Vision
Harvard Students Look Ahead

VOLUME II

Edited by
Gary Mueller and Allison Hughes

THE DIPYLON PRESS
Cambridge, Mass.
We dedicate this book to the future of the Class of 1994.

Vision: Harvard Students Look Ahead
Volume II
© 1994, Gary Mueller and Allison Hughes
Cambridge, Mass.: The Dipylon Press
All rights reserved.

No part of this book may be reproduced in any manner whatsoever without written permission, except in the case of brief quotations embodied in articles and reviews.

“Universals: On the Philosophical Implications of Modern Linguistics”
© 1994, Samuel Brown

“The Future and the "End of History"
© 1994, Brian Domitrovic

“Inclusion in Education”
© 1994, Loren H. Fabisch

“Who Will Own Nobody’s Property? Eastern Europe in the New Millennium”
© 1994, Mike Fischer

“Environment and Development: A Blueprint for the Year 2150”
© 1994, James C. Hung

“The Dual Forces of Liberty: Implications for the Developing World”
© 1994, Dale P. Johnson

“Decentralization: The Hallmark of Competitive Firms in the Twenty-First Century”
© 1994, David Kotchen

“Science, Technology, and Value”
© 1994, Gil Lahav

“Determining Responsibility in an Age of Victimization”
© 1994, James Lask

“The End of the Antibiotic Age”
© 1994, Petra Anne Levin

“Mutual Commitments and Social Capital”
© 1994, Steve Rochlin and Sunil Garg

“Growthmania: Is There Ever Such a Thing as Too Much?”
© 1994, Ashu H. Suri

“The Future of Science and Religion”
© Peter Ulric Teo

Founding Editor: Isaac Devash
Copyediting and layout by Cambridge Wordwright, Cambridge, Mass. 02138
Cover based on original design by Susan Manning and Robert Simons
Printed in the United States by Courier Westford, Westford, Mass. 01886
The Veritas® shield is a registered trademark of Harvard University.

First Edition
Special thanks to McKinsey&Company, Inc.
The Future of Science and Religion

Peter Ulric Tse

So soon as psychology has finished with dread, it has nothing to do but to deliver it over to dogmatics.

Søren Kierkegaard (145)

Science convinced many people that certain religious claims are myth-based. By rendering religion's metaphysics unbelievable, science inadvertently weakened religion's role as moral guide, community mainstay, and spiritual healer. Science indirectly created a vacuum of meaning and social support in many people's lives. Since science does not concern itself with ethics, science was not able to fill this vacuum with any new system of meaning to replace the old religious systems. There is a danger that this vacuum will be filled by old or new dogmatic systems. If systems of intolerance fill this vacuum, science as we know it may end. If science is to survive, spiritualities compatible with a rational worldview will have to answer the questions science cannot answer alone: How should I live? What is ultimately real? Why do I exist? Together with science, rational spiritual

Peter Ulric Tse received a B.A. degree in physics from Dartmouth College, where he was a Senior Fellow in the philosophy of physics. He spent eight years living in Nepal, China, Germany, and Japan. The author of several language books, he is a doctoral candidate in cognitive psychology at Harvard. He wishes to thank Steven Kosslyn, Robert Farris, Heather Crocker, Kevin Ochsner, James Bland, and Rob McPeek for their helpful criticisms of his essay.
movements can obviate the dangers of a fundamentalist backlash from either new or old myth-based dogmas.

The continuing “revival” of religion in the West is both dangerous and good. The danger is that people’s inchoate religious longings will play into the hands of preachers of intolerance. The good is that modern civilization needs spirituality in order to grow into a less violent, less alienating society more in harmony with Nature and human nature. We cannot revert to the lifestyles of pre-technological peoples. We must attain a new harmony with Nature and ourselves, embracing technology and science. Science and spiritual systems will, I believe, gradually achieve a degree of mutually beneficial synthesis. Science will help religion grow beyond its traditional reliance on myth and received dogma. Tolerant spiritualities, in turn, will help science grow beyond its present aspiritual paradigm and rejection of experiential insight as a valid mode of inquiry into the nature of reality. In the process of their co-evolution, the paradigms of both religion and science are likely to change. In this essay I will describe directions that I think these paradigms will take, as well as some of the potential dangers religion and science will face in coming to terms with each other.

**Science vs. the Soul of Religion**

Cognitive psychology and neuroscience are rooted in a worldview that assumes mental events to be wholly due to the physical states of the nervous system. Damage to a part of the nervous system that processes or conveys a specific kind of information undermines the body’s ability to process that kind of information. Locations and components of information processing in the brain are becoming increasingly clear. New scanning techniques, like MRI, allow us to visualize the locations of brain events that correspond to mental events while they are happening. Psychopharmaceuticals allow us to modify the character of information processing in the brain at the synaptic level. Modern drugs, like Prozac (Cowley 41), differ from traditional narcotics in that they are designed by scientists to alter specific aspects of mental life based on knowledge of brain chemistry and circuity.

The view implicit in the neurosciences, that our mental life is solely the product of bodily events, is in the tradition of science’s materialism. In some sense, mental events are identical to physical events. Why posit a soul if all mental events can be attributed to the living
The Future of Science and Religion

brain? There can be no afterlife if all subjective events perish with the death of brain tissue. Brain-mind identity is perhaps the most important challenge to religion since evolution. What is a soul without a mind? Is death simply brain death? Assuming there is no immortal soul, how are we to develop spiritually?

Science casts into doubt the existence not only of souls, but also of a caring and personal God. Since the advent of science, religious myths and threats of divine punishment have seemed increasingly unfounded to more and more people. Fossils, the telescope, birth control, and space travel—to name a few—all convey the message that we alone are in control of our lives in a vast, indifferent, and often violent universe. If the universe didn’t blink at the demise of the dinosaurs, why should nature care about the demise of our species of ape? Nature or God certainly didn’t intervene during the Holocaust. Why should nature care about your demise or my happiness? Many people conclude with reason: it doesn’t. While there can never be outright proof that invisible gods or souls do not exist, science does not incorporate these concepts into its models of reality because they are not necessary for explaining that which is observable. Moreover, positing souls or invisible beings with powers explainable by other means allows us to make no falsifiable predictions.

The Potential Backlash against Science

Moral fundamentalism is not premodern. It is postmodern.
Salman Rushdie (78)

Many people reject the assumptions of the scientific worldview. The forces of outright rejection include fundamentalists of myth-based religions as well as those who, although they reject their parents’ faith as medieval, embrace another system of myths to live by. With its faith in astrological, other-worldly, and psychic forces, the New Age is a varied attempt of the latter sort to counter science’s vision of an indifferent universe in which personal souls and personal gods play no part. Some movements within the New Age are more a throwback to animism than a serious challenge to the pre-eminence of the scientific worldview in our culture. Other movements within the New Age, with their reverence for Nature and interest in meditation and mysticism, demonstrate
a yearning for a coherent worldview beyond that which science can offer.

Unlike New Age movements, fundamentalist ones pose a genuine threat to science. Creationists have lost recent legal battles to scientists, but they may yet win the war. Scriptural literalists cannot tolerate worldviews that see their scripture as a non-divine, culturally specific creation. The mullahs in Iran have succeeded in their fatwa against Rushdie in so far as few intellectuals now dare speak out against such intolerance for fear of being stalked themselves. How extreme will the moral fundamentalists get in this war of cultures? Will terrorism be brought to the heart of science, the universities? Perhaps the scare tactics of certain animal rights or anti-abortion activists will become the norm. Centers of Western culture, like Harvard, will most likely not start protecting themselves until after the first murders in the name of some holy cause.

While ideological, political, and economic forces are powerful determinants of human conflict, the deepest roots of conflict are emotions like hate and fear. Because they respect others’ ways and perspectives, people with cultures of tolerance are not likely to start or take part in violent conflict. They do not hate or fear others for their differences. Those with cultures of intolerance are more likely to resort to violence and mind control because they lack such respect. The danger to science comes not from religion per se, but from cultures of intolerance. Science can only thrive within a culture of tolerance and reason.

Fundamentalists everywhere may proclaim their love of science, but what they really want is technology for the power it gives. All they want to eliminate, they say, is secularism in politics and education. But what fundamentalists really want to eliminate is personal secularism and free thought. What they do not understand is that a culture of science, premised as it is upon open-minded doubt, cannot thrive in a culture where open-minded doubt is considered heretical. If fundamentalists take control in the next century or two, we may see science as a search for ever more accurate models of reality reduced to science as a quest for more powerful technology. Since scientists and other intellectuals are generally among the most secular people in the population, moral fundamentalists will have to “re-educate” or silence them.

The threat of systematized intolerance comes not only from scriptural fundamentalists but also from other moral fundamentalists who
The Future of Science and Religion

want to reconstruct culture for ideological reasons. China during the Cultural Revolution, Cambodia under Pol Pot, and Germany under Hitler each suffered book burnings and violence against those with “morally incorrect” thinking. Dictators know that while ideas cannot be killed, the people who hold ideas can be.

Will America be taken over by religious or other moral fundamentalists? The possibility seems remote now. But remember that even Hitler was voted in democratically, that McCarthy purged intellectuals here only four decades ago, and that Reagan and Bush had an agenda influenced strongly by the Moral Majority. Keep in mind also that according to a recent Time poll, 69 percent of Americans believe in the reality of angels (Gibbs 56).

Dangers of Neuroscience and the Materialist Paradigm

Suffering . . . teaches us to want the right things.

Bernard Malamud (159)

Viewing all mental events, from memories to personalities, as the information processing abilities and traits of nervous systems is a powerful paradigm. Millions suffering from mental and behavioral disorders will benefit as drug therapies are refined and discovered. Surgical techniques to alleviate certain kinds of mental suffering, such as obsessive-compulsive disorders, will also improve countless lives.

The potential for evil, however, is also great. Drugs far more addictive than crack may appear. The potential for coercive powers to alter the minds of citizens with drugs and “corrective” surgery will grow with brain-altering technology. Gulags more Orwellian than those described by Solzhenitsyn may occur where governments can act with impunity.

Perhaps the greatest danger of this new technology will be a kind of spiritual rot, where people come to view mental suffering as unnecessary because it is unpleasant. Would a pill that dispels grief or guilt benefit humankind? Would a pill that makes one feel in love really be desirable? We may enter a world where the people who can afford treatments feel cheerful and whole even in the midst of increasingly Malthusian decay and chaos. Why change the way one acts if one feels great? Although people can and do act based on personal ideals, standards, and beliefs, guilt and dread remain two of the most powerful
motivators of human action. Pain and mental anguish serve a purpose: to motivate us to find a way out of our present state of misery. While excessive or unfounded anxiety is unnecessarily debilitating, eliminating mental suffering entirely would come at a cost to the human spirit. Will the quest for wisdom be replaced by an addictive pursuit of happiness? Will beauty, pleasure, prestige, health, and money become the only things we want? America is already lurching in this direction. We may soon be implanting electrodes into our cerebral pleasure centers as readily as we implant silicone into breasts. (Rats with such electrodes, given two bars to press, one for electrode stimulation and one for food, press the bar for pleasure until they starve to death [Routtenberg and Lindy 158–61]). Cosmetic surgery may someday encompass brain alterations to make us “more like the person we really are.” What will happen to us as our tools for fulfilling escapist fantasies become more powerful and accessible?

The Future of Religion: Rational Spirituality

Spiritual traditions compatible with the worldview of science do exist. It is possible to live ethically without theistic or supernatural myths just as it is possible to live and grow spiritually without faith in one’s own immortality. For example, many Jews embrace Judaism as a culture and moral system of community living while rejecting its theological claims. It is possible to have a moral code of human behavior without the threat of divine punishment. Good need not be defined in reference to forces outside individual conscience. Good can be conceived as that which sustains and enhances life; evil, that which ruins it. Such a biocentric non-theological definition of good will not free us of moral dilemmas like abortion or meat-eating, but it at least frees us of theodicy and the delusion that a good god might save us from ourselves.

Many Buddhist traditions are explicitly anti-myth and anti-dogma. Zen, for example, is complementary to the traditions of science. Whereas science, for the most part, is an open-minded, skeptical, and methodical program of collective observation of the outer world, Zen advocates open-minded, skeptical, and methodical observation of the inner world by each individual. We are taught to accept that everything changes, that to cling to life is one more source of suffering, that all we are given is our awareness here and now. We are taught to be skeptical of the ways the mind deceives itself in its attempt to gratify addictions,
The Future of Science and Religion

which are the root cause of suffering. We are also given a method, meditation, which trains our awareness so that we can dissolve the roots of suffering. Such an ethical and spiritual approach to life in no way conflicts with a rational worldview. Indeed, there may be a merging of psychotherapeutic traditions with the master-disciple relationship common in Asian spiritual traditions. The goal will not only be to alleviate mental suffering but also to help people find their personal spiritual path in life so that they can become deeply healthy and fulfilled, not just healed to the point of being “normally neurotic,” as was Freud’s goal.

Many Eastern traditions, however, fail to mesh with science in their ontological claims. Most sects of Buddhism and Hinduism maintain the myths of karma and reincarnation. Science has found no evidence for reincarnation or any other causality of meanings outside the head, and therefore does not accept them. Of course, science may be wrong, but to say so is not to grant that it is. Given replicable evidence, the scientific community would eventually come around. This tolerance and search for what is real is the beauty of science. If science did not require replicable and concrete evidence, all we would have is opinions and unprovable—indeed, mutually exclusive—claims about what is real. For the most part, that is what we did have before the age of science.

Traditions advocating connectedness as the basis of spirituality—whether connectedness to oneself, family, community, other life, the earth, or the universe—are also compatible with science. Indeed, quantum theory, with its recent verification of the reality of non-local correlations (Aspect and Grangier), lends new credence to the old spiritual dictum: all events are interconnected. Ecology, as well, teaches us that all biospheric events are interdependent. Science seems to be moving toward a worldview in some ways analogous to those of certain ancient spiritual traditions.

Christianity, Judaism, and Islam, freed of myth, sexism, and dogma, have an ethical and spiritual core that has much to teach us about how to live. Jesus had profound teachings about love, tolerance, forgiveness, healing, and wholeness. That many people can no longer accept Western religions’ metaphysics does not mean the traditions’ deeper messages need also be rejected.

In sum, non-dogmatic, non-mythological ethical and spiritual systems have ample tradition to build upon. Science is not incompatible
with any spirituality compatible with reason. Native, ecological, and "feminist" traditions, which revere the connections that sustain life, and Eastern traditions will increasingly satisfy people's needs for moral guidance and spiritual succor. These traditions will meld with the West's own non-dogmatic, meditative, and mystical traditions such as Gnosticism, Sufism, and Cabalism. As usual in America, old religions will be rejuvenated; new ones will emerge under charismatic leaders and splinter. Meditative techniques and reliance on individual insight and conscience will replace myth and dogma as the wellsprings of religion. Communities and sanctuaries dedicated to rational and tolerant spiritualities will grow, restoring a sense of connectedness to social life. But, all this will occur against a rising tide of intolerance and dogma spreading through the ranks of the uneducated, the angry, and the needy.

It is unlikely that humans will ever collectively embrace a single spiritual and moral framework to guide individual action. But a single synthesis is not necessarily desirable. Gandhi said that religion is like a spouse: one is good enough for a lifetime. However, to stay "in love" with one's chosen spiritual tradition, one must find the good in it, not the bad. Far more important than a synthesis, people must embrace personal spiritualities compatible with a rational worldview. Otherwise, confronted with evidence contradicting their irrational worldview, people will slide into the dogmatic assertion that what they believe to be true is true because they have faith. Like cultists whose UFO or Savior fails to arrive at the predicted time, dogmatists would rather adjust their predictions than reject their beliefs. As psychologists have shown, people can even feel affirmed in their faith when confronted with contradicting evidence (Festinger, Riecker, and Schachter 208).

As long as faith means "It is true because I apprehend it to be so," religion will remain a major cause of violent conflict. People, after all, can "apprehend" mutually exclusive truths. Try reconciling reincarnation with Judgment Day, or the predeterminism of Allah's will with Christianity's emphasis on free will. Whatever rational spiritualities eventually mean by "faith," they will have in common a tolerance for the varieties of religious insight. They will not claim to know all truth. Such spiritualities will see science and other spiritual traditions not as a threat, but as an opportunity to learn about the world.

Tolerance means respect for the variety and validity of others' experiences. Spiritualities of tolerance compatible with the rational worldview of science will stress the value and necessity of individual
The Future of Science and Religion

One important area where psychology, biology, medicine, and spirituality will increasingly converge is the new field of psychoneuroimmunology. It is possible that science will find that there is more to the claims of spiritual healers than the placebo effect. (Indeed, the placebo effect itself awaits adequate explanation.) If it turns out to be true that certain faith healers are sensitive to some “energy,” which they can channel at will, there will be a paradigm shift in psychology, biology, and medicine. Likewise, if science shows spiritual healing to be a phenomenon independent of any particular religious dogma, well, so much the worse for religious dogma. Of course, the ontological claims of such healers may have nothing to do with how they actually accomplish healing. However, it would be as naïve of science to reject their psychical claims out of hand as it would be naïve of religion to deny the possibility of a purely biological explanation. That spiritual claims do not fit into the present paradigm of science does not mean they are not partly true or worthy of research. There are no supernatural phenomena, only natural ones. If science fails to fund research into “supernatural” phenomena, failing thereby either to explain or to debunk them, the people’s fascination may grow to “religious proportions.” The people may then one day fail to fund science.

Another area where science and spirituality will converge is ecology. The environmental movement will become more and more akin to a spiritual movement. Lobbying, litigating, and law-making can go only so far. Policing people and businesses to sustain the connections supporting life will not be sufficient to save the planet’s ecosystems and biodiversity. Only when each individual acts from within to protect that which sustains life on earth will the movement have succeeded. Only as people accept that these connections are holy and personally relevant will they forego consumeristic excess.

A spirituality of tolerance will help science overcome its own dogmatism. It wasn’t long ago that scientists rejected acupuncture out of
hand. Now it is accepted that acupuncture works in some situations. Not long ago the Skinnerian behaviorists rejected the existence of subjective mental events. Now that stance seems naïve. How many areas now scoffed at by scientists will eventually turn out to have some validity? Spiritual insights derived from private observation of the mind and self can complement and enhance science in its quest to uncover what is real. Just as religion would be fanciful without reason to sift apart true insight from wishful thinking, science would be ploddingly reductionistic without personal insight to direct observation and theory.

As spiritualities complementary with science increasingly fill the vacuum created by the demise of the myth-based religions, scientists will let go of their typical distaste for religion. Having embraced a rational spirituality to live by, scientists will feel more accountable to themselves and humankind for the technologies they create. Scientists, one by one, acting from conscience, will refuse to work on technologies of murder. They will refuse to do unethical experiments just because ordered to do so or for the sake of income or prestige. Scientists will find saying “It’s just a job” more difficult when they see their job to be living in search of inner and outer truth. Evil acts performed mindlessly or at least with less guilt in anonymity become more difficult with increased mindfulness and accountability. The new spiritualities of tolerance and mindfulness will teach that people are accountable not so much to a punishing god as to personal conscience and other living beings.

Only ethical and spiritual systems can guide us in our use of technology. To what use should we put new tools such as the map of the human genome? When are cloning, fetal tissue transplants, and eugenics good or evil and when should they be applied? Just as even a hydrogen bomb can be used to divert an asteroid heading for earth or to kill innocent people, modern technology is a tool that can be used for good or evil. Since traditional religion has proved inadequate to the task of ethical guidance in this unprecedented age of new technologies, new ethical and spiritual systems will emerge to guide us. New conceptions of good, I believe, will be biocentric and psychocentric rather than theocentric.

If scientists are arrogant and reckless in their application of the new technologies, they may incur a backlash against science. Because some scientists tend to regard moralistic religion as “the enemy,” they are in part responsible for making the religious camp more intolerant
The Future of Science and Religion

works in some situations. The existence of subjective. How many areas turned out to have some value of the mind in its quest to uncover it without reason to sift the would be ploddingly observation and theory. increasingly fill the ad religions, scientists. Having embraced a el more accountable to they create. Scientists to work on technical experiments just me or prestige. Scientists when they see their. Evil acts performed ity become more difficulty. The new spiritual at people are account- personal conscience and us in our use of tech- such as the map of the transplants, and eugen- ed? Just as even a hy- heading for earth or tool that can be used for ved inadequate to the e of new technologies, to guide us. New con- d psychocentric rather their application of the inst science. Because as “the enemy,” they camp more intolerant and dogmatic than it might otherwise be. Both sides have to engage in dialogue to avoid mutually detrimental animosity.

Science as a human endeavor ultimately owes its existence to the tolerance and funding of an educated public. Science enjoys prestige with the public largely because of past technological feats. However, science will increasingly have to justify itself to the public as funding becomes scarce. It will be a hard sell if the public perceives science to be arrogant or out of touch with reality as they see it. If the culture of science and reason fails to spread and thrive, it may be the cultures of patriarchal intolerance that win in the end. From the victorious historical perspective of the priests or dictators, it will seem that science was doomed to fail, being, as it was, an act of hubris against the correct moral order. All that can save us from an age of intolerance is reason, intolerance of intolerance, education, and a spirituality compatible with reason.

The alternative is bleak: we will return to a dark age of myth, dogma, and mind-control where heretics are silenced for advocating the scientific worldview or a spirituality unafraid of reason. Without rationally spiritual action to keep us from destroying the connections that sustain our lives, civilization might collapse. The new dark age might not end like the last one did in a renaissance of reason. It might just end.

The Convergence of Science and Religion

This essay has assumed that there is one encompassing reality, which can be known through public and private observation. The domain of science can be considered the exploration and modeling of publicly knowable reality; the domain of spirituality, privately knowable reality. Both science and religion tend to extrapolate maps of reality formed within their domain to the other’s domain, causing misunderstanding and conflict. Science and religion need not conflict, however. For example, a mind is only experienced privately, and therefore can be a person’s vehicle for spiritual exploration. A mind, however, also correlates with behavior and brain events, permitting the scientific exploration of mind. Because there is only a single reality, science and relig- ion, both in search of truth, must converge on a coherent understanding of reality distilled from both public and private exploration. Where
they conflict, science or religion or both are off track, probably stuck again in ruts of dogma.

I believe that the vacuum of social and personal meaning inadvertently created by science will eventually be filled by rational spiritualities complementary to a new spiritual rationality. The path to this future will no doubt be complex and turbulent. For one thing, hatred and fear will always be with us because these are basic human emotions. Like a body overcoming disease, each generation will have to overcome new movements of intolerance and hatred within its society. While we cannot change human emotions, with effort we can change the mindsets and social orders that underlie hatred, fear, greed, and cycles of violence. Only to the extent that we become more spiritual and rational will we be able to avoid violent conflict and realize sustainable patterns for human life. Only to the extent that spirituality and rationality converge will we be able to better discern the nature of reality.

Note

1. Some readers may object to my usage of “myth.” I define myths using the following version of Occam’s razor: any claim or belief, which might have been invented by a human mind, quite likely was and ought to be subject to skeptical inquiry. If found wanting under light of reason, it should be treated as no more than an edifying story or disregarded. By “reason” I mean not only the logical derivation of conclusions from minimal assumptions, but also a robust skepticism of behaviors and views which appear righteous but are in fact self-serving or deluding.

Works Cited


track, probably stuck

personal meaning inad-

for one thing, hate
e basic human emo-
eration will have to
ed within its society.

 effort we can change
red, fear, greed, and
ome more spiritual
lict and realize sus-
t that spirituality and
n the nature of real-

define myths using the
ed, which might have
ought to be subject to
, it should be treated
"reason" I mean not
assumptions, but also
righteous but are in

The Future of Science and Religion


