

QUESTIONS FOR A MILLENNIUM: RELIGION AND SCIENCE FROM THE PERSPECTIVE OF A SCIENTIST

by Solomon H. Katz

Abstract. This essay addresses a series of eight questions about what religion can do for science. It explores the secular role of religion in contemporary science and the need for greater synthesis between science and religion. It concludes that, for survival in the twenty-first century, religion cannot exist without acknowledging and using the enormous information pool of science, and science can no longer shun or ignore religion. Humankind will always need the large, synthetic explanations that religion provides of why we are here and what we ought to do and believe. The world needs to mark this new millennium with a sense of respect, cooperation, and even synthesis between science and religion.

Keywords: experimental approach; interpretation; moral systems; religion; science; synthesis; universal ontology.

WHAT CAN RELIGION DO FOR SCIENCE? EIGHT QUESTIONS

What roles can religious thought, beliefs, and practice play in science? Some scientists might answer this question by saying that religion plays no role in science. Others might respond that there are many instrumental uses of religion as a source of sanction, permission, and support for what they do. However, the purpose of this essay is to lay the groundwork for exploration beyond the merely instrumental into other realms of discourse and to explore new possibilities at this time of self-reflection in world history.

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Can religion be instrumental to the scientific enterprise? The answer is, of course, that science can benefit if religious views are treated with dignity and respect. In the contemporary world of experimental biology and medicine, for example, stem cell research, somatic cell gene therapy that might alter germ line cells, and cloning of humans are instances of research that are being altered by the objections and responses of the religious communities in the developed and developing worlds (see Stem Cell Research Report 1999). Likewise, environmental problems, population control, and many other factors directly influence what questions can and cannot be addressed at this time. The approach of the religious community interacting with the knowledge base of the scientific enterprise can also provide a gain for the religious community, since interests in areas of peace, justice, and human rights are widely shared by both scientific and religious communities. However, to begin a more effective dialogue, some scientists have suggested that religions of the world become more informed about science. They believe that misunderstandings in the religious community prevent research that would be based on good, practical, instrumental grounds. In essence, these scientists believe that misinformation and insufficient understanding of what the issues really are have led to some of the resistance and impasses. This has often typified the response of Institutional Review Boards (IRBs, which are federally mandated in the United States and elsewhere to protect the rights of patients and animals involved in research), where lay people appointed as community representatives initially object to research that appears to violate their sense of what is right and then, after a time and with greater experience with the issues, they shift to a more objective judgment of the research that results from their richer understanding of the scientific enterprise.

Religious institutions and leaders should also take a more active role in understanding the problems of those scientists who are members of religious communities. A scientist's religious community would do well to take an active interest in what the scientist does, because scientists need special help, just like other members of the community do. Often scientists experience an ethical disconnect between their religious beliefs and practices and their scientific research. Public health physicians, for example, sometimes promote birth control or abortions in policy-making situations that may not fit tenets of their religions. The ethical dilemmas that result from secular and nonsecular moral issues of this kind and many others all require careful understanding to sort out and provide useful responses to the problems.

Can science and religion mutually and beneficially coexist in the contemporary world with movements like philosophical postmodernism? A number of philosophers, social scientists, and historians of science have recently questioned the objectivity of the scientific enterprise. They claim that the

scientific enterprise is limited in that it does not ask all questions equally. Specifically, the postmodernists suggest that while some scientific questions are addressed, others are not addressed because their answers deal with issues that might be politically, socially, or economically disadvantageous to the ruling elite. In light of this interpretation these postmodernists argue that science is being corrupted by social pressures and by pervasive materialism. The postmodernists usually admit, on the one hand, that once the question is asked by science it is validly answered by the usual procedures for verification and/or falsification as in any other application of the scientific method. On the other hand, they dispute the process by which questions are or are not selected for investigation by suggesting that the questions that are in vogue are those that are usually funded. These questions get answered first, whereas others may never be studied at a relevant time. Their position is that a scientific enterprise that is possibly flawed by these factors ultimately distorts the overall picture we get of the world.¹

Another area, and by far the richest, is the dialogue that needs to take place to solve the problems of contemporary society. Science is a powerful way of knowing the world and revealing the truth that scientists and others build over time. The scientific method appears to be catalytic and conscious. It seeks to reduce the natural variation by holding environmental factors constant and isolating the experimental parameters to the point at which systematic examination of the variables can be made. Most often the experimental approach attempts to hold the known variables constant and then vary them one at a time to establish the cause-and-effect relationships between each of the independent variables and the dependent outcomes. It is also incumbent on the scientist to build plausible models that integrate the empirically established scientific data into the existing models of explanation or create new models when the experimental data no longer support the old model.

Religions often seek the truth through the process of interpretation of previous revelation, which involves many of the same mental processes of insight that scientists use. In the case of established religions, moreover, theological insight and revelation should build upon the previously established religious truths, much like the established method of science. If the revelation and insights regularly no longer fit the established truths of religion, either the religion suffers attrition of influence and the community seeks other sources of explanation to integrate the meaning of the world around them or the sources and content of the insight and revelation are forced out of the religion. Alternatively, the traditional revelation and insights are constantly reinterpreted to meet the contemporary times, as in the cases of Jewish, Catholic, and Buddhist casuistry.

In general, religions traditionally hold on to their established truths and constantly reinterpret them, whereas science is forever changing the scientifically derived truths and the models that integrate them into theories of

how the world is. This is a major distinction between science and religion, but sometimes religions also undergo change in the form of revitalization movements. Revitalization often occurs when traditional religious explanations no longer hold meaning and purpose for a society, resulting in an increasing sense of anomie. Under these conditions a new prophetic person may have an inspiring insight or revelation about a truth claim not previously comprehended by other members of the society and promotes that truth and related insights in a way that reintegrates the religious explanation for the society. This process may result in the formation of a new religion and/or a new branch of an established religion (see Katz 1974; 1997). Thus, science has the concept of accepting change built in to its search for truth, whereas religion holds on to its truth claims until they no longer provide fundamental satisfaction for their adherents, and then change occurs in a more revolutionary manner. Still, most often the change occurs incrementally, much as the scientific version does.

Can science ever replace the universal ontology that religion provides to humanity? The evolution of religion is associated with the fact that not all of the universe will ever be explainable and that humans will always be seeking explanations of the micro and macro events around them. The human psyche probably evolved to require explanation of origins and ultimates in order to provide coherence to the sheer unpredictability of the world from birth to death and beyond (Katz 1973). Religions evolve to provide reservoirs of meaning about the events and systems that surround us. The significance of this powerful need to reach a satisfactory explanation is also evident to many scientists who spend a lifetime searching for ultimate answers. Similarly, there is evidence for the continued reinvention of religious beliefs and practices in every society the world over. But this is not the only point of the religious domain. Religion also provides a way for us to come to grips with our humanity. Because our sense of self is both the outcome of an evolutionary process and a means to come to terms with our finite capacity for existence, we have to shift both our scientific and religious worldviews to accept these issues.

Perhaps the fact that we are self-reflective is the key to understanding the human need for religion. As long as we reflect the way we do, we will need a reference point for our decisions. Science traverses explanations from the infinitely small to the infinitely large, but it always values the opportunity to change. This is so because science depends on the concept that scientific explanations are based on experimental and factually verifiable evidence that could change and thus nullify the existing explanation and replace it with another paradigm that may be entirely different (such as the case of replacing the Newtonian model with the Einsteinian model of relativity). Religion goes toward the most synthetic explanations of why we are here and what we ought to do and believe during our existence in this world. Science makes no claims about these issues other than to con-

tinuously provide new information for us to use in building a more and more detailed view of how the world is. So far, science has not been able to cross over into considering how the world ought to be (Katz 1980). However, there are new challenges in that arena.

Evolutionists involved in understanding the social evolution of factors like altruism realize that there may be ways to explain our belief and moral systems of oughts without having to resort to religion in the process. While some scientists believe that science will provide more credible explanations of the phenomenon than the religious interpreters have, this may be folly. Contemporary cosmologists may be at risk for falling into a similar trap of trying to explain the origins of the human universe with too little data and will successfully bridge this gap only when they recognize the futility and hubris of believing that they have the universal explanation of the beginning, development, and end of everything.

In the midst of these new challenges to the history and origins of religion, we need to recognize some key ontogenic elements about the capacity for religion as humans evolved. These elements include the fact that we evolved from previous ancestors common to other living and nonliving primate species, that humans universally express religious practices and beliefs, and that beliefs in gods came into being in prehistoric times. Because science does not answer or even attempt to answer the same questions as religions seek to explore and answer, and because there appears to be a universal need for religious types of explanation, it stands to reason (from the scientific perspective) and faith (from the religious perspective) that neither endeavor is alone sufficient to answer the needs of most of humanity at this point in our cumulative enlightenment. Thus, in view of our human origins and our need to have answers, and given the lack of meaningful contemporary syntheses from our scientific enterprise about what we ought to do and how to motivate these oughts, we need to be looking for common grounds for syntheses rather than for continued antagonism between science and religion. This is particularly apparent when we consider the daunting problems that face contemporary humanity in developing strategies for living and existing with other forms of life in the complex and apparently unbalanced world that we have consciously though inadvertently created.

What can scientists contribute to this synthesis? Scientists need to recognize the power of the rational training that they have received as scientists and the privileged position that they have been able to achieve in this period in world history. We can use this knowledge and power with care and humility to help demonstrate how scientific and religious perspectives fit together. Obviously, there will always be gaps in our explanations and changes in scientific explanation. Thus, the cultural differences between the religious and scientific communities about how wisdom is gained needs to be

bridged until ultimately the two domains of explanation of human existence and being meet with more common purpose given the critical state of the world, which is forever changing before our eyes.

Science should acknowledge the human need for religious experience, and religion needs to recognize and trust the desirability of having greater scientifically based knowledge about our lives and the environment. There need be no conflict between these domains; science is a human process, and religion explains what keeps and makes us human, so that the power of knowledge is tempered both by the knowledge of our finitude and by our own humility. These are two ends of a spectrum of knowing, and a great deal of wisdom has derived from both activities. Religious traditions at their best have explored and deepened the meaning of such virtues as truth, humility, service, and support of family. Of course, it is also important to point out that both science and religion have actively and passively contributed to war and holocausts of terrible proportions.

When can there be synthesis and fusion? Scientists need to be in a world that has a tomorrow. It will not make any difference if the science and-technology continuum controls all of the materials of the world if the world we know and value does not survive the impact of the human presence. This realization requires science to cooperate with the religious community to help the world survive our previously defined "success," which in the larger time frame looks more like failure. This sense of looking macroscopically at the human condition is much of the motivation that was involved in the beginning of IRAS (the Institute on Religion in an Age of Science) and *Zygon* and continues today with the *Zygon* Center for Religion and Science. On the side of religious reflection about science, we need to foster greater communication with the religions of the world to help them understand how it has been made difficult for them (because of social opposition within their communities) to accept the scientific explanation of reality. Although this integration of the scientific understanding of the world is becoming self-evident to many religious and spiritual leaders, who are integrating a fuller understanding of the truth claims of science into their religious faith and practice in an attempt to achieve the best for their religious beliefs, the process has been slow and arduous.

Synthesis and fusion may begin to accelerate when the sciences recognize the limits of scientific ways of knowing and appreciate and respect that religion has evolved bioculturally from long-established traditions of well-winnowed wisdom that far exceed the scientific enterprise in knowing all that is necessary for the social system to remain intact. Because religions foster evolved behaviors, beliefs, and practices without conscious knowledge of the social function of these practices, they appear to lack the empirical kinds of explanation at which science excels. But the products of religious traditions should be no less respected than the best of science. Religion need not be conscious to work well in helping us deal with being

human, and with religion's continued function we might be able to have a coherent diversity of social systems capable of providing a base for all peoples.

Religious belief systems have certainly stood the test of time as a powerful source of adherence for humans the world over. There are no other systems of restraints and no other sources of inspiration that come close to motivating people to respond as powerfully as do the systems of organized religion. In a world where scientists finally understand the futility of trying to explain everything, why would science want to dispute the power of the religious phenomenon in the midst of crises of world population and environmental degradation? We need all of the sources of human energy and cooperation and sacrifice necessary for the survival of life on this planet as we know it—or at least as we idealize it. There is no easy way around the massive degradation of the environment, which may be too great for science to remedy. We need peace, not war; we need understanding, not condemnation; we need cooperation, not conflict; and we need respect, not denigration.

There is no longer any room for error. We have made all of the errors of hubris; we need not make them again. We have much to learn from the religions of the world, because we scientists have largely been unbridled in our ways of gaining power through insight. Being able to explain phenomena never understood before has given rise to a power that is being practiced with hubris, and to a finality of explanation and control that does not have the experience and the wisdom of the ages to temper it. Nor does the practice of science and its transfer into technology always well serve our fellow humans and other living things and even the precious remnant of what came before us and gave rise to the wonders that surround us now!

With new humility scientists must realize the need for a new dialogue and synthesis that is both understanding and sympathetic. We need to seek help with humility and honesty and exercise wisdom when it comes to fashioning a better world than the one we have helped to create. Technology by itself is beside the point: if more technology will only make for more alienation and degradation of the resources around us, then we have to seek a more balanced way to develop and control its impact. Blind faith in more of the same materially driven, nonaltruistic values will not solve any of the problems that result from the imbalance in the world we have created. We need the whole of humanity with all our religions to bring the world into the new millennium. It is through truth and simplicity that we will make the greatest advancements, and we need to take some lessons quickly from those whose sacrifices were for our ultimate benefit. Under these circumstances we may be able to understand our true place in the cosmos. It may require sacrifice, but it will not be without the reward of a more balanced world and the development of a worldview that can face some of the most harmful transgressions we have committed against the ecosystem that envelops and nurtures our being.

Can there be new wisdom and religion in an age of science? Religious traditions around the world have made many discoveries about the nature of human nature and have incorporated this wisdom in diverse ways into the everyday fabric of life. The success of a religious practice, belief, or theology lies in its sense of that which is knowable and its sense of balance and humility in confronting those ultimate questions for which there appear to be no answers. Thus, issues of life and death and the unknowable quality of death have given rise to an elaborate and timeless sense of what happens when we as individuals, families, and communities no longer exist. Questions of ultimate concern, about where we came from and where we are going, have always been the domain of religious belief and tradition. Because religion deals with the nonsecular aspects of society, it long ago let go of the worldly side of life and focused on the otherworldly; religion has become the keeper of values that translate into the building blocks of secular society. Science, for its part, has removed many of the unknowns and the unknowables and has again and again pushed back the frontiers of knowledge in ways that challenge the mystery in many religious explanations.

Instead of recognizing the continuity of the two discourses about ways of knowing human existence, religious leaders historically have attempted to restrict the flow of scientific knowledge and insight so as not to sully or reduce the power of the traditional explanations. A restriction of the flow of knowledge was the first attempt at limiting the understanding that science brings (Galileo is one of the most famous examples); charges of heresy were enacted through the ages to punish false teaching, which it seems is the way that science was and still is treated by some religious groups. On the other hand, to be accused of heresy and false teaching has inured scientists to the effort that traditional religions have made in their attempts to seek the truth using a different methodology. Nevertheless, of late science has been seen in light of contemporary critique to be lacking in the balance of perspective necessary to make a complete society. While the ultimate goal of science is to explain all of human existence, it is not likely to attain this goal in the near term. There needs to be recognition of the limitations of science and of the value of traditional religious belief in the process. What is needed is a very candid examination of science and religion in order to create a dialogue that goes beyond conversation and into the realm of respect for the beliefs and motivations of each side. There is a quasisynthesis emerging that is directly related to the religious communities' increasing acceptance of Darwinism and the evolutionary principles not as undermining religious belief but as enhancing it. In turn, with the greater realization of the limitations and potentials of both science and religion, the need has arisen to forge a new ethos—a global morality that enhances the wisdom of our past and uses it to make a more sustainable future.²

To celebrate the evolutionary wisdom that has bioculturally evolved to create the human spirit that has now begun to wander in space, to imagine the origins of the universe, and to live in peace and harmony with one another in exceedingly complex networks of exchange of information and ideas is a vision worth striving toward. To know that religion has played an enormous role by becoming the reservoir of knowledge and values about the unspoken (and not fully understood, in the scientific sense) nature of human nature should be a source of celebration and rejoicing. That the ultimate purpose of our existence cannot be objectively known or understood is also inherent in the message of science. The frontiers of scientific knowledge will always be changing. We will need to change, too, and religious wisdom provides us with a body of knowledge embedded in beliefs and practices that can provide a source of security for us in the no-holds-barred processes of accelerating change in science and technology.

We are not yet ready to abandon—and probably never will be, at least as long as we are human—the processes that underlie religious belief and the spiritual sense that religious belief helps us face the ultimate challenges that every human encounters as a natural part of life. Thus, science can gain from religion by understanding its enormous role in bringing to light many different practices and beliefs that make rich and fulfilled life more possible for both scientists and nonscientists. It is in this realm that the dialogue now must begin to move toward synthesis. Both religion and science are part of the same process that gave rise to the human capacity to know, and the reciprocity of the process underlying both is the key insight we need to develop.

In the future there will be other events and circumstances that will expand this process of knowing, and as they unfold the overall process will become larger and greater. In the interim we need to be aware of what few would ignore—that the human enterprise has been so successful that it has moved onto new and unstable ground produced not by our knowledge *per se* but by its success in removing the biological checks and balances on human population without removing the biocultural sources of the materialism that is decimating world resources and threatening the survival of the world ecosystem. Thus, we no longer have the luxury of choosing between religion and science. At this time scientists can no longer maintain their traditional agnosticism and/or atheism as a shield to discount religion. Likewise, specific religions and religious leaders can no longer afford to withdraw into an insular world of faith and prayer and separation from the secular world of science and the pluralistic world of other religions. In the twenty-first century none of these traditional stances that characterized the twentieth-century world will be sufficient.

Scientists need to look at the humility that many religions practice. We need to examine the rich truths of the values that most religions espouse. We need to appreciate and respect the depths of sacredness and spiritual

freedom that religious traditions provide for human beings. We need to recognize that human life would not be where it is without the enormous contributions and transcendent meaning that religions have provided. We are merely keepers of and contributors to the cumulative knowledge and the beliefs that make a sense of continuity a possibility. Without the appreciation of this source of human values and success, and without recognizing the precarious nature of our existence, we run the risk of blindly counting on the success that we have had in the recent past while we proceed to eliminate our long-term future. Perhaps this is a time for reflection, for opening and not closing, for seeing the greater opportunities and not relying on those we have had in the past. A revolution is not necessary; but an evolution of a new kind holds great promise, an evolution that merges our past with the process that underlies our future and is a never-ending process of revelation.

What are the tasks ahead? We need new ways to see the world that are conceptually as powerful and true as the blue planet as seen from space. We need models that link the essential wisdom of religion with the successful ways of knowing the world that science provides. In these new models both live together, contributing to the wisdom and beauty of one another, not just for what they are but for what they are becoming. In discovering new insights, we as human beings can transform the older insights and not lose our way or what we value as we learn to understand the world and simultaneously not harm it.

NOTES

1. This is especially relevant to the kinds of questions that could be asked about the third world that often are not asked and therefore present distortions that contribute to the postmodernist critiques.
2. See Katz 1999 for a more complete analysis of this issue.

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