

SCIENTISM AND TECHNOLOGY AS RELIGIONS

by *Rustum Roy*

Abstract. Jacques Ellul, by far the most significant author in the serious discussions on the interface between religion and technology, is apparently not known to the science-and-religion field. The reason is the imprecise use of the terminology. In scientific formulation the relationship can be summarized as technology/religion:: science/theology. The first pair are robust three-dimensional templates of most human experience; the second pair are linear, abstract concerns of a minority of citizens. In the parallel community—now well developed throughout academia—of science, technology, and society, where the technology/religion matters have been discussed more than the science/religion pair, John Caiazza's point that "techno-secularism is the real problem" has been front and center for some decades. Among the theologians most aware of this, Raimundo Panikkar, Langdon Gilkey, and Huston Smith, Smith is the one who has taken the case much further than Caiazza, recognizing the danger of the real theological challenge from the religion of scientism and actively working against it. I write from a unique background among those involved in this debate—that of being deeply embedded simultaneously both in the modern science and technology establishment and in the reform of the religious enterprise for fifty years. I make the case that matters are worse than even Smith posits. He shows that scientism as a fundamentalist modern secularism serves the exact function of the theology behind the *practiced* religion of America and the West, that is, technology. An unexpected ray of hope has appeared in the sudden emergence of whole-person healing (also known as complementary and alternative medicine), which is used regularly by well over half the population. This reintroduction of the spiritual dimension into this key technology of health will certainly be a major turning point.

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SCIENTISM, THE FUNDAMENTALIST WING OF SCIENCE

Every major religion has within its followers a segment of dogmatically committed fundamentalists, supported by a distorted interpretation of its theology. Fundamentalists affirm that only their beliefs—often coded in a written text rather than oral traditions—are true. On a small planet with an ineluctably polymorphous cast, now forced by technological developments to interact with each other, all fundamentalisms are dangerous, and the more powerful, the more dangerous. Science-and-technology is the most powerful force under human control; hence, scientific fundamentalism is the most dangerous.

That is the background for my subtitle. Cato, for part of his career, opened his speeches to the Roman Senate by repeating “Carthago delenda est”—Carthage must be destroyed. He saw it as the *sine qua non* for retaining Roman culture and lost no opportunity to voice his concern. It is in that spirit that I believe that for the survival of humanity in our time *scientism must be destroyed*. By *scientism* I mean the absurdly reductionist belief that all truth can be learned and all reality described through science (never defined) and only through science. “Only” is what distinguishes scientism from what all of us in mainstream science believe about science.

JACQUES ELLUL, GRAND MASTER OF THE TECHNOLOGY-RELIGION ISSUES

One key point that John Caiazza (2005) makes in a roundabout way is that what he calls techno-secularism, *not* science, is the competitor for religion. I can hardly disagree, since I made that very case in 1979 as the Hibbert Lecturer in London and immediately afterward at the first “Nova Spes” gathering under the last Pope in the Vatican. In the published version (Roy 1981) I wrote:

It was in that masterpiece of percipience, *The Technological Society*, that Jacques Ellul first accurately took the measure of the nature of “Technique.” Ellul (1956) identified technology as an autonomous force in the world, either bulldozing away the frail edifices of eroded ancient cultures or in guerilla fashion, infiltrating the skyscrapers of the dominant Judeo-Christian Western bastion. A great deal hinges on the accuracy of this analysis. *Is technology the religion of the twentieth century and science its theology? Of course it is!* By any of the statistical yardsticks of the social sciences, one would have to claim more achievements in changing human behavior for this religion of SbT [Science-based Technology] (as I dubbed it) than for any other religion. SbT now sets the standards for Truth in East and West alike: earlier that was the function of religion. (p. 30; emphasis added)

This has been my mantra for three decades. Technology is the power base, and science is largely irrelevant in the argument, except that it is the abstract basis for the competing ideology. It is *scientism* that is the danger.

Technology, or more accurately *SbT*, Science-based Technology, my term for its modern, more powerful form (or Caiazza's techno-secularism), is certainly the religion of America, and increasingly of the West, and incipiently of the whole world. Caiazza's reference to the Coles–Dorothy Day “debate” (2005, 15) is right on target, but I believe he misses the mark by indicting William James as a major contributor to the rise of this problem. After all, James, the progenitor of radical empiricism, could not but describe empirically the American elite's behavior. Did he approve? Bless? There is no evidence to support that view. Moreover, in James's time he was much more on target than when the same issue is examined after one hundred years of the explosive history of technology. But Caiazza surely has missed the key insight of that master theologian-sociologist of this entire enterprise, Ellul, who strangely enough is hardly known in the so-called science-religion circles. Ellul's analysis of the nature of “technique” (which I have termed *SbT*), which caused the whole problem, is that it has only in the last several decades become a masterful *system*, with all the right feedback loops to give humans individually, and humanity collectively, whatever their hearts desire (however manipulated). Hence also the willing public enslavement of the masses not only to consumerism but to any well-organized propaganda. The metaphor of technology as a car without a steering wheel (Roy 1981) is apropos: a car is a great convenience for travel, but where it goes is not part of its embedded technology. In all previous religions and cultures, technology did the bidding of the cultural rulers—it responded to the steering. No longer. The autonomy of technology is on the horizon as a complete “religious system” with a theology (science) as the guidance system, many rituals (sports events, ritual TV watching), and many required practices (spending, consuming).

THE JACOB-ESAU CAPER: SCIENCE TAKES CREDIT FOR TECHNOLOGY

Caiazza also gets it wrong in his understanding of the relation of science to religion. The triumph of the secular in our culture, he says, is largely the triumph of empirical “science.” Wrong—unless he means technology. The public is blissfully ignorant of science, except as entertainment. Pictures of DNA, nanotubes, superconductors, galaxies, in any order, as long as they are in 3-D and color, induce adulation. The images become the holy pictures, the icons to feed the faith of the masses. We in the scientific establishment are astounded, bewildered, and defeated by the overwhelming evidence of incredible scientific illiteracy in the American population. I do not refer to the urban ghetto unless you include the graduating seniors

of MIT and Harvard. The famous Annenberg study “A Private Universe” (2000) reported that more than 90 percent of these graduates told interviewers that the reason we have winter and summer is that the Sun comes closer to Earth. The same group did not know that a tree acquired its mass by photosynthesis. No, the idol the American masses worship is surely not science, it is technology—and its huge, continuing *real* successes.

The allegiances to false and true gods often has been decided in a reality payoff. In the biblical story of Elijah and the prophets of Baal (1 Kings 18), Elijah wins because he delivers the goods: he brings down fire on his soaked logs, which the prophets of Baal could not do. Technology in the last hundred years has brought us electricity: light and power at our fingertips. Trains and planes: unheard-of mobility. Technology has been remarkably reliable, tangible, and useful. It puts worldwide communication at our fingertips, now HDTV and iPods. This is what has enslaved America: successful, tangible technology, not ephemeral, abstract, remote, mathematical science. Air conditioners, washers, dryers, radios, television sets, computers—these are the arguments the public understands. Caiazza and most theologians, including even virtually all who write on science and religion, make the egregious error of calling that set of arguments *science* instead of *technology*. In the last four thousand or so years, the Jacob and Esau caper of falsely laying claim to another’s “birthright” (Genesis 27) was played out twice. The second time was in about 1950, when scientists cleverly inserted themselves before an ignorant public and baldly, boldly claimed that it was science that had *saved* (nota bene) the world via the atom bomb and brought all the great inventions of engineering and technology to the public. That reasoning was the greatest masterpiece of linguistic legerdemain: “The atom bomb won the war,” “Science made the bomb,” “Science made all the wonderful things you cherish.”

Hold it! Think about this! The Germans—under Hitler—had discovered the science of fission. I, as a high school student in India, was taught the power of mass deficit by 1939. However, even with an extremely talented group of the original nuclear scientists, Germany did not make bombs. It was only the incredible *technological* prowess of the United States superpower that could build Oak Ridge or Hanford to produce enough uranium and plutonium to make a bomb. The nonscientists who write about science-religion issues refer to the niceties of the Galileo and Darwin debates as though any ordinary, educated churchgoing citizen either knew or cared one whit about those details. In fact, the public is wholly ignorant of and not affected by such obscure issues. For example, more than half of them would like evolution and intelligent design both taught in schools. Even though this horrifies scientists, such teaching will make little difference. As the Annenberg study reveals, most of these students do not even know why we have seasons. They understand and are shaped by what they see, touch, feel, eat, and play with, not by abstract concepts, either scientific or theological.

Unfortunately, most scientists, and regrettably most theologians in the science-religion debates, have been totally taken in by the twentieth-century Esau maneuver, and they play into the hands of the very force they abhor by crediting science with this success.

THE AUTHOR'S BIASES

I request the reader's indulgence for the starkness of my presentation. I have been immersed for sixty years, behind the lines as it were, living incognito in Carthage. That is a very different cultural base from that of most authors and readers of the science-religion debates. Very few such scientists share either the background or the viewpoint of being inside the religion establishment. Among the theologians writing in this field also only a very few really understand the much more basic issue that I referred to in my opening paragraph, and even fewer have experienced the technology world.

Here I lay out my biases. I write from the perspective of someone who has been involved at the front lines of the interface between real science and real religion. I use the adjective *real* not to disparage in any way the other authors' excellent credentials in science and/or religion but to make the point that there is another dimension to each of these human activities where real action is taking place. My key parameter for using the term *real* is the percentage of citizens affected by, or knowledgeable about, the subject and the magnitude of the effect on their lives—in personal, economic, political, or social terms. I am a card-carrying, proposal-writing, very well-funded scientist (continuously for fifty-five years, simultaneously by three or four federal agencies and a half-dozen companies at a level of about \$1 million/year). I hold five professorships at three major universities. Penn State's Materials Research Laboratory, which I founded and directed for twenty-three years, has been ranked number one in materials research in the world.¹ I have directed about one hundred graduate theses and founded five journals. This research and professional involvement in the world of contemporary "S/T" (science/technology) is the grime and dirt of "science" for which I used the adjective *real*.

On the religion front, I have little qualification in the world that discusses the fine points of the theology of Rudolf Bultmann, Karl Barth, and Martin Heidegger. But as an activist Anglican layman I have been involved for fifty-five years at the cutting edge of church reform, mainly in the "peace and justice" arm of the church. In 1947 I was involved in the formative stage of the Protestant retreat movement at Kirkridge (where I frequently led retreats) and the pioneering model of house-church in the Church of the Saviour in Washington (where I still preach once or twice a year)—both pioneers in their fields. I use the term *real* religion because I run with the pack that includes my friends Bishops (the late) John Robinson and John Spong, who have influenced directly the *practice* of religion

in the U.K. and the U.S. for millions. Ellul, who fifty years ago prophesied what Huston Smith confirmed, was another real interface leader. A theologian–social scientist and author of three dozen theological books, he is hardly even referred to in the science-religion debates I read in this country. Ellul was my founding coeditor of the journal *Bulletin of Science, Technology, and Society* (including religion), a kind of “applied” version of *Zygon*.

This overlong biography may perhaps be excused as the necessary bedrock for any credibility for the comments that follow on the prevalence of scientism in the science establishment and for my defense of Smith’s position in this debate. (As a rite of journalistic disclosure, I must also record that I regard Smith as one of the most important, most scientifically precise, writers on the most important topics of our times, including religion and its relation to science.) Among theologians, it is only he who accuses science of veering toward scientism (my terminology). The situation is actually even worse than Smith indicates. Science today veers into scientism not only conceptually but also in its practice.

MOST SCIENCE-RELIGION DISCUSSIONS AVOID REAL-WORLD ISSUES

While my academic science-religion colleagues debate the arcane nuances of cosmology or Genesis, and while they write as though the public really cares about Darwin, Wallace, or Wilberforce, the real world of science is focused elsewhere: on each one’s disciplinary details and, collectively, on more money for science. Nearly a decade ago, we witnessed a national showdown on the entitlement attitude on the part of the scientific establishment in the debate about whether or not to fund the Superconducting Super Collider (SSC). The history of this debate is instructive. The proponents argued that with its demise “physics would end,” “all progress in science shut down.” Even though a Sigma Xi poll of all scientists showed 97 percent opposed to the SSC, this had no effect on the scientific establishment, which thought that a \$38 billion price tag (including interest costs, because it would increase the debt) was not too much to demand from the totally uninformed committee and its absolutely disconnected public. Of course, there were organized groups opposed to it, prominent among them the Committee against Government Waste. I was one of the very few scientists actively organizing, and working publicly, against this funding—in Congress, in Japan (which had to provide support), and in the pages of *Physics Today*.

Now we return to the key argument. What conceivable reason could there be for the Congress of the United States to vote \$38 billion (including interest on the debt) of public funds for a group of perhaps one thousand humans worldwide to acquire a new device that under no conceivable

scenario could make any difference in the lives of the 250 million Americans or 6 billion citizens of the world? (In Congressional hearings where I testified, the proponents freely acknowledged that any argument for spin-offs was spurious, yet it came within a hairsbreadth of being funded.) The SSC is not unique. Many other such projects have been aggressively marketed. Why? I suggest the only plausible answer: that these efforts demonstrate that technology and science do function as a religion in our society today. These are the cathedrals of our culture, but cathedrals that the masses do not see and cannot enter and that provide none of the many functions which a cathedral does for those who enter.

WESTERN SOCIETY LEGITIMIZES PROPAGANDA FOR ITS OWN
"RELIGION" OF TECHNOLOGY

How little we understand about the power of rhetoric today if we do not understand how the resources of the media have worked to establish as truth, and encourage the worship, of anything called "science" or "scientific," "the power of science," or "the importance of science." Three mainstream religious thinkers have been prominent in calling attention to the prevalence of scientism in our society. Raimundo Panikkar in his article "Modern Science and Technology Are neither Neutral nor Universal" (2002) shows the aptness of his analogy that our culture has "married" science.

Even as we mourn his passing, we remember noted theologian Langdon Gilkey, who never tired of reminding us that the scientific community is as vulnerable as any other community to a spiritual "takeover" (Gilkey 1970; 1981, 75–90; 1991, 144–48; 1993, 9–16, 205). The history of science's being taken over and transformed by ideology in the twentieth century is appalling. Gilkey observed that science has become the handmaid of several ideologies: in Nazi Germany, the Western Allies, and the Soviet Union, all of which fervently "worshipped" science and served technology.

In his book *Why Religion Matters* (2001) Smith lays out his position against *scientism*, not science. He takes on directly the perennial, arrogant assertions by certain leading scientists who are almost always totally devoid of any serious reading or background in theology or religion. His encounter with Freeman Dyson in the pages of the *New York Review of Books*, described in his book, is an example of his efforts to speak out against fundamentalism within science.

Are we doomed to live under a new theocracy of scientism? Very probably, unless we really get to work on it. We cannot behave responsibly if we do not study and recognize this threat and work politically as well as intellectually to mitigate its effects. I do want to note a sudden ray of hope from one surprising quarter, which has never been engaged in the science-religion debates but has already proved to be a potent ally: whole-person healing—that is, complementary and alternative medicine that includes technology, science, and the spiritual dimension of life.

A RAY OF HOPE: WHOLE-PERSON HEALING

The era when chemistry dominated science lasted into the first few decades of the twentieth century, but physics was the signature science from, say, 1940 to 1980. Even before the defeat of the supercollider, all of physics had been in decline as a public force, as was the case with radio astronomy, even though the media broadcast widely the same tedious pictures of one galaxy after another (as though anyone could tell the difference) and gave us “news” about “The Birth of the Universe in the year 5,000,000,000,000 B.C.!” and “Life on Mars Discovered.” Or not, or maybe, or again! Molecular bioscience came to the fore, very clearly abstract and test-tube stuff, distinguished from the old fashioned “biology,” which actually dealt with living systems, including humans. Molecular biology offers its own esoteric benefits for Congressional titillation: new “miracle” drugs (many turning out to be dangerous), “gene therapy” (which, after twenty years of funding at over \$200 million per year, has not produced the therapeutic results we expected), genome mapping, and genetic engineering, to mention a few.

The real driver for the fantastic increase of public funds for molecular bioscience is simply that it is closer to the public’s real abiding interest than any other area of technology. It is relatively easy to get humans to worry about their own health. It was easy enough to persuade Congress to double the budget of the National Institutes of Health over an eight-year period. With television advertising opened up to pharmaceuticals, the sky became the limit. The health sector now comprises nearly 30 percent of the U.S. economy and is by far the most *unsustainable* part of the economy. In this one field of “science,” however, the public is very, personally, interested in the facts, in the outcomes, in the deliverables. Floyd Bloom, Professor of Neuroscience at U.C. San Diego—in his 2003 Presidential Address, no less, to the AAAS—wrote in detail of the crisis of the “imminent collapse of the U.S. health system” (2003, 1681). Newt Gingrich, former Speaker of the House, has taken up the cudgels to expose in television soundbites the unbelievably well-concealed secret of the U.S. health system’s safety record. He compares it to “two 747 airplanes crashing every day of the year” and no one even trying to do anything about it. The medical system itself is the third leading cause of death in the U.S., behind cancer and heart problems (Starsfield 2000, 483). The public must be forced to ask, Is this the best that this extremely well-funded technology can do? All of this was foreseen long ago by Ivan Illich in *Medical Nemesis* (1975).

These huge problems—in spite of the massive propaganda campaign by cleverly misnamed “evidence-based medicine,” via television and print and seven hundred lobbyists in Congress, to convert the entire nation into compliant hypochondriacs—have finally started to catch up with the system. Around 1980, the educated, reading, Internet-savvy public revolted and cast its lot with the “alternative-medicine” movement. More accu-

rately called whole-person healing (since often no “medicine” is involved), this approach has captured more than half of the first medical visits of American citizens and about \$50 billion in out-of-pocket expenditures. It is an example of why reductionist science will finally find its proper, minor, place in world affairs. Modern medicine holds up the concept that “a person is a body,” a kind of biochemical body bag into which appropriate chemicals may be pumped, thereby fixing all of its problems. This obviously is not true, and the public knows it, feels it, experiences it. A person is a body + mind + spirit, with each part indisputably (by scientific criteria and more significantly by personal experience) influencing the other. Moreover, it is an obvious scientific fact, hardly ever mentioned in “evidence-based medicine,” that the body is an electromagnetic entity as much as it is a biochemical entity. Hence, the whole-person healing (WPH) approaches, which incorporate also the spirit and mind—many codified in several human cultures by reliable empirical science—are winning much support today. On a financially leveled playing field, with insurance paying for either conventional or whole-person healing, “modern scientific medicine” would lose hands down to such integrative healing.

Therein lies the special, profound significance of the emergence of WPH. Recall my key thesis that the public uses and benefits from much of *technology*, not science. Because of the trust and dependence that this engenders in the public, there had emerged a questionable argument that technology is dependent on science. But now there has been demonstrated, in the experience of the masses, a major failure of a profoundly impacting, reductionist-based technology, that for health. And the public—50 percent or more voting with their pocketbooks—has caused the emergence of many alternatives based on a more integrated holistic worldview: whole-person healing. Imagine the change: the most important “technology” now directly, and at its core, reverses itself and proclaims the reality and “equivalence” of Body Mind and Spirit; in control of our most precious desire—our own health. Perhaps WPH will go even further with healing; it may fix not only persons but our culture, by challenging the “theology” of science (see Roy 2002).

This final point may be the most significant. The threat of Armageddon based on religious differences is finally getting the attention of the “Axis of Scientism” (New York, Washington, Los Angeles!) masquerading under the squishy term *secularism*. A secular culture, or culture of disbelief, is an oxymoron. Cultures are built around religions. The Western world was in large part a Christian culture. Since 1950 it was conquered intellectually, then legalistically, by scientism. And the culture wars internal to the West are the revolt of the Christian remnant against the scientism overlay. My claim is that whole-person healing, including the shared experience of healing in the spirit, whether Sufi, Hindu, Christian, or other, will restore a new ground for universalism.

NOTE

1. By the world's leading citation analysis company, Thompson ISI, Philadelphia, Pennsylvania, April 2003.

REFERENCES

- Bloom, Floyd. 2003. "Science as a Way of Life: Perplexities of a Physician-Scientist." *Science* 300.
- Caiazza, John C. 2005. "Athens, Jerusalem, and the Arrival of Techno-Secularism." *Zygon: Journal of Religion and Science* 40 (March): 9-21.
- Gilkey, Langdon. 1970. *Religion and the Scientific Future*. New York: Harper and Row.
- . 1981. *Society and the Sacred*. New York: Crossroad.
- . 1991. *Through the Tempest*. Minneapolis: Fortress.
- . 1993. *Nature, Reality, and the Sacred: The Nexus of Science and Religion*. Minneapolis: Fortress.
- Illich, Ivan. 1975. *Medical Nemesis*. New York: Marion Boyars.
- Panikkar, Raimundo. 2002. "Modern Science and Technology Are neither Neutral nor Universal." *Metanoia* 11:51.
- "A Private Universe." 2000. Santa Monica, Calif.: Science Media Pyramid Film and Video.
- Roy, Rustum. 1981. *Experimenting with Truth*. New York: Pergamon.
- . 2002. "Religion/Technology, Not Theology/Science, as the Defining Dichotomy." *Zygon: Journal of Religion and Science* 37 (September): 667-76.
- Smith, Huston. 2001. *Why Religion Matters: The Fate of the Human Spirit in an Age of Disbelief*. New York: HarperCollins.
- Starsfield. 2000. "Is U.S. Health Really the Best in the World?" *JAMA* 284:483-85.