traditions.

John Hick, for example, holds that "God has many names." The divine reality is encountered, conceptualized, and responded to in multiple ways. "These different human awarenesses of the Eternal One represent different culturally conditioned perceptions of the same infinite divine reality" (Hick 1982, 52). Hick says that religious traditions are like reports from explorers of a Himalayan mountain the higher altitudes of which are always hidden in the clouds. The explorers have taken different routes and have different impressions of the mountain from varying perspectives, and none has reached the top. But Hick goes beyond this analogy by proposing that divine initiative has been revealed within many traditions, in the framework of the cultural assumptions of each. The variety of traditions exhibit multiple forms of revelation as well as differences in human perception.

Moreover, says Hick, the transformation of personal existence can occur in any tradition, "the transformation from self-centeredness to Reality-centeredness" (Hick 1985, 29), variously referred to as salvation, fulfillment, liberation, or enlightenment. The spiritual and moral fruits of such changes are not confined to any one religion. Each tradition can be effective in the lives of persons who have been spiritually formed by it. Hick agrees with cultural relativism in acknowledging the formative influence of culture. Moreover, his insistence that the heart of religion is personal transformation rather than doctrine is consistent with relativism. He sees no necessary conflict between differing means of transformation in diverse cultures, whereas doctrines make mutually exclusive claims. But Hick avoids relativism by affirming a transcendent reality beyond the variations of culture and by advocating an epistemology in which religious language can make cognitive claims, even though they are always partial, symbolic, and tradition-laden.

As in dialogue between science and religion, dialogue between religions allows each party to be loyal to its own community while encouraging interaction with the other. If we are open to new insights, we can learn from other religions and perhaps come to appreciate aspects of the divine and potentialities for human life that we have ignored. Hick thinks that Christianity has had a positive influence on Hinduism in encouraging a greater concern for social justice, while the current interest in meditation

among Christians is in part indebted to Hinduism. Again, Buddhism has less frequently been associated with imperialism and warfare than Christianity and has shown a greater respect for nature; but Christianity seems to have provided greater impetus for material progress and social change. Exposure to another religion can lead one to rediscover neglected themes in one's own heritage (Hick 1985).

Integration. Integration between religions differs greatly from integration between science and religion, and yet I see some parallels. One version is the claim that there is *a common core* underlying varied cultural forms that is the essence of religion. Several Hindu and Buddhist participants in SSQ suggested that meditation and the mystical experience of the unity of all things is the common core of all religions. In this view, we should all agree on the common experiential core, without claiming that one set of doctrines is superior to another. This might encourage us to work for the emergence of a global religion in which no one group would impose its views on others.

The problem with this position is that there is no agreement concerning the common core of religion. Theologian Friedrich Schleiermacher identified it as "the feeling of absolute dependence," while historian of religions Rudolf Otto said it is awe and fascination in response to the numinous power of the Holy. Moreover, a rich diversity exists within every tradition. Mystical experience and an impersonal concept of the Absolute are more common in the East, but devotion to personal images of the divine are found in the bhakti movement of Hinduism and the Amida Buddha and bodhisattvas of Mahayana Buddhism. Numinous experience and personal images are more common in the West, but mystical experience is found in Jewish mysticism, the Sufi movement in Islam, and among Catholic saints, expressed in both personal and impersonal images. Each tradition has its own historical memories, communal stories and rituals, and particular patterns of behavior. There is a danger that the conceptual framework of one tradition will distort the distinctive features of another tradition—not unlike the danger that the conceptual framework of science will distort the distinctive feature of religion if Integration is pushed too far.

In the case of world religions I tend to favor *pluralistic dialogue* as the next step in overcoming the religious conflicts of the past. We might give a greater role in our conferences to scholars in comparative religions who have an interest in science. Perhaps dialogue will eventually move beyond mutual appreciation to some measure of mutual influence and greater convergence (see Cobb 1982). I am skeptical of efforts to find an essential core in all religions or to establish a new world religion. Such forms of integration would deny the rich diversity both within and between religious traditions. Awareness of this danger should in turn make us cautious about any Integration of science and religion that fails to respect the differ-

ences between them. But the greater universality of science around the world compared to the diversity of religions leads me to hope that the new interdisciplinary field of science and religion can contribute to new possibilities for religious dialogue and the search for common ground in a pluralistic world.

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