

# Science & Religion for UUs

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## Sunday Service at the UU Church of Olinda on April 23, 2017

The title for this talk was inspired by both the celebration of Earth Day yesterday and the popular "... for Dummies" series of books.

The designation of April 22 as Earth Day goes back to 1970 following Rachel Carson's book *Silent Spring* in fall 1962 and a major oil blowout that killed over 10,000 sea birds and other animal in January 1969 off the California coast near Santa Barbara. Earth Day became international in 1990 and in 2016 it was marked by the signing by over 120 nations of the Paris agreement adopted by consensus of 195 countries at the United Nations Climate Change Conference a year earlier. This year it was marked by the March for Science in over 600 cities around the globe—including Windsor--celebrating science as key to our understanding of the universe and our place in it, and essential for well-functioning democracies.

Over 2700 "Dummies" books have appeared since the first one, *DOS for Dummies*, was published in 1991. *Windows for Dummies* was asserted to be the best-selling computer book of all time, with more than 15 million sold. Others, including *Auto Repair*, *Mutual Funds*, *Biophysics*, *Global warming*, *Neuroscience*, and even *Quantum Physics*, all attempt to make complex topics simple to understand. There's even one on *Islam for Dummies* that might be useful for some political leaders. Now of all the religious communities, UUs are certainly not dummies! UUs are used to subtleties and deep thinking. We are not willing to accept simplistic creedal answers but want to develop our own beliefs, often by questioning widely accepted dogma. As one of my favorite bumper stickers asserts, a UU church is not one that answers all your questions, but rather more one that questions all your answers.

Many of us UUs even think that much of what makes us most human—in addition to our capacity for love, respect, and compassion--is our ability for complex thought and subtle distinctions. One of the virtues I appreciated most in past U.S. president Obama was his willingness to engage the public in subtle arguments. I remember worrying when he first launched into a defence of the occasionally extreme views of a minister in his Chicago church, thinking that this does not fit within a 10 second sound bite, but he was largely successful! I also admire Rev. Fran's ability to tackle convoluted arguments and discuss topics like process theology, and make them meaningful.

The topic "Science & Religion" usually invokes images of conflict: Michael Servetus together with his books burning at the stake in 1553 for his nontrinitarian writings, Galileo facing the inquisition in 1633 and being forced to publicly recant his heretical position that the Earth moves around the Sun, and Joseph Priestley fleeing England for his safety in 1791 after his home and lab in Birmingham, England were set ablaze by rioters protesting his support of a more drastic reformation of the church along the lines of the American and French revolutions, one in which reason would become ascendant over blind belief.

Humans are naturally curious beings and seek understanding of the world around them in order to survive and prosper. They want to know where they came from and what the future holds. Conflicts of Biblical doctrine with science stem from literal interpretations of attempts, mainly in the Old Testament, to elevate humans to central place in the Universe while offering comfort and hope for a glorious future and explaining observations. Islam came later partly as a way of rejecting the Trinity in early Christianity, and many (~750!) verses of the Qur'an advocate the study of nature and science as a way to uncover the will of God. Islamic astronomers were much more willing than the Catholic Church to accept an Earth in motion and not at the centre of the Universe. Religious needs spurred on mathematics and science, for example algebra: solving Islamic inheritance rules, solid geometry: finding the direction of Mecca, and astronomy: planetary motion for calendar. Islam was ahead of the Catholic west in science during the Islamic golden age 8-16<sup>th</sup> centuries, even giving a prescription of the scientific method well before it was formulated in the west, but it has more recently regressed as literal interpretations of the Qur'an as the final word of God have been demanded and as many Islamic leaders have asserted that all science discoveries were predicted by the Qur'an and mediated by a personal God. In Islam, prophets including Abraham, Moses, Jesus, and Muhammad (c. 570 CE – 8 June 632 CE) are human. The two main branches, Sunni (88%) and Shia (12%), which differ in their assignment of the proper follower of Muhammad, often fight with each other.

We can all appreciate the advances in our understanding and the new technology that applications of scientific discoveries have wrought. As Neil deGrasse Tyson pointed out, our smart phone today has more computational power than the computer system used by the Apollo 11 journey to the moon. The advances in technology made possible by new scientific discoveries have been phenomenal, and these advances have in turn led to a much improved understanding of our evolution, our place in the universe, and our future. Conflict with unscientific and mythological stories of the origins and fates of humans are inevitable.

One key to the success of science is scientific integrity: as a good scientist, you accept results even when they run counter to your pre-conceived notions or your favorite theory. You learn from mistakes and accept evidence that preconceived notions were wrong! We need more of this in our political leaders, many of whom refuse to ever admit errors they've made, and also among teachers who shame students who err instead of recognizing mistakes as a normal and vital step in discovery and learning!

Science conflicts with the traditional view of religion as worship of supernatural powers, particularly ones that control your and everyone's fate and destiny, as this does not fit with modern science, where we have come to understand the vastness and complexity of existence in the universe. UUism is different. It does call itself a religion, but not in the traditional sense of worshipping a supernatural deity. Most UUs do not hold to a biblical god, pictured as a super human who controls the universe but also intervenes personally in people's lives. In fact, the process theology has by now evolved past that image for most religious thinkers. UUs seek truth and understanding, and science is a primary tool in the search. For UUs, it is more important how you live your life than what you believe. Many of us would rather celebrate the wonders of Nature rather than pray to a supernatural force. We strive to make our lives more meaningful by exercising our respect for others and for all existence. Perhaps we need a new

word or at least a more modern definition of religion. For UUs, we base our understanding of the world, from the nature of the human mind to the vastness and evolution of the universe, on science. But science is itself evolving. It is not a static collection of facts but a dynamic process of building complex infrastructure of understanding about our world. Our understanding of the world needs to evolve with it.

Science is thus essential for UUs' understanding of religion, but it is not the full story. The missing element is compassion, loving kindness, and respect. Science may teach us why these elements are important for a progressive, productive society, but they are not integral elements of science itself. Standing in awe at the wonders of nature, the beauty of music and art, living in kinship with others and the web of existence, is part of UUs' spiritual or religious experience that may be enhanced and made more intense by our scientific understanding, but it transports UUs beyond the purely scientific.

Science is the best way we know to understand the universe and our place in it. As Carl Sagan often said, science is more than a body of knowledge; it is a way of thinking. It is a way of building a powerful, interwoven edifice for understanding Nature. Scientists are human, of course, and they often entertain ideas eventually shown to be erroneous. Indeed, errors and failures are important tools in the construction of a robust edifice of knowledge, something seemingly often missed by parents and education systems who avoid failure at all cost.

In an age when many in power deny, hide, and destroy evidence, when they curtail research, prevent the open communication of its results, and refuse to acknowledge even obvious mistakes, scientists around the world are concerned and moved, quite uncharacteristically, to marching and voicing their concerns.

Let me summarize several points that contribute to the importance of science in all of our lives:

- **Science is powerful:** it can drastically change society, either for the better or for the worse. It is not inherently good or evil and a decision on its application is often political. Decision makers need to be well-versed in its consequences, both technical and social.
- **Science is complex.** Top scientists in one area are generally not experts in another, and recognizing their limitations, they are usually cautious in announcing new discoveries or results. New discoveries are often statistical and observation of a single event is insufficient for its discovery: it might have been noise. The standard in physics is a five-sigma rule: a  $3 \times 10^{-7}$  probability of the result being found by chance (once every 3.5 million tries, on average). Politicians and reporters are not expected to be experts, but they must understand the process of science to have a hope of judging consequences.
- **Science is a human endeavor;** scientists are human; they make mistakes and usually can enjoy and be tempted by fame and fortune. But they are generally well-educated and socially conscious. They want their work to be used for the good of society and the future of humanity.
- The main motivations for performing fundamental science research is **exhilaration at the discovery** or validation of new facts and **understanding** and the deep satisfaction in seeing new relationships.

- One path to fame and fortune for the scientist is to prove the falsehood of established theories or principles, and this brings the joy of new understanding, too. Science cherishes doubt, and questioning, retesting, and confirmation of results are essential to building a robust body of scientific knowledge.
- Good scientists understand that it is the process of science and its integrity that makes it so powerful in constructing the edifice that embodies our growing understanding of nature. They demand high standards of evidence and are willing to drop preconceived notions that are not borne out. The level of integrity of good scientists is at the pinnacle of that for all professions.
- These facts are poorly appreciated by many reporters, politicians, and by much of the public, who often do not distinguish solid, peer-reviewed theories from speculation, facts from alternative facts, and who are all too ready to assume that established scientists around the world are collaborating in a self-serving conspiracy.

Scientists hold integrity as an essential virtue for their work. When their integrity is questioned, they are upset and when they are accused of lying, they and their supporters can even take to the streets to protest! That's what happened yesterday.