

Science and Religion: No Conflict?
By Ron Brandt and Reid Adler
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Ron Brandt, who organized and moderated the service, has been a member of the Mount Vernon congregation for 28 years.

This morning's service was inspired by a Christmas present. You may recall that last summer Reid Adler and I organized a Sunday service on evolution. Reid gave a fascinating summary of what DNA analysis shows about how closely related we humans are to other forms of animal life. I reported on efforts of several state and local school boards at that time to include the theory of so-called Intelligent Design in biology classes. In December a federal court in Pennsylvania declared decisively that Intelligent Design is not science and that efforts to "teach both sides" of the supposed controversy were religiously based and therefore unconstitutional. Since that time, we haven't heard as much about evolution in the mass media, although nobody thinks the argument is really over. Around Christmas time, Reid gave me a copy of an anthology of prize-winning articles on science and nature. The lead article, by Natalie Angier, a science writer who lives in Takoma Park, Maryland, is quite provocative.

"In the course," she says, "of reporting a book on ...(what) hundreds of researchers at the nation's great universities see as the essentials ... of their particular disciplines, I have been hammered ... by one recurring message... Virtually all my sources topped their list of what they wish people understood about science with a plug for Darwin's dandy idea.

Would you please tell the public, they implored, that evolution is for real? Would you please explain that the evidence for it is overwhelming, and that an appreciation of evolution serves as the bedrock of our understanding of all life on this planet?

.... Scientists think (it's) terrible, the public's bizarre underappreciation of one of science's great and unshakable discoveries – how we and all we see came to be – and they're right. Yet I can't help feeling tetchy about the limits most of them put on their complaints. You see, they want to augment this particular figure – the number of people who believe in evolution – without bothering to confront a few other salient statistics that pollsters have revealed about America's religious cosmogony. Few scientists, for example, worry about the 77 percent of Americans who insist that Jesus was born to a virgin, an act of parthenogenesis that defies everything we know about mammalian genetics and reproduction. Nor do the researchers wring their hands over the 80 percent who believe in the resurrection of Jesus, the laws of thermodynamics be damned.

No, most scientists are not interested in taking on any of the mighty cornerstones of Christianity ... They reassure the public that religion and science are not at odds with one another."

(Angier, N. "My God Problem – And Theirs." *The Best American Science and Nature Writing 2005*. Houghton Mifflin.)

According to survey results, a majority of scientists consider themselves atheists or agnostics. Of course, most are not as outspoken about it as Angier. The reason may be not so much that they want to protect their grants, as Angier charges. Maybe some of them just don't want to be as pugnacious as she seems to be. Others may be comfortable interpreting the "miracles" that are part of traditional Christianity as not literal truth but meaningful myths. Many thoughtful Christians, including some ministers in mainstream denominations, take that position.

But a few distinguished scientists have attracted attention lately because they say they joyously accept the essential beliefs of traditional Christianity, including immortality – life after death. And they insist there is no conflict between their scientific attitude and their religious beliefs, even including such things as the resurrection of Jesus.

The most prominent current example of a believing scientist is Francis Collins, a researcher and director of the Human Genome project. He was featured recently in *Newsweek* and in yesterday's *Washington Post* as the author of a book called *The Language of God, A Scientist Presents Evidence for Belief*. He insists that "belief in God can be an entirely rational choice, and the principles of faith are, in fact, complementary with the principles of science."

Collins was an atheist – he says an obnoxious atheist --until he was converted to evangelical Christianity in medical school. He not only wants to get other scientists to accept Christ; he also wants to convince his fellow Christians to accept evolution, which in his view is part of God's plan. He suggests that "God's intention in creating the universe" may have been "to lead to creatures with whom He might have fellowship, namely human beings."

I haven't read Collins' book and probably won't. Collins, who lives in Bethesda, says that's too bad. He writes that "it is time to call a truce in the escalating war between science and spirit," in which (the *Post* article says) "the dominant voices have belonged to narrow, anti-God materialists and believers who spurn orthodox science."

Collins says both approaches are "profoundly dangerous. Both deny truth. Both will diminish the nobility of humankind. Both will be devastating to our future. And both are unnecessary."

Well, I hope I am respectful in expressing my point of view, but it's theology that I consider unnecessary. I see no need for supernaturalism. Of course there are many things about our existence that I don't fully understand, but my religion does not require belief in anything that is, so far as I can see, the product of human imagination.

In saying this, I suppose I am rejecting Collins' call for some kind of truce. Is this close-mindedness on my part? I don't want to be dogmatic, but I don't know what arguments he or she could advance that would convert me. It's as though a distinguished scientist should announce that he has decided Galileo was wrong and that the sun does indeed revolve around the earth. What I think we need is not more support for a mistaken point of view generally regarded as sacred, unquestionable doctrine. We need more honest, realistic skepticism.

I won't say more about my own religious stance because I want you to hear from six members of the congregation who agreed to participate this morning.

Lia LaPiana is currently a program executive at NASA (the National Aeronautics and Space Administration) managing future missions that will search for habitable planets around suns outside our solar system. She has an undergraduate degree in biology and has done graduate work in medical genetics, engineering, law, and special education of the deaf. She was raised an Episcopalian but has been a Unitarian Universalist for the last 24 years.

In 1929, Albert Einstein wrote, "I believe in Spinoza's God who reveals Himself in the orderly harmony of what exists, not in a God who concerns himself with fates and actions of human beings." This was Einstein's response to a U.S. Rabbi's question "do you believe in God?" Einstein's theory of relativity had caused a religious controversy in the United States in the 1920s. Similar to the current continuing controversy between science and conservative religion regarding evolution. In 1921, a Roman Catholic Cardinal, stated that Einstein's theory of relativity "cloaked the ghastly apparition of atheism" and "produc(ed) universal doubt about God and His Creation." Einstein refused to engage in a discussion with the Roman Catholic Cardinal. The US Rabbi tried a different approach with Einstein and his Theory of Relativity by asking if Einstein believed in God. That is when Einstein wrote his much quoted answer above.

Throughout his life Einstein returned again and again to the issue of science and religion and how the two do and do not intersect with each other. The following excerpts are from an article he wrote in *The Christian Register* in 1948.

"Does there truly exist an insuperable contradiction between religion and science? Can religion be superseded by science? The answers to these questions have, for centuries, given rise to considerable dispute and, indeed, bitter fighting. ... In my own mind there can be no doubt that in both cases ... (it is) a negative answer. What complicates the solution, however, is the fact that while most people readily agree on what is meant by 'science,' they are likely to differ on the meaning of 'religion.'

"Science, in the immediate, produces knowledge and, indirectly, means of action. Religion is concerned with man's attitude toward nature at large, with the establishing of ideals for the individual and communal life, and with mutual human relationship. These ideals religion attempts to attain by ... epics and myths which ... influence ... action along the lines of the accepted ideals.

"It is this mythical, or rather this symbolic, content of the religious traditions which is likely to come into conflict with science. This occurs whenever this religious stock of ideas contains dogmatically fixed statements on subjects which belong in the domain of science. Thus, it is of vital importance for the preservation of true religion that such conflicts be avoided when they arise from subjects which, in fact, are not really essential for the pursuance of the religious aims."

Alan Bunner is an astrophysicist with a PhD in physics from Cornell. Before retiring, he was a science director at NASA Headquarters for about 17 years.

One of my keen interests is cosmology, and on that front there have been exciting developments in the past years. I am also a keen student of the ways in which science is

often misused, and the curious phenomenon by which people hear only what they want to hear in scientific reports - the dismissing of global warming as a threat is a good example.

Claims that scientists have uncovered supernatural purpose to the universe have been widely reported in the media. The so-called anthropic coincidences, in which the constants of nature seem to be fine-tuned for the production of complex life in general and the human brain in particular, are taken as evidence. However, no such interpretation can be found in scientific literature. All we currently know from physics and cosmology remains consistent with a universe that evolved by purely natural processes.

An example of the dilemma facing people seeking the truth is a recent book just reviewed in last Sunday's Washington Post - it's called "The Language of God - A Scientist Presents Evidence for Belief." Ron mentioned it earlier. The author is a geneticist who ending up embracing evangelical Christianity, in part because (quote) "of the eerie ability of mathematics to map the universe and in the numerous material properties... that seem to have been exquisitely tuned to fashion a world that would give rise to complex forms of life."

For about a decade, a number of scientists and theologians have been asserting, in popular articles and books, that they can detect a signal of cosmic purpose poking its head out of the noisy data of physics and cosmology. An intelligent, purposeful, and indeed personal Creator must have made things the way they are, so they say. The fine-tuning argument is based on the fact that earthly life IS indeed rather sensitive to the values of several fundamental physical constants. Making a small change in many of these, and life as we know it would not exist. The delicate connections between physical constants and life are called the anthropic coincidences.

Just to offer one example of these cosmic coincidences, there's the story of a remarkable property of the nucleus of the carbon atom. The matter left over from the first few minutes of the universe was almost entirely hydrogen and helium, with none of the heavier elements like carbon, nitrogen, and oxygen that are necessary for life. The heavy elements that we find on earth were built up millions of years later in a first generation of stars. The key step in the sequence of nuclear reactions that created the HEAVY elements is the formation of a carbon nucleus out of three helium nuclei. It turns out that carbon has an energy level that is Just Right for the production of Carbon in stars.

Is this a sign, then, that the Universe was designed by a deity like those of traditional religions? Some sort of personality who created the universe and has some special concern with life, in particular with human life? You may tell me that you are thinking of something much more abstract, some cosmic spirit of order and harmony, as Einstein did. You are certainly free to think that way, but it's pretty much the same thing, it seems to me.

Steven Weinberg has pointed out that (Quote) "It used to be obvious that the world was designed by some sort of intelligence. What else could account for fire and rain and lightning and earthquakes? Above all, the wonderful abilities of living things seemed to POINT to a creator who had a special interest in life. Today we understand most of these things in terms of physical forces acting under impersonal laws. We don't yet know the most fundamental laws, and we can't work out all the consequences of the laws we do know. The human mind remains difficult to understand, but so is the weather. We can't predict whether it will rain one month from today, but we do know the

rules that govern the rain, even though we can't always calculate their consequences. I see nothing about the human mind any more than about the weather that stands out as beyond the hope of understanding as a consequence of impersonal laws acting over billions of years.

There do not seem to be any exceptions to this natural order, any miracles. I have the impression that these days most theologians are embarrassed by talk of miracles, but the great monotheistic faiths are founded on miracle stories – the burning bush, the empty tomb, an angel dictating the Koran to Mohammed – and some of these faiths teach that miracles continue at the present day. The evidence for all these miracles seems to me to be considerably weaker than the evidence for cold fusion, and I don't believe in cold fusion. Above all, today we understand that even human beings are the result of natural selection acting over millions of years.

Physicists today find an alternate explanation for the anthropic coincidences. That is in the cosmology of the inflationary Big Bang that is gaining in evidence and acceptance. According to these theories, the expanding cloud of billions of galaxies that we call the Big Bang may be just one fragment of a much larger universe in which big bangs go off all the time, each one with different values for the fundamental constants. In any such picture, in which the universe contains many parts with different values for the constants of nature, there would be no difficulty in understanding why these constants take values favorable to intelligent life. There would be a vast number of big bangs in which the constants of nature are unfavorable for life, and many fewer where life is possible. You don't have to invoke a benevolent designer to explain why we are in one of the parts of the universe where life is possible: in all the other parts of the universe there is no one to raise the question. If any theory of this general type turns out to be correct, then to conclude that the constants of nature have been fine-tuned by a benevolent designer would be like saying, "Isn't it wonderful that God put us here on Earth, where there's water and air and the gravity and temperature are so comfortable, rather than some horrid place, like Mercury or Pluto?" Where else in the solar system other than on Earth could we have evolved?

Our sample of the end product of evolution is very biased: by the fact that it is only in this rare and fortunate case that there is anyone thinking about cosmic design. Astronomers call this a selection effect.

The universe is very large, perhaps infinite, so it should be no surprise that, among the enormous number of planets that may support only unintelligent life and the still vaster number that cannot support life at all, there is some tiny fraction on which there are living beings who are capable of thinking about the universe, as we are doing here. A journalist who has come to interview a lottery winner may feel that some special Providence has been at work for the winner, but he should keep in mind the much larger number of lottery players who he is not interviewing because they haven't won anything. We need to take into account the bias introduced by the fact that it is WE who are thinking about the problem.

This is a question that you all will have to answer for yourselves. Being a physicist, I naturally think about selection effects. Many physicists today are suggesting that the whole Universe that we know could be one huge selection effect. Charles Darwin recognized the role that chance and variation could play in leading to a complex world via natural selection and billions of trials. Similarly, we should consider how

billions of trial universes might lead to the cosmic coincidences we see today. I think it's clear to you that I am NOT a fan of Intelligent Design. If you find yourself in a difficult conversation with an Intelligent Design fan, you might ask them:

1. Why would a creature who planned all this wait for 4.5 billion years for humanity and intelligence to arise, when it could have been done much more quickly?
2. Why would a creator build a universe that is a gazillion times larger than it needs to be? (In fact, it's just the gazillions of surplus size that makes it possible for our unusual little planet to be a rare, but possible, special case.)
3. If the universe were designed for us humans, we might expect to find the universe a congenial place. Truth is, the vast majority of the universe we know is totally NON-congenial for life, let alone human life. Pretty bad design, I'd say.
4. Why would an intelligent designer put the whole thing at risk by adding asteroid impacts or avian flu? I heard one wag suggest that there must have been TWO Intelligent Designers - one nice guy who created birds and butterflies and then a disagreeable one who added anthrax and bubonic plague! There is a moral message to this anthropic reasoning: Although the past may have been the result of chance and good luck in our fortunate quadrant of the universe, there's no magic that's going to rescue us from the threats of the future, which might even come from our own species. We're on our own. If our comfortable planet is the result of one huge Cosmic selection effect; then THINK of the responsibility it lays on us! The whole Universe is counting on us not to screw things up!

Marty Bredeck has a bachelors degree in Astrophysics and a masters in mathematics from Michigan State University. He has worked as a Computer Specialist with the National Science Foundation for over 8 years, including developmental assignments with NASA and the National Oceanic and Atmospheric Administration. This fall he will become a full time math instructor at Northern Virginia Community College.

For me, there is no conflict between science and religion, and that is no accident. My experience with orthodox religion involves people with a defiant belief in some miracle like the Resurrection and Transubstantiation, and that they do not expect these miracles to be scientifically provable. That's the essence of a miracle: an article of faith *meant* to conflict with what we believe naturally.

Still, we've heard of a "crisis of faith" happens when what you're "supposed to" believe in (or *want* to believe in) doesn't match what you feel you can and do believe in. It's an interesting question: what would you do if you witnessed a miracle? It would, by definition, conflict with explanation by all you understood. I would not adopt a sudden faith in mysticism, but I would recognize that what I believed before was about to undergo a radical change. In "Robinson Crusoe" he discovers corn growing and believes it's a miracle sent by god. He later figures out he planted it accidentally, and is bitter. Ultimately, he realizes every time corn grows it is equally miraculous and heaven sent; this is a view I can agree with.

I think beliefs should all be the best ones we can have, and when better ones come along we should have the courage to change. My religion is a combination of humility, agnosticism, and humanism--and uses a scientific method to challenge beliefs without banishing them entirely. In "Crimes and Misdemeanors" a holy man says he would choose his belief in God over The Truth, because he would still have a better life. That's

an effective way of resolving a crisis of faith, but I choose the opposite way. Although I choose The Truth, I don't expect to ever really know it with certainty, and I believe truth is ultimately subjective. If the Rapture *does* occur tomorrow I won't think I was wrong to follow science since it's still the best that could be done, and I won't feel I sinned by not believing in a god who would purposely deceive me, or require the gift of my free will in return for salvation. These issues are too often cast in black and white and miss the actual reality we each face. It may seem you have to choose between being an irrational, gullible dreamer, or a soulless gremlin that requires proof for everything. In most day-to-day NON-miraculous things we probably see more shades of gray where we have some evidence and some uncritical belief.

I have no problem with people who believe in miracles, I only have a problem with them calling it science or the equivalent of science. Plenty of scientists find things to believe in beyond the provable, and plenty of religious people have respect for science and find it valuable. I think each of us should be free to decide for oneself what miracles they want to believe in, but science is meant to be the same for all of us. Maybe that's the difference between me and the kind of person who believes in miracles: I find all that my imagination and sense of wonder can handle while remaining in the consensual reality described by science. I also think that some people believe outlandish things because they've not yet seen the beauty and scope of a scientific reality that comes complete with tests that either provide additional evidence or disprove the model in a definitive and final way. I also have no problem with people who, like Robinson Crusoe, find everyday life so special and wonderful they want to call that a miracle. I just don't think there is only one truth that we need to convert all the "Fridays" of our world to.

Margaret ("Peg") Bartel has been a member of MVUC since 1999. She owns a financial management consulting business. Here at MVUC she is active in the Contemplative Group.

Love God. Love God's creation. As a person for whom the experience of God is very relevant to who I am, these words are part of my daily life and underlie my world view. If Love seeks an ever-deepening understanding of the Beloved, then what better way to love God than to use our very human gifts to probe and deepen our understanding of God's creation. It is true that some persons try to use this supposed conflict between science and religion as a kind of referendum on their own existential assumptions—a way of trying to impose their assumptions on others. But the truth is that neither religion nor science will ever prove or disprove the existence of God. The scientist will never exhaust the mystery of God. And the religionist who hides behind a narrow faith and dogma will not deepen their understanding of that mystery. Belief or non-belief is a matter of personal experience, of how we interpret our relationship with the world around us. It is an experience that can be shared but never substituted. It can be tested by reason but never defined by it. In the end, it is not the content of our beliefs that matter, but the character with which we lead our lives.

Some fear that the discoveries of science will weaken and challenge their beliefs. But what is doubt, but the frontier of our faith. And what is fear but that we lack the strength of our own convictions—or as some have put it—Fear is faith in our opponent. Religious faith has nothing to fear from scientific inquiry. On the other hand, some fear

the non-rational world of faith. But we are surrounded by the non-rational—from the love of a parent for their child to devoting a lifetime to uncovering the beauty of a canvas.

There is no conflict between true science and faithful religion. It is only when one seeks to impose his or her own existential assumptions on the other that conflict arises. From the perspective of faith, it is only when we attempt to dictate to God how God reveals herself in and through creation, in and through the discoveries of science and the insights of religion that conflict comes.

Instead religion and science need each other. The facts of science may be amoral, but the scientist is not. We are moral creatures and whatever comes into our possession takes on moral characteristics. Science is marching forward on all fronts. Religion and its sister Philosophy must provide the moral framework for the progression and use of scientific discoveries. At what price progress? What is the ethical framework in the use of animals for scientific research? What about the suffering of clones that don't survive—often because of gross abnormalities. And what of the human trials for the testing of drugs for human consumption? As a result of scientific discovery, we now have in our hands the power to destroy most of the world. How do we create just societies in which the use of such power would be unthinkable? We cannot expend our intellectual and faith resources on imaginary conflicts between religion and science.

We owe a great debt of gratitude to the brave men and women of science who followed their convictions despite opposition from the religious and scientific establishments of their time. Many of their discoveries have withstood the test of time and we are richer for it. We also owe a great debt of gratitude to those brave men and women of faith who also followed their convictions despite persecution and suffering at the hands of the religious and political authorities of their day. Many of their beliefs have also stood the test of time. We are the current torchbearers of one of those faith traditions. Unitarians and Universalists were both persecuted for their beliefs. We owe it to those who have gone before us to firmly but compassionately oppose the stifling of human thought and freedom by the imposition of some ossified but comforting definition of truth.

We must not demand conformity of thought whether it be political ideology, scientific perspective or faith position. We must clean this very human tendency first from our own heart and then from our collective hearts. The human spirit was made to be free, free to search out the mind and heart of God. So may it be.

Albert Weinstein is a physicist. A member of MVUC for 45 years, he is a former Chairman of the Board of Trustees and served on many church committees, including the committee for construction of the Meeting House. He conducted adult religious education courses on Cosmology at MVUC for more than 10 years before moving to the Greenspring Village Retirement Community six years ago, where he continues to conduct classes on the nature of the universe.

Is there conflict between Science and Religion? You betcha!

Science is inherently incompatible with those religions that are devoid of reason, that are based on myth and superstition and are crowned with a supernatural entity, whether it be called Jahweh, Jehovah, Allah or God. Science is compatible with those Unitarian Universalists who believe in the free use of reason and reject all aspects of the supernatural. For them there is no conflict.

Science is a process that is based on observation, test, and analysis and it is a body of knowledge derived from that process. All of its theories and laws are subject to objective proof and confirmation. Religion does not require proof but only faith. It is a subjective process of belief in dogmas, related personalities and stories; just believing is all that is required.

Despite their disparity, Science and Religion agree that there was a beginning of the Universe and furthermore that there was nothing before the beginning. In Genesis nothing is written about what existed before God created the heaven and the earth. In Science nothing existed before the Big Bang. Although Science and Religion agree there was a beginning there is strong disagreement as to when it occurred.

In a report issued in 1650 the Archbishop James Ussher of the Church of Ireland declared that the beginning occurred six thousand years earlier precisely at “midday on October 23.” He did so by counting backwards all of the begats in the Bible. (I am not making that up.) In contrast the beginning of the Big Bang occurred 13.7 billion years ago, give and take a few million years. That difference in timing between science and religion is vast and a basis for conflict!

Scientists are those that pursue the scientific process and contribute to the body of knowledge. However scientists are not one-dimensional. There are famous scientists who are very religious. Studies have shown that whereas 70% of astronomers and physicists do not believe, 30% do. Catholics, Protestants, Jews, and atheists have all won Nobel prizes.

If everyone accepted science's search to understand how the world works as being complementary to religion's wanting to know its purpose, there would be no conflict. Regrettably the religious right does not see it that way. They persist in crossing the line and insidiously inserting religious dogma into the science classes of public schools. By doing so they have been creating considerable conflict. Science and religion can coexist peacefully without conflict only if the mutual respect for each other's beliefs and convictions is observed without crossing the line and is meticulously maintained.