

Witness: How Liberals can be Anti-Science and What Conservatives can do About It

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I. Witness

Any serious Christian knows that his or her faith is despised in academia, and spends much time fielding accusations from the heathen. My colleague Erik Anderson has presented a paper in which he takes Christian conservatives to task for obscuring truth in the name of Young-Earth Creationism. Let him do so; in my opinion few things keep conservative Christian young people out of science as effectively as does Young-Earth Creationism, and few things wound the conscience more than does this scientifically limited belief system. Happy is the youth who is allowed to believe what the science says, and not have to pretend that T. Rex and Adam lived together in peace and harmony.¹ For the conflict is about truth, and the practitioners of science aggressively seek the truth, no matter how they may assert relativism and non-realism—claiming that the universe they study is not real. Inevitably a novice scientist encounters truth claims in the scientific arena, and these are usually presented by the secularists in the Manichean manner: “If you hold fast to your Christian faith, you cannot accept our science.” (Of course we know non-Christian secularists weren’t responsible for modern science at all—it is a by-product of Christian rationalism in the West).² Unfortunately, too many Christians entering science jettison their faith, because the science they are learning *now* has an immediacy to them that their faith may not. And the tension is not Christianity versus science, but Young-Earth Creationism versus science. The tragedy is that as they have been taught by their Christian authorities, Young-Earth Creationism is science.

Yet my colleague gives the scientific community too much credit, for the culture war is one they love, and it is their means to eliminate elements of faith from the faith community of

scientists. Accordingly, I thought I would take the scientific community—and especially the leftists within it—to task, because they have poisoned the well of inquiry. If it's okay to chide the obscurantists in the conservative Christian community, then I'm going to excoriate the leftists who let their ideologies influence their science. I believe that left-wing ideologies are now a great detriment to science and to the commonweal of our society. This discussion will focus on environmentalism and nuclear power, because, first, my training and research render me competent to speak on these issues. Secondly, I am alarmed because modern environmentalism is mostly a pagan movement that has set our country back, in my opinion, several decades. We should have colonies on Mars now (they were being actively planned in the 1970s), but we are stuck in low-earth orbit and cannot even go to the moon. The global warming controversy is one battle of that war painted on a larger canvas.

No sooner had I thought this then I recognized that I could put my career at jeopardy. Every Christian laboring in secular academia feels it. To speak out against the leftist shibboleths of the age risks a potential career-ending backlash, and I desire to continue performing research into fundamental biomedicine. Every conservative Christian knows the stories: Speaking out as a Christian too often means being verbally pilloried, Coventried, or fired. And while what I say may seem to be paranoia, many of our faculty know what I am talking about, and have even experienced many of these things, or know of friends who have.

And so, perhaps I shouldn't write this manuscript. Perhaps I ought to wait a few years, until I am done with my research. But the existence (and persistence) of those nagging questions suggested the answers to those fears. Precisely because they were there, I knew I must write.

I know a young person in grad school who attended an Intelligent Design meeting in secrecy because he knew his career might be forfeit were he to reveal this affiliation.

Accordingly, some specifics must be left out, for the safety of those I know still laboring in academia who must keep low until the secularist hurricane blows itself out.

At scientific conferences, it is allowed to mock Christians and other rough, rude, rustic rubes from flyover land whose only real function in this life is to labor to pay taxes to fund the attendees of these meetings in luxurious locales. At one conference sponsored by the American Physical Society (APS), several speakers took flyover-land denizens to task for believing such non-fashionable ideas like Intelligent Design. This was in the aftermath of the *Kitzmiller v. Dover Area School District* case, in which the teaching of Intelligent Design was interpreted by Judge John E. Jones III as violating the Establishment Clause of the U.S. Constitution. One of the speakers at the APS conference was an ACLU lawyer who prosecuted the case against requiring Intelligent Design to be taught in the Dover School District. I heard hoots against the rubes, and cheers when they were twitted by the conferees, whose contempt for the average religious American was palpable. Had I the courage, I would have stood up and spoken, but I did not. How avant-garde they all thought they were! They considered themselves independent thinkers, bravely opposing the benighted opinions of the bourgeoisie, when they actually were just a mob.

And then a Young-Earth Creationist stood up, and within a hostile crowd, told the people that he would like to talk to them about his belief, if they would but listen to him. He was not threatening or incendiary, but calm. I think the angels rejoiced for the one true, courageous human being in that whole auditorium.

Thus, the genesis for the first part of this paper comes from Whittaker Chambers' *magnum opus* on his experiences as one of the Communist fellow-travelers within this country, and his movement away from it as his Christian faith blossomed—his book entitled *Witness*. I do

not wish to suggest that my struggles are cosmic and existential as were Chambers', but I do think the parallels exist. In speaking out against Communism wherever it was, he invited vicious attacks from his former comrades, and he himself felt that as a Christian in the Western world, he had moved from the winning team to the losing one, so pervasive and puissant was the Marxist mindset within the intelligentsia.

Being of a pessimistic stripe, I sometimes agree with Chambers that in being a Christian in science, and in trying to maintain my conservatism and my faith while attempting to be a scientist, I am on the losing team. My too-frequent motto is "We Are Doomed," which agrees with the title of the latest book from pessimist pundit John Derbyshire. (I note here that Mr. Derbyshire, a *National Review* contributor, is opposed to Intelligent Design. We are both pessimists, for many but not for all the same reasons.) But the Soviet Union fell, and the left-wing fortresses may perhaps crumble. And so I write.

II. How Liberals Can Be Anti-Science

A. Paul Krugman and Liberal Attitudes Towards Science

It seems to me that one of the most enduring pleasures of leftists is to deem themselves the arbiters and guardians of Progress, Science, and All That Is Good. From longer screeds like Chris Mooney's *The Republican War on Science*, to op-ed pieces like Paul Krugman's "Republicans against Science," even the titles say it all: "We are good and you . . . not." Even Mani himself could not have developed a world view more polar and Manichean than this one, in which there is stark good versus evil. And pundits like Mooney and Krugman want to let you know what side *they're* on.

Yuval Levin, writing in the *National Review Online* blog, *The Corner*, said it well: "The 'war on science' stuff never moved many voters, but it was a powerful rallying cry for

committed liberals, affirming their understanding of themselves as the party of science and of their opponents as an army of ignorance.”³

Krugman’s piece this summer set off a firestorm in the conservative community. He quotes Texas Governor Rick Perry, who questions two litmus tests of left-wing scientific orthodoxy—biological evolution and anthropogenic global warming (AGW, human-caused global warming). While Krugman’s column purported to show the anti-science bent of conservatives, its real purpose was to revile those who question the regnant belief amongst leftists that humans have caused global warming, and that we must rearrange our economies to stop it. Krugman excoriates Governor Perry because of his anti-evolution and anti-AGW comments: “That’s a remarkable statement—or maybe the right adjective is ‘vile.’”⁴

Although, so far as I know, Governor Perry has never declared scientists witches, nor prevented Texas scientists from performing and publishing their science, and indeed has even encouraged high tech business to settle in Texas, Krugman has still found Perry guilty of hating science: “Mr. Perry and those who think like him know what they want to believe, and their response to anyone who contradicts them is to start a witch hunt.” Then Krugman ends his column with his not-so-tacit plea for us not to elect one of the conservative troglodytes in the Republican Party. “Now, we don’t know who will win next year’s presidential election. But the odds are that one of these years the world’s greatest nation will find itself ruled by a party that is aggressively anti-science, indeed anti-knowledge. And, in a time of severe challenges—environmental, economic, and more—that’s a terrifying prospect.”⁴

How do we respond to this? The motif of liberal genius versus conservative Neanderthal is well established. Thus, Barack Obama is intelligent because liberals say so, even though the schools he attended refuse to release President Obama’s transcript: We must take their word for

it. And John Kerry was touted as a cultured intellectual, much more intelligent than GOP incumbent George W. Bush, even though it was discovered after the 2004 presidential campaign that Bush's overall Yale grades were equal to—in fact, slightly higher than—Kerry's. And of course, to those who were old enough to experience the political milieu of the time, Reagan was almost always portrayed by the left as a dolt.

I have already responded online to Krugman's column in a CVV interview I did with Mr. Lee Wishing.⁵ But I think that what kind of science is supported and not supported depends upon one's political and religious philosophy. Scientific support for biological evolution in the broadest sense has been around for over two centuries now, and Darwin's twin explanations of natural selection and common descent, coupled with knowledge of genetics, has made Darwinian evolution a powerful underlying theory in the biological sciences. A theory is a strong statement about nature, and saying, "I don't have to believe (insert, favorite hated theory) because it's only a theory" just shows scientists that you don't know what science is. So score one for Krugman here, although a rejection of evolution does not make a person anti-science. I know a few Young-Earth Creationists who do quite well at their disciplines, but I cannot name them for fear of retribution from the likes of Krugman and his congeners.

B. Environmentalism Against Science

But then, what do we do with his beliefs on global warming and environmentalism? Here Krugman's ideology has blinded him to the extent that I believe he is anti-science in his commitment to environmentalism and to the repercussions of this belief.

In "Science and the New Left," Yuval Levin analyzes the Left's fealty to science, and indicates where the Left has major blind spots.⁶ He defines how and why the Left has always considered itself the party of science (rightly, in Levin's analysis), but then accuses the

environmental movement as being as anti-science as is possible, if we define *science* as it has been practiced in the modern age, since the seventeenth century. Science has been all about improving the human condition through understanding the laws of nature, so that nature could be manipulated for the benefit of humanity. In that older, Baconian sense, to understand nature is to be able to overcome it, and not surprisingly, says Levin, the scientific agenda became affiliated with a politically progressive agenda.

Although Levin does not explore the issue, such a progressive agenda was not necessarily antithetical to a Christian one, because Francis Bacon, a Christian, saw science as an outworking of what are often termed the creational mandates. The scientific temperament might have been eagerly appropriated by the *philosophes*, but it was largely developed by sixteenth- and seventeenth-century Christian natural philosophers, who saw the innovations developed through science as improving the commonweal. In *Novum Organum Scientiarum* (New Tool of Knowledge), Bacon wrote, “For man, by the Fall, lost at once his state of innocence, and his empire over creation, both of which can be partially recovered even in this life, the first by religion and faith, the second by the arts and sciences.”⁷

Modern environmentalism, which burns especially hot in liberals as a group, is, as Levin avers, a distinctly anti-scientific belief system, because it denigrates the efforts of humanity to have power over nature and to order it according to our desires and needs. Lynn White, historian of medieval technology, believed that the Christian creational mandates set the stage for environmental degradation by the Industrial Revolution.⁸ The environmentalist movement has, thus, jettisoned the Christian idea of taking dominion over creation, and has replaced it largely by a concept called the Precautionary Principle, which says that if a technology could do harm, we should not pursue it. And this is one of the rationales for the global warming movement: If it

is possible but not certain that global warming can cause deleterious environmental effects, and that humans are causing it, then humans should do whatever is possible to reduce the emissions of carbon dioxide. But the Precautionary Principle is not a scientific one. In fact, far from it.

Levin assesses the difference between the modern environmental movement and the foundations of modern science:

In the past three decades, environmentalism has become a fully integrated component of the worldview of the American Left, the party of science. But the perspective of environmentalism could hardly be more different than that of modern science on the questions of nature, power, progress, and man. . . .

‘Nature, to be commanded,’ Bacon wrote, ‘must be obeyed,’ so the purpose of the new natural science was to learn nature’s ways so as to overcome them. This desire for knowledge of and power over nature was not power-hunger, it was humanitarianism. Nature, cold and cruel, oppresses man at every turn, and bold human action is needed in response. Science arose to meet that need. . . .

If you had to devise a complete opposite to this scientific view of nature, a mirror image in essentially every respect, you would probably end up with roughly the notion of nature that gives shape to the modern environmentalist ethic.⁶

Environmentalism eschews—indeed condemns in the strongest terms—using power to subdue nature, but using such power is one of the pillars of the Scientific Revolution. So far, Levin says the American Left has glossed over the tension between science and environmentalism, or so far does not see it. In Europe, however, environmentalist leftists see the tension and have rejected science, and therefore altogether shut down beneficial technologies like genetically modified foods. (In the U.S. about 80% of our corn is genetically modified, by comparison.)⁹

Soon European environmentalism may even have serious repercussions in high-energy particle physics. The Large Hadron Collider, almost certainly the world’s largest and most advanced scientific instrument, straddles the Franco-Swiss border. About 80% and 40% of French and Swiss electricity respectively, is generated by nuclear power. As it is, the LHC

experiments are shut down during the winter because the strain on the power grid is too great during the severe winter along this same border.

In their infinite wisdom, the Swiss have recently banned nuclear power, to be replaced by “renewable energy.”¹⁰ The idea was to use “renewable” energy instead, such as wind and solar. What that really means is that they’ll have to burn fossil fuels. Good luck with operating a gigantic, energy-hungry, state-of-the-art physics instrument using not-very-green 19th- century technology.

C. Liberal Egalitarianism Against Science

Another hallmark of science is that it does not support another beloved belief—egalitarianism. In Judeo-Christian theology, individual humans may not be equal in status or wealth, but they are equal in worth before God. Having rejected this type of egalitarianism, liberals desire equality of outcome, and they suppress research that suggests inequality of skills and talents.

Science, simply put, cannot account for human equality, and does not offer reasons to believe we are all equal. Science measures our material and animal qualities, and it finds them to be patently unequal. We are, after all, obviously not all equally large or small, tall or short, strong or weak, healthy or ill. We are born physically and mentally unequal, and always remain so. To examine only our animal qualities is surely to conclude that we are far from one another’s equals. And so to assume that there is nothing more to us than our animal qualities (as the modern scientific outlook does) is to assume inequality is the human condition.⁶

D. Examples of Environmentalism Against Science

In 2009, the spent booster phase of the Lunar Reconnaissance Probe,¹¹ equipped with a camera, intentionally impacted the moon in a crater which was permanently shadowed from the

Sun because it was near the lunar South Pole. For about 15 years, starting from data from a spacecraft called Clementine,¹² lunar scientists had accumulated strong circumstantial evidence that there was water/ice mixed with the lunar regolith (soil) in craters that were in permanent shadow because they were at very high latitudes north and south, in the polar regions of the moon. The presence of such reservoirs of water locked as ice in those craters would have enormous impact on the feasibility of establishing lunar colonies, because if it existed, then colonists would not have to fly water to the moon, an undertaking that would be hugely expensive because of the great mass of the water required to sustain a colony. So LCROSS (Lunar Crater Observation and Sensing Satellite) was to impact in one of these shadowed craters, and the plume of dust and vapor that was ejected would be spectroscopically analyzed for the presence of water, with a subsequent analysis of how much water might actually be present in the soil of that crater.

A few years ago, I stormed into my Studies in Science, Faith, and Technology classroom, with at least metaphorical steam coming out of my ears. Just before I arrived at my classroom, I had read on Space.com that there was a “Friend of the Moon” movement, dedicated to preventing NASA’s LCROSS probe from impacting the moon. Impacting a large man-made object on the moon, lifeless though it was, was a warlike and imperialistic assault on an innocent moon, they claimed. It was morally objectionable to bomb the moon, they said, not seeing the irony that the moon has been “bombed” countless times over the eons by asteroid impact.

In that article, the Space.com editors quote a *Huffington Post* entry by screenwriter Amy Ephron, who called the LCROSS mission, “NASA’s own version of shock and awe.” Having started a Twitter page called ‘Help Save the Moon,’ she encouraged readers to “convince NASA not to try any further experiments of this kind.” She also averred, “Well, I for one, don’t like

explosions. Call me a pacifist, call me cautious, call me an environmentalist, or call me something worse, I don't really care."¹³

It's easy to dismiss people who are on the fringe, but the fact is that such attitudes are popular, and it is considered obligatory by academics to take these critiques from the Left seriously. Another article from a few years earlier described the collision of comet Temple I with an 870-pound copper projectile from the Deep Impact probe. Scientists wanted to determine the composition of comets, and they studied the ejecta from the crater made by the collision of the copper probe with the comet. But, again, the environmentalist plea was, "Don't bomb the comet."

But what really set me off was an article in Watt's Up with That (wattsupwiththat.com) that lamented the closing of what was once the world's largest aluminum plant, the Columbia Falls Aluminum Company in Montana, with an attendant loss of many jobs and industrial know-how. It would be tempting to console oneself with the delusion that the plant had shut down because we found better ways to manufacture aluminum or because these jobs were shipped overseas, good free-market-soluble problems. But the real reason the plant wasn't competitive, according to the author, was that the coal electric plants that should have been constructed for cheap power for the plant were stalled by the Greens, so energy was more expensive than it should have been.¹⁴ America isn't building many power plants any more—most have been blocked by the Sierra Club and other Green organizations. And so energy is more expensive than it needs to be.

Because the secular scientific community has in many respects rejected Christian teachings, and has persecuted scientists who have a Christian worldview, it has accepted some philosophies which are deleterious to the scientific method and to the march of science and

technology. It tends to see the universe and the earth in particular as sacred. But rejecting the divinity and sacredness of nature is just one of those worldview changes that allowed science to take root. For if we ascribe the divine to nature, we are not going to study it very carefully.

Robert Boyle warned against worship of nature: “The veneration wherewith men are imbued for what they call nature has been a discouraging impediment to the empire of man over the inferior creatures of God.”¹⁵

That is why it is a bureaucratic mess to build power plants, and why some people even have moral misgivings about slamming a projectile into a comet or the moon for scientific research. These objects are sacred to some, and to treat them so is an environmentalist sin.

Yet environmentalist ideology, found so often in the Left, so often makes liberals espouse policies which are not good for man or beast. Liberals succeeded in banning DDT use and its production in the U.S., so Africans, who bought the pesticide from us, saw an enormous increase in fatalities due to the dread disease malaria.¹⁶ Bjorn Lomborg, once a member of Greenpeace, believes in anthropogenic global warming but has become skeptical of the global warming movement and has criticized its hostility to human wellbeing. He asserts that defeating malaria would improve the quality of life in Africa and Asia far more than would rectifying global warming.¹⁷ Without DDT, malaria devastates these areas such that over one percent of Africa’s wealth and over a million people are killed every year.¹⁶ We can only hope that a malaria vaccine being developed now is ultimately successful and can be distributed inexpensively throughout malaria-infested regions. If it does, it will be another triumph for the free market and the products it can unleash through basic research.

E. Science Needs the Free Market

But we need to do more than recite infractions and understand why the attitude against Christians specifically and conservatives in general is deleterious to our culture. (And yes, it is true that “Christian” and “conservative” are not identical sets.) From its beginning, science (as opposed to engineering) has been a leisure activity. For the most part, the wealthy or the ordained were poised to make advances in science, because they had the time, inclination, and training to do so. In our environment, it seems commonplace that the government should fund science, for we recognize that our economic and military superiority, not to mention a high quality of life, are dependent on guarantees that our science would be *primus inter pares*, first among equals of all the nations of the world.

However well-intentioned a culture might be, it isn’t going to engineer consistent breakthroughs in science unless there is an economy to fund it. And really only a free-market system can generate the income necessary to fund science.¹⁸ Even if you believe that the government is required to fund projects that no private concern would bother with, you should recognize that starving the goose that lays the golden egg is a lose-lose proposition for science. This is why modern conservatism, or what might be termed classical market liberalism, is the surest way for science to be developed in a robust manner. Yet the same scientists who depend on the largesse of prosperous citizens—courtesy of the free market—excoriate the free market, in an act of cutting off their noses to spite their faces. In November 2008, I attended the Quadrennial Congress of the Society of Physics Students, which convened at one of America’s greatest high-energy physics laboratories, the Fermi Accelerator Laboratory (Fermilab). The keynote speaker was Leon Lederman, Nobel-Prize-winning particle physicist who functions as the patron saint of Fermilab. In this speech, he derided G.W. Bush and insisted that then-

candidate Barack Obama would be far more pro-science than Bush had been: “The Obama credo of change matches the scientific tradition; change is also what science is about, it is what science produces.”¹⁹ But in 2011 the economic canoe is about to go over Angel Falls (elevation about 1 km) and it is all going to dash on the rocks. Let’s see how much science gets done then.

F. Environmentalism Against Nuclear Energy

Our pursuit for alternative energy sources acceptable to the environmental movement has beguiled many mainstream physicists into accepting assumptions and masking cautions that would normally set off an alarm in the brains of true skeptics. For example, I believe that solar energy actually has the ability to reduce fossil fuel use, and its use is increasing rapidly. Yet there will still be required some advances in order for this energy source to be feasible for a high-tech society. Two of these advances would be in battery technology and solar cell efficiency and cost. In *Physics Today*, Thomas W. Murphy Jr. writes about how he constructed solar panels on the roof of his house to partially offset his home energy needs.²⁰

In the article, he rhetorically asks what it would take to generate 100% of America’s electrical energy by PV (photo-voltaic) technology, and then answers this question by performing some simple calculations. Huge batteries are needed to store the energy for times PV energy is not being generated—at night or when it is very cloudy. He mentions that to provide photo-voltaic-derived electrical power, about a terawatt (10^{12} W) to the entire country, it would require solar panels covering an area of almost ten thousand square miles, which is a square 160 kilometers to a side. That’s an area bigger than Vermont. Now some of this can be installed on roofs of individual residences, and it can supply some of the U.S.’s electrical energy. But for the current state of the technology, we must put solar farms somewhere in the country.

Then there's the issue with storing all that solar energy in huge batteries. Murphy uses the standard lead acid storage battery, such as those used in automobiles. I calculate that it would require the equivalent of *1000 automobile batteries* per household for America's electricity needs, and this is assuming energy demand doesn't increase in the coming years. That's a LOT of toxic lead and sulfuric acid. Most battery chemistries are toxic and would require perfect battery recycling. Lead is extremely toxic, and there is no low-dose threshold for lead exposure. So, we substitute plant food, carbon dioxide, with toxic lead and sulfuric acid. Good going, people.

Why are environmentalists not flocking to an alternative fuel that is already technologically useful—the nucleus of an atom? The energy source is, of course, nuclear fission. It is technologically old, well-tested, safer than burning fossil fuels on so many levels, and cleaner than any energy source we have, excepting perhaps hydroelectric—but there is much more of it than of feasible hydroelectric power.

Prometheus has given humanity the gift of a fire more profound than we can imagine, derived from the nuclear forces bonding the nuclear particles together. Strength and violence have chained him to a rock, Zeus's eagle tears him apart, but we despise Prometheus's gift of the atom so much we refuse to honor his sacrifice by using the gift.²¹

The nucleus is energy-dense, because the strong nuclear force that binds the protons and neutrons of the atom together is enormous, and when a nucleus is split, fantastic energies are released.²² William Tucker, in his book *Terrestrial Energy*, writes of nuclear energy as energy from the ground, the same energy of radioactivity in the Earth's core that fuels volcanoes, hot springs, geysers, and plate tectonics.²³ In reality, the power of the nucleus is so fantastic that it

can be forged only from the supernovae of massive stars, because the energy required to make heavy, fissile elements like uranium can only be found in exploding stars.²⁴

So in splitting the atom for energy, we are harvesting the energy of the supernova. Of course, it's no surprise that something so powerful can be used to destroy as well, and so we are haunted still by the specter of the atomic bomb. Hiroshima and Nagasaki poisoned public discourse about nuclear energy, even though, by definition, a nuclear power plant cannot explode like a nuclear bomb does: The uranium in the reactor is not nearly purified enough for that.

Trained as a biophysicist, I had intensive training on the use of radioactive materials, which I used extensively as I performed radiolabeling of biological molecules during graduate training and my first postdoctoral fellowship. I learned what levels of radiation are necessary to damage tissue, so to avoid those doses. Having had a long interest in nuclear energy, I was happy to teach Grove City College's Radiation Laboratory when I arrived at the College over seven years ago. This course emphasizes the detection of radiation and the study of nuclear processes in nuclei.

My research throughout my career, however, has largely been addressing how DNA, the genetic code of life, is damaged by chemicals. DNA can be assaulted both by radiation and by chemicals, and especially chemicals that are the by-products of fossil fuel combustion. In fact, the first example of cancer epidemiology was published in England in the late 1700s, when the physician Sir Percivall Pott recognized that the scrotal cancer he observed in chimney sweeps was probably due to the coal tar buildup in the chimneys, to which the sweeps were continually exposed.²⁵ We learned in the late 20th century that many carcinogens are formed from the incomplete combustion of fossil fuels, like benzo[*a*]pyrene, 5-methylchrysene, and nitropyrenes, which as a class of compounds are called polycyclic aromatic hydrocarbons (PAHs). PAHs and

some other chemicals commonly encountered in the environment create mutations much more easily than does radiation. Survivors of the Hiroshima and Nagasaki A-bombings developed many cancers at a rate greater than the general populace, but the life expectancy of survivors was surprisingly high, and the offspring of survivors suffered no detectable increases in genetic abnormalities.²⁶ The resiliency of the human genome to radiation was higher than expected.

This is not to say that radiation shouldn't be carefully monitored and controlled. But so should exposure to the wrong chemicals. In fact, while it is controversial, there is surprising evidence that exposure to low-levels of radiation fields may be conducive to better DNA repair. That is, the cell's apparatus to repair DNA damage could be heightened if "the pump is primed" by reasonable amounts of background radiation. This is the idea behind "radiation hormesis" and shows why the present linear no-threshold model of exposure to radioactivity may be wrong. For regulatory purposes, it is assumed that any dose of radiation is harmful, no matter how small. But data suggest that we shouldn't worry about low levels of radiation, and that it may even be beneficial.²⁷

Again, I am not saying that radiation cannot be dangerous. Of course it can, in high doses. Uranium miners, who experience a far higher exposure to radiation than do nuclear plant workers, suffer from a higher-than-average incidence of cancer development.²⁸ And radon at high levels trapped in houses correlates with higher incidence of lung cancer.²⁹ But these are higher levels of radiation than would be experienced by the vast majority of us in a country powered by nuclear energy. I am much more worried by mutagenic and carcinogenic pollutants from burning fossil fuels. And that's not even factoring in the environmental destruction from mining coal and extracting oil.

We don't even escape radiation when we burn most fossil fuels, especially coal. There is always some radioactive material in coal, since thorium and uranium exist in rock formations associated with coal. More radioactivity is expelled into the atmosphere with the combustion of coal than is expelled by nuclear power plants, because coal fly ash goes out of the smokestack and cannot be stuffed back in.³⁰

If I were told I must live next to either a fossil-fuel-powered plant or a nuclear power plant, I'd choose the nuclear plant in a nanosecond. But only 40% of America's energy consumption involves generating electrical energy.³¹ The rest powers furnaces and boilers in industry and in our homes, and of course, in the transportation sector. Almost all petroleum, for example, is used to make gasoline. So whether or not we switch over to nuclear energy will have little effect on reducing fossil-related pollutants, since we will still be combusting all that gasoline—or so we assume.

To fight carbon emissions and polluting fossil fuel by-products, the environmental community urges us to accept electric cars or hybrid vehicles. I believe two big problems will prevent widespread adoption of these vehicles, beyond the expense—they are too often the toys of wealthy environmentalists. First, battery technology is primitive; the energy density of modern chemical batteries is low, and their manufacture and disposal involve lots of toxic materials, as noted earlier.³² And with the whole process from burning the fuel to charging the battery, electric cars are no more inefficient than gasoline-powered ones, using at least as much fossil fuel.

But what if almost all electricity was generated by burning uranium or thorium nuclei instead of chemicals? Then we would recharge our electric cars with electricity generated by splitting uranium atoms—and our electric cars would genuinely solve the carbon emissions

problem, because there is no carbon emission from nuclear fission. But the environmentalists are afraid of that fission.

III. What Conservatives Can Do About It

Thus, I believe that conservative traditionalist thought, rooted not only in Athens but also in Jerusalem, is critical to preserving the scientific enterprise. I don't see science progressing much in many fundamental areas lately, and I have become alarmed. America should long ago have landed on Mars. There is a reason that Arthur C. Clarke's fictional mission to Jupiter was set in the year 2001: The space ship in that novel (and movie), called the *Discovery One*, was a nuclear rocket of the kind being designed in the 1960's.³³ Although medieval and early modern society, powered by Christianity, fueled the scientific revolution, I thought in my atheistic youth that a foundation in Christian thought was not required any more for the advancement of science. My thoughts have changed in my believing adulthood, as Christian influence in culture has waned, and I think science is beginning to grind to a halt. Of course, C.S. Lewis says it far better than I:

Centuries of belief in a God who combined 'the personal energy of Jehovah' with the 'rationality of a Greek philosopher' first produced that firm expectation of systematic order which rendered possible the birth of modern science. Men became scientific because they expected Law in Nature, and they expected Law in Nature because they expected a Legislator. In most modern scientists this belief has died. It will be interesting to see how long their confidence in uniformity survives it.... We may be living nearer than we suppose to the end of the Scientific Age.³⁴

Although the title of this paper suggests a scheme to solve the problem of anti-science beliefs in liberalism, I am not sure I have a good solution. But the need to address it is critical. Academia, even in the sciences, is now a leftist group—think echo chamber (G-TEC, as I call it)—in which scientific error is not addressed because there aren't enough perspectives among the practitioners to enable them to see those errors. As I write this, a second cache of hacked

emails has been released that is now termed Climategate 2.0.³⁵ Like the originals, these emails bitterly revile “skeptics” oblivious to the irony that scientists are supposed to be skeptics. Even after the release of the first Climategate emails in late 2009, the comedian Jon Stewart skewered the Climategate scientists who pressure journals not to publish science from those who are skeptical that humans cause much or any global warming. Yet most all of them, with a few noble exceptions like Georgia Tech’s Judith Curry, blame the skeptics for the public relations disaster which has befallen the climate science community. It is not a disaster just for climate science, but for the whole scientific community.

We need to see that the word *conservation* is derived from the word *conservative*, and so it is a good thing to conserve what is best in nature, to nurture nature. It is, I think, also a Christian imperative to be servants and stewards of creation. But in Christian theology, nature was never a hands-off proposition; it was to be gardened so that all would be an Eden. And in the Fall, the command to take dominion was never so urgent, because nature is brutal and is all too frequently our enemy. The future of science, and of technological development, hinges on getting the balance right—the balance between respecting creation and bending it to our will, so that humanity can prosper.

But we can, to steal a phrase, “think local.” Grove City College is on the cutting edge of societal evolution, as a well-known pundit says. Our faculty members teach that science and faith are not intrinsically at loggerheads. Indeed, this was one of the rationales for instituting our Studies in Science, Faith, and Technology (SSFT) curriculum. We can properly prepare our students to do science properly, steering between the Scylla of secularism and the Charybdis of the origins debates. I like to think, then, that our science and engineering students do not fear having their faith destroyed by interaction with their secular peers.

Indeed, blogger Rod Dreher reports that Notre Dame professor Christian Smith and Furman sociologist Kyle Longest performed a study that shows that the real reason more young believers avoid science is not because they can't harmonize science and their Christian faith, but because they perceive (correctly, as I pointed out earlier) hostility from secularists.³⁶ We are doing our job at Grove City College. I await suggestions on what to do with the secularists.

Acknowledgments

I thank Paul Kengor and Lee Wishing for the opportunity to contribute this paper to the 2012 CVV Conference. I also thank Cynthia Rinaman Marsch for her support, love, and, not least, her invaluable help editing this paper. Any errors in this paper are solely the author's.

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