

*A Conversation Between Religion and Science
About Global Warming*

**Reverend Kent Hemmen Saleska and Doctor Scott Saleska
Unitarian Universalist Church of Minnetonka
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During the “Story” time: DVD of “The Great Story” of Thomas Berry, first 5:45 minutes

**Reading: “Perspective” from *Amici Curiae* (“Friend of the Court”) brief
Massachusetts v. U.S. Environmental Protection Agency (No. 05-1120)
Signed by 18 renowned climate scientists (including Scott Saleska)**

As practicing scientists who study the earth’s climate system, we and many in our profession have long understood that continued human-caused emission of greenhouse gases—primarily carbon dioxide (CO₂), but also methane (CH₄), nitrous oxide (N₂O), and fluorocarbons—would eventually warm the earth’s surface. Most were skeptical that we would see strong signs of human-induced climate change in our lifetimes. But by the beginning of this decade, we observed that global temperatures are rising, plant and animal ranges are shifting, glaciers are in retreat globally, and arctic sea ice is retreating. Sea levels are rising and the oceans are becoming more acidic. To the extent that these changes result from human alteration of the atmosphere, we know that they are just the first small increment of climate change yet to come if human societies do not curb emissions of greenhouse gases. The evidence of these changes, though attended by the uncertainty or caveats that appropriately accompany scientific knowledge, is nonetheless so compelling that it has crystallized a remarkable consensus within the scientific community: climate warming is happening, and human activities are very likely a significant causal factor. The nature of this consensus may be obscured in a public debate that sometimes equates consensus with unanimity or complete certainty. We are profoundly troubled by the misunderstanding or misrepresentation of the current state of knowledge of climate change evident in the United States Environmental Protection Agency’s denial of the petition ... to regulate emissions of greenhouse gases from [motor vehicles].

EPA ... stated that [it] considered the National Academy of Sciences report, [entitled] Climate Change Science, to be the scientific authority for their decision [not to] regulate. We feel an obligation to inform this Court that [EPA] misunderstood or misrepresented the science contained in this report, to correct the public record as to what [this] and subsequent NAS reports say about climate change, and to offer our professional insight on using scientific evidence to judge whether a particular standard for regulatory action is met in the matter of climate change.

Introduction: Reverend Kent Hemmen Saleska

For at least the last 400 years or so since the time of Rene Descartes, the father of dualism, science and religion have been split, each governing their separate realms: science presiding over the realm of the seen, and religion presiding over the realm of the unseen. In recent decades, however, enlightened members of both the scientific and religious world have discovered and witnessed a much more integrated universe.

The Great Story, as articulated by the eco-theologian Thomas Berry, is a narrative larger than all tribal particularity, beyond parochial stories of world religions, broader than the story of our planet or our galaxy. The Great Story, the Universe Story, is a story that encompasses and includes the entire known universe for all of known time. The Great Story combines the knowledge of science with the wisdom of religion. The Great Story reunites science and religion like a gracious parent reunites prodigal siblings, returning them to their rightful place alongside each other, complementing each other, informing one another, working in concert to discover both truth and meaning for biological life.

Today my brother and I join together in formal conversation between religion and science. You will notice that we deliberately did not describe our service today as a “debate” between religion and science. We are not here to disparage one another, or debate the merits of our respective fields, arguing which one is more profound, articulate or accurate. Rather, the task we chose was to share with you some of the perspectives and conversations we’ve had over the years about the roles each of our fields has to play in our current lives and in the future of humanity and our planet.

My brother and I view religion and science as complimentary in many ways. Though we dive deeply into the fields of our individual calling, we also seek, especially this morning, to discover the ways each of our fields may inform, inspire, or fulfill the other. We know we could take this conversation in many directions. Today, however, largely because of the focus of Scott’s life work, our broad discussion will focus on the particulars of global warming, and the potential responses of both science and religion.

Dr. Scott Saleska: A Perspective from Science

Kent and I have been talking for a long time about doing something that addresses and integrates the topics of science and religion. So first thing is, I want to thank Kent for finally getting me up here with him to do it.

I wanted to make this discussion about a specific example, an example that we all knew something about, at least in a general way, and something that we all probably care about as human beings. As a citizen and human and father (and an uncle!) who cares about the future of the planet, and as a practicing scientist who studies the interaction between the biosphere and the climate system, global warming seemed to be an ideal example.

This global warming example – taken from the Supreme Court case about climate change – reminds us that science is not enough. In order to go from knowledge to action, we need “something else” that is external to science. In the example I’m going to discuss, that “something else” was provided by the law: **the federal Clean Air Act, in fact.** But the law is a human creation, and once we back up to the level of humans and human society, that “something else” must come from whatever it is that provides the source of our caring about each other and the world. It must come, in other words, from the religious. Thus, the main lesson I take from this example (that I will come back to at the end) is that, **in order to go from knowledge to action, we need both science and religion.**

The first and only climate change case, Massachusetts v. Environmental Protection Agency (EPA), reached the U.S. Supreme Court in 2006. It was won by Massachusetts, 13 other states, and the environmental groups, which had brought suit against the EPA for failing to regulate greenhouse gas emissions from the cars we drive. In the end, that victory – *our* victory – caused the EPA to begin the process of regulating the emissions of climate-change causing greenhouse gases from cars and trucks.

My small involvement in the case came when my wife, who had been chief of the environmental division of the Massachusetts AG office, suggested that I organize a group of climate scientists to bring their advice and perspective to the high Court. In the end, a group of 18 climate scientists, including some of the world’s most renowned – submitted a “Friend of the Court” brief to the Supreme Court, offering our perspective on what the science of climate change had to say that was relevant to the case. You never know for sure if these things have an impact, and in high-profile cases like this there can be 30 or 40 “friend of the court” briefs submitted, but our brief had the distinction of being cited from the bench (by Justice Stevens) during oral argument. So we like to think it had some kind of impact on the outcome of the case.

THE CASE:

The basis for the case was the Clean Air Act (CAA). The CAA doesn’t mention the regulation of CO₂ from cars explicitly, but there is a catch all section, which *requires* regulation whenever EPA identifies air pollutants that “**cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.**”

The thing about this “reasonable anticipation of endangerment” standard is that there’s no wiggle room! Once the agency reaches a point where it “reasonably anticipates” that a chemical “causes or contributes” to the endangerment of public health or welfare, the EPA administrator must regulate!

Massachusetts sued EPA because EPA refused to regulate CO₂ from cars, contending among other things (talk to my wife afterwards if you want to know about all the legal arguments in the case) that the science was still too uncertain to justify regulations.

Now, in science there is *always* uncertainty! We never know for sure. Indeed, a primary quality of science is that it includes an estimate of uncertainty about anything it measures or conclusions it makes. Being able to quantify the uncertainty of something is almost a prerequisite for it being an object of scientific study. What we need in this case, then, is a standard for how certain is *certain enough*?

Our scientists’ brief to the Supreme Court made one core argument: that the scientific evidence was in fact, more than sufficient to support actions to limit GHG emissions from cars, **when compared to the standard given in the Clean Air Act (“do greenhouse gases cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare”?)**.

PERSPECTIVE

Now – what does this have to say about the need to have a conversation between science and “something else” to address questions about big societal problems like global warming?

As I just said, our scientist’s brief argued that the scientific evidence was sufficient to meet an externally supplied legal standard for action.

We did not say that the science of global warming *by itself* required action (even though our lawyers sometimes seemed to want us to say that it did). To them, the case would be stronger if there were a basis independent of law that required action.

This is an important distinction:

- Science *by itself* does not care about global warming.
- Science *by itself* does not care if the earth is transformed into “a different planet” that is largely unrecognizable to its current inhabitants.
- Science does not care if massive parts of the biological diversity built by 300 million years of evolution – Teilhard de Chardin’s “reality ever new born” – is wiped out in the relative blink of an eye because of human activities.

Personally, I find it hard to imagine a greater source of environmental grief than the enormity of this destruction of irreplaceable biological treasure.

Scientists may care, and care deeply, about these things. And indeed many of them (many of us!) do. For some it is even part of the reason they do the science that they do. But that is because they are also human beings.

Thus, to come back to where I started: in order to go from our scientific knowledge to an argument for action by the EPA, we need that “something else” that is external to science. In the legal case, that “something else” was the law. But in our lives and in human society, that “something else” must ultimately come from the source of our caring about each other and the world. It must come, in other words, from the religious.

In order to go from knowledge to action, we need both science and religion.

I think the words of Albert Einstein, as quoted in this morning’s order of service, are especially apt here: “Science without religion is lame; religion without science is blind.”

This distinction, between science (the source of our knowledge about facts) and religion (the source of values), is an important one for scientists engaging in the public arena to recognize. It is important because otherwise we end up disguising or hiding our values in the objective cloak of science. And in a democratic society, values judgments should be made collectively, not handed down to experts.

But we scientists are not always very good at making this distinction. That’s partly because not everyone agrees with it, and partly because not everyone is fully aware of it, not even scientists! Following the Supreme Court argument, for example, several of us climate scientists had an exchange with NYT climate reporter Andrew Revkin. Revkin had written, in words that I quoted approvingly, that:

Ultimately, the choices that confront us are values choices. The question of avoiding dangerous climate change revolves around the word dangerous, and the word dangerous is fundamentally a values-laden word. It’s not a scientifically delineated term...Even though scientists know that they can’t answer the question of “dangerous,” they are still very seduced by the idea that they can. I think what could benefit the whole discourse is for the scientists to say “we can’t define this for you.” **And scientists haven’t really done that yet.**

My colleague and distinguished NASA climate scientist James Hansen (who participated in our scientists’ brief, and who is perhaps the most famous U.S. climate scientist for his bold public stand in the face of Bush administration attempts to censor his words to Congress) wrote back, calling Revkin’s perspective “horse manure”:

I am a scientist and I can tell you a lot of dangerous things that will happen if we stay on business-as-usual. And yes, science can tell us something about when actions are needed; indeed, if we want to avoid producing a different planet, we need to start acting now, —....—What's the problem with letting [people] know [that]? Don't hide behind any crap like, oh that's a judgment that we shouldn't be making, so we will leave it to some politicians (who may happen to be beholden to various interests).

I personally don't think the positions of Revkin and Hansen are so very far apart. Indeed, Hansen himself says in this piece, “**If we want** to avoid producing a different planet, we need to start acting now”. Science doesn't want: *we* want. If we want, then science can let us know that we need to start acting now.

So that means we need to decide, as a community, as a country, as a world, what it is we want – and science can't help terribly much with that part. I will let Kent continue this conversation by talking about how religion in general and UUism in particular can contribute to the dialogue and, we hope, by working together with science, help save the planet.

Reverend Kent Hemmen Saleska: A Perspective from Liberal Religion

Every society has its cosmology – that is, a story of the universe, a story of creation, and how humans fit into that story, and what we're supposed to do as actors and participants in that story, and what that says about us as a tribe or religion or nation. A new cosmology, however, is emerging. This cosmology is the Universe Story, the Great Story, articulated by the eco-theologian Thomas Berry, the mathematical cosmologist Brian Swimme, and others. It is a story that describes the varied powers of the universe, including “seamlessness” (the source of all powers), “allurement” (the power of attraction and how the universe holds together), and “transformation” (the power to change the whole).

The task of science is to answer the questions of “how”: How did the universe originate? How does the universe work on a quantum scale? Religion, on the other hand, seeks to answer the questions of “why”: Why was the universe created? Why are we here? Science often seems to describe a cold and unemotional universe in cold and unemotional terms. Religion, on the other hand, seeks to narrate a story of creation, tradition and practice, and to locate human beings in the context of that narrative. Religion also seeks to articulate a purpose in the midst of what traditional science deems a random and senseless universe.

I raise the issue of cosmology, particularly this emerging cosmology of the Great Story, because it is a revelation to identify qualities of the universe and then to identify those same qualities in the human species. Religion in general traffics in revelation. Yet, as opposed to the more fundamentalist interpretations of Christianity, our liberal Unitarian Universalist tradition teaches that revelation is not sealed.

We believe that God did not simply reveal all truth some 5000 or 2000 or even 1400 years ago, then cause a few humans to compile that truth in a book, and then voluntarily enter into an exile of silence for the remainder of all time. Instead, we draw validity, in part, from both scripture and science.

Hebrew scripture states that we were created in the image of God. God was a creator. Therefore, we, the creation, may believe that we are also creators. We are artists and scientists constantly discovering new insights, uncovering new information, creating new thought, new theories, new movement, new images and words that never existed before. In our worship services, for example, we may quote from Christian or Hebrew or other religious scripture. But because we recognize that truth can be found in art and science and literature and in everyday life, we also quote from poetry or novels or legal cases or use clips from movies. Our liberal religious tradition holds that God is still speaking.

Science and cosmology frame this slightly differently. In the realm of the Great Story, a primary quality of the universe is “emergence.” Emergence is the ways in which the universe transcends itself. “Emergence” is the power of creativity. Whether we call it “continuing revelation” or “creativity,” it is a quality that is ongoing in both humanity and the universe. Our liberal religion revolves around this core belief about continuing revelation. The truth of continuing revelation is the truth of creativity and imagination.

These qualities of creativity and imagination allow us as a liberal religious movement to be agile and responsive to human need. Religion – especially Unitarian Universalism – when it is at its best, reminds us of our network of mutual relationships, and reminds us who we are and who we want to be – and how we can do it – in the context of these relationships.

Take, for example, this issue of global warming. In all my religious studies, I don’t recall ever reading that Abraham or Jesus or Mohammed said anything about monitoring our CO2 emissions. Yet in our liberal religious tradition, rather than being tied to ancient texts, we have the freedom and the capacity to take into account the new information that science brings to us. We are compelled to respond based on both our religious principle that acknowledges the interdependent web of existence of which we are a part, as well as two primary tenets of the Great Story cosmology, that of “synergy,” which is the power of working together, and that of “Interrelatedness,” which is the power of care, or how the universe responds to the “other.”

Our theology of continuing revelation provides a foundation for creativity. When responding to global warming, we first invoke the power of imagining a world that does not exist, a clean world where humans and the environment exist in harmony, and then we invoke the powers of synergy to create that world.

Since Unitarian Universalism arises from the traditions of Judaism and Christianity, we may also choose to cite Hebrew Scripture in our work to reduce global warming. In the book of Genesis, after being created, Adam and Eve were directed by God to be the caretakers of creation, not to destroy or exploit it.

Beyond all this, however, in our urge toward social justice and eco-justice, I believe a primary motivator is missing from our Unitarian Universalist movement. Historically, we Unitarian Universalists have seen ourselves as children of protest: children of Martin Luther’s protest against the Catholic Church, of Puritan rejection of the Church of England, of Humanism’s protest against religious fundamentalism. Taken together and told as an unbroken narrative, we place ourselves in the role of the perpetual adolescent, constantly rebelling against the establishment because we feel we have a better idea or theology or movement. We do not teach or emphasize, however, that sometimes we are wrong and sometimes we make mistakes. The primary motivator that is missing from our liberal religious movement is the teaching and the quality of humility. A sense of humility removes false pride and helps us understand we are not always in control.

In an April 2007 Time magazine article, Albert Einstein was described as being more critical of debunkers of faith, those who seemed to lack humility or a sense of awe, than he was of the faithful. “The fanatical atheists,” he wrote in a letter, “are like slaves who are still feeling the weight of their chains which they have thrown off after hard struggle. They are creatures who – in their grudge against traditional religion as the ‘opium of the masses’ – cannot hear the music of the spheres.”¹

If we do not allow ourselves to hear the music of the spheres, we will find ourselves on the doorstep of a devastated planet with a science that does not care whether millions of years of evolution are eliminated in the relative blink of an eye. To preserve our planet, to save our lives, to ensure the health of our children, we must carry as part of our religious education a sense of humility, a sense of wonder with how our very breath nourishes the trees and how every leaf and blade of grass provide us with breath in return. Our protests will not save us. Rather, our salvation will come when we allow ourselves to be hit so hard with a sense of awe and humility that we drop to our knees. In the posture of supplication we enter more honestly into an awareness that we are not masters of creation, but that we are expressions of creation. As a colleague of creation then, we may learn to work together more fully to create what we so earnestly desire.

¹ Time Magazine, Thursday, April 5, 2007; <http://www.time.com/time/magazine/article/0,9171,1607298,00.html>; accessed August 15, 2009.