

**“Can Faith Broaden Reason?”  
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Thanks for inviting me to speak with you at this morning’s Discovery seminar. I’ve picked about as difficult a topic for myself as I could think of – “Can Faith Broaden Reason?” – because it touches on both my own life, and the history that links Trinity Church with Columbia University.

That history begins with the chartering in 1754 of Columbia’s ancestor, Kings College, as an extension of Trinity Church’s responsibilities. The first class met in the vestry room of the church that stood on this site until a great fire destroyed it in 1776. Alexander Hamilton and John Jay were graduates of Kings College, before Hamilton had it renamed Columbia College after the Revolution. I was happy to learn from a plaque nearby that John Jay, also a graduate of Kings College, was instrumental in the rebuilding of the church.

When Columbia settled on Morningside Heights 110 years ago, its central building, Low Memorial Library, had carved into its façade the following text:

“1754 -1901”

“Kings College, founded in the province of New York by royal charter in the Reign of George II,

Perpetuated as Columbia College by the people of the State of New York when they became free and independent,

Maintained and cherished from generation to generation,

For the advancement of the public good and the glory of Almighty God.”

“1896 -Columbia University”

What does it mean to say “For the advancement of the public good and the glory of Almighty God.”? It seems at first to simply be a way of saying that Reason – the advancement of the common good - and Faith – the glory of Almighty God – will both have a home at Columbia.

As a first-in-family Jewish graduate of Columbia College in 1961, and then as the Dean of Columbia College in the 1980s, I can confirm that this is true; that home for both is still there.

I would like to argue here is that the connection between Faith and Reason runs deeper, as deep as any part of the human mind. To see how, we need to look at what is knowable, and what is unknowable.

The unknowable as a notion does not come easily to the scientifically-minded. Science works at the boundary of the known and the unknown, a different place entirely.

Science proceeds by the testing of hypotheses, that is, ideas subject to disproof by testing of the natural world. A hypothesis that can stand up to testing and survive disproof, expands the territory of the known, but the testability presents a problem: scientific hypotheses about the unknowable are by definition not disprovable, and therefore are also not meaningful. Put another way, it is not worth a moment of anyone’s time to seek the proof through science of any religious belief.

So as a scientist, I need first to provide some working terminology for the unknowable, without calling upon the tools of scientific hypothesis-testing. Here goes.

Ask any scientist what lies at the core of her work; you will learn that it is not the experimental test of the hypothesis – although that is where most of the time and money of science go. It is the *idea*, the mechanism, the insight that justifies all the rest of the work of science.

The moment of insight that reveals the new idea, where an instant before there was just fog, is the moment when the unknown first retreats before the creativity of the scientist.

Here, then, is the first door into the unknowable: where does scientific insight come from? What is *its* source? Surely it comes from

someplace currently unknown. Let us consider the possibility that scientific insight, like religious revelation, comes from an intrinsically unknowable source.

It is a safe bet that working scientists would agree to the notion that there is a lot we don't know yet, and that the boundary between the known and unknown which science pushes back is the shoreline of a small island floating in a vast sea of the unknown.

Let us say – make the further hypotheses – that the sea of unknown is not the edge of everything, and that the unknown itself is wholly bounded, blurring into an intrinsically inaccessible and immeasurable unknowability.

Then science would still be increasing the territory available to the world of the understood. As the length and complexity of the shoreline with the unknown grew in step with every discovery, there would still be no edge to the unknown except the unknowable. The enterprise of science would be assured of a limitless future of successes, while none of them would ever bring the unknowable source of insight any closer.

Can the alternative hypotheses – that the unknowable exists, and that it will remain unknowable – be tested through the methods of science? Certainly not. The problem is it is that science itself depends on the periodic emergence of the unknowable for its own progress. That is the actual experience of scientists, if not the institutional ideology of organized science.

There is no way to think through a good idea in advance; insight is not a phenomenon subject to prior scientific analysis. At every instant of insight, every moment of Aha!, what had not been conceivable, becomes clear.

Where was the idea before it was thought? Only afterward, once it was thought, can science begin the determination of the known from the unknown, using the idea as a guide. But before it was thought, there were no tasks, no path, no idea that there was even a question to ask.

Scientific insight is not the only example of such a gift from the unknowable. Other events — also occurring rarely, inexplicably, unpredictably – can give meaning to our lives, just as scientific insights can

explain the world outside ourselves.

By meaning, in this context, I mean a new understanding drawn from the internal, emotional content of the experience, not the intellectual understanding that may follow as it does when experimentation proves a scientific insight to be useful.

Meaning, purpose, teleology, the end of things: these are not notions that we naturally associate with science. Such experiences are commonly called religious.

Yet the central event in science — the sudden insight through which we see clearly to a corner of what had been unknown — is so similar to these religious experiences, that I see only a semantic difference between scientific insight and what is called, in religious terms, revelation.

That difference remains small, whether one says that insight or revelation both come from nowhere interesting, or that they come from the unknowable source that surrounds all that can be known. That, in the Abrahamic tradition, would be to say that they come from God.

Let us then agree that insight, as such, takes the form of a clear vision of a previously invisible and hidden mechanism. In science such insights are made into guides for learning how nature works, thereby reducing our ignorance of the world around us.

Guiding the formation of religious obligation, revelatory insights are prerequisite to the rituals and observances of a religion, which ease the burden of living by lifting a felt ignorance of the purpose and meaning of our mortal lives.

Just as a scientist prepares for insight by deep immersion in the study of what has been dragged out of the unknown by her predecessors, a person adept at religious insight – a holy person, a prophetic person – may prepare by study of earlier revelation and prophesy, and by trying to be alert to the moral or lesson taught through what might be — to an unfeeling observer — just a coincidence.

Many practicing scientists believe – they would say they know – that what is not known today must and will be known tomorrow, or the next day, and that this will go on until everything is known.

The notion that nothing exists except what is knowable is wholly unprovable. Holding on to this belief in the absence of any way to test it through experimentation, and despite the counter-evidence of scientific insight itself, puts science at the risk of trapping itself in dogma.

Like the worst of religious dogmas, the insistence that everything is knowable, is an unprovable position taken in the face of the evidence of the natural world. In this case, the evidence includes the fact of uncontrollable insight as the wellspring of scientific discovery.

Some scientists will argue that the reproducibility of scientific experiments assures that science as an enterprise can always be brought to internal consistency, while religions, free to call upon individual revelation and unreproducible, miraculous events, necessarily fall into contradiction with one another and thereby cancel any reason for a sensible person to take any of them as seriously.

In a negative template of this position, many people of faith will argue that science is a fragmented enterprise unable to paint a coherent picture of the natural world, limited by conflicting and inconsistent models and the finite limits of a mortal mind.

Though many scientists cannot really accept that anyone could believe in a way around mortality, and though many religious persons cannot really believe that any serious person could fail to experience these feelings, some people – I am one of them – choose to carry both sets of thoughts at once.

Robert Frost's poem *West-Running Brook* showed me how to do this. In his poem a man and wife stand looking at a river running west. They are not particularly happy. When the man – Fred – is invited by his wife to break the silence between them, he says

“Speaking of contraries, see how the brook  
In that white wave runs counter to itself.  
It is from that in water we were from  
Long, long before we were from any creature.  
Here we, in our impatience of the steps,  
Get back to the beginning of beginnings,  
The stream of everything that runs away.  
Some say existence like a Pirouot  
And Pirouette, forever in one place,  
Stands still and dances, but it runs away,

It seriously, sadly, runs away  
To fill the abyss' void with emptiness.  
It flows beside us in this water brook,  
But it flows over us. It flows between us  
To separate us for a panic moment.  
It flows between us, over us, and with us.  
And it is time, strength, tone, light, life and love-  
And even substance lapsing unsubstantial;  
The universal cataract of death  
That spends to nothingness — and unresisted,  
Save by some strange resistance in itself,  
Not just a swerving, but a throwing back,  
As if regret were in it and were sacred.  
It has this throwing backward on itself  
So that the fall of most of it is always  
Raising a little, sending up a little.  
Our life runs down in sending up the clock.  
The brook runs down in sending up our life.  
The sun runs down in sending up the brook.  
And there is something sending up the sun.  
It is this backward motion toward the source,  
Against the stream, that most we see ourselves in,  
The tribute of the current to the source.  
It is from this in nature we are from.  
It is most us. ”

When I read this poem many years ago I saw that my notion of the unknowable was “the source” in the line “this backward motion toward the source.” Once that idea came to me, its emergence in my own consciousness changed both my career and the way I see the world.

In my book “The Missing Moment” I concluded that current scientific studies of the brain and the mind required us to acknowledge that science has components of the same awe, joy, fear or wonder that can overtake a religious person. The barrier erected by scientists who push aside, deny or ignore these states of mind is an artificial, unnecessary one, built on denial of the reality that their own work depends upon uncontrollable and unpredictable moments of insight.

The same artificial barrier is maintained from the other side with equal futility, each time the resultant discoveries of science are denied, ignored or pushed aside by people anxious to protect the same irrational states of mind so precious to them in their

religious faith.

To dismantle the wall from both sides, both camps will have to admit what they must already know: the reality of irrational inward experience. They both will have to acknowledge it as the source of the unexpected and unpredictable insight upon which both organized science and organized religion depend.

Such admissions will not come easily. Many scientists are not at all used to putting feelings in the foreground, and rather have the habit of pushing feelings away, repressing them into unconscious reservoirs from which they may emerge, but where they do not interfere with the dream of lucid rationality.

This makes speaking about religious feelings in an academic setting particularly tricky. Scientists, and others who use their powers of repression to avoid accepting the reality of religious feeling or even its origin in the natural world, tend to have great difficulty accounting for such feelings even in themselves.

Not just moments of insight and revelation but other feelings as well – emotional states that overtake one, unbidden and unplanned by conscious rational anticipation – seem to be a different order of phenomena that those easily studied under reproducible conditions; it is extremely difficult to do a controlled experiment on feelings.

In terms of the expected behavior of scientists, strong feelings as such are also in bad taste. Data have to be examined in terms of the model they test, and models as well as data have to be able to stand on their own in the eyes of other scientists.

This situation too has its mirror image in organized religion, where a spontaneous feeling of disbelief or doubt in the face of incomprehensible evil or simple bad luck may not be easily squared with the presumption that we are moral beings in a moral universe.

Nor can all of the unwanted strong feelings associated with love, aggression, nor of course death, be fitted into most religious frameworks of expected right conduct. Too much doubt is as much in bad taste from a religious person as is too much enthusiasm from an overeager experimenter.

And yet we find ourselves free to make these choices, awkward as we may feel in doing so.

I place a high value on the reality of such uses of free will. Decisions may be made by many species, and the selective advantage of brain wired for logic is plain, but only a person can make a choice *despite* calculation, rather than because of it.

In the Jewish tradition the God who has existed before time and the universe began, created both time and the universe in order to have, in time, creatures – the word means things created – with free will, who could then choose to say thanks for their and the world’s existence.

For thanks to be proper and meaningful – the proper form of thanks is to bless God – these creatures would need absolute free will to choose whether or not to do so.

Hence the unavoidability of randomness, accidents, and for that matter evil in religious terms: all must be allowed to result, whether by the wrong human choice or by truly random occurrence, because to allow any to be preventable by pre-determining human choice, would be to gut the purpose of the creation.

The absolute requirement of human free will in this religious vision shifts human choice into the foreground, and mechanisms of natural selection which yield a person who can make the unexpected choice into the background.

This set of unprovable assumptions — so bizarre in their distance from anything reproducibly known through science and yet so familiar in their high regard for the critical step of insight in science — validates meaning and purpose in a living world which is the product of the uncaring, ever-changing, always-imperfect processes of natural selection.

This line of argument is articulated beautifully in Adin Steinsaltz’s book "The Strife of the Spirit," in the essay "Fate, Destiny and Free Will." I had not yet read his essay when he and I first talked about these matters. I had just read an earlier article by Richard Dawkins, and was quite astounded by his capacity to reduce religious thought to an especially successful kind of ideational parasite.

Rabbi Steinsaltz’s answer was to give me a reference to his essay, with the passing remark: "God says, 'Get Me a thinking creature, I don't care how.'"

In specifically Jewish terms, then, it is the God-given, inexplicable reality of free will that allows us to act well — or not. That choice – available not just to Jews but to all people as their birthright – makes us all the active determiners of our fate.

Pain, suffering, unreasonable maldistribution of good and bad fate: these are the very stuff of the natural world, the visible expression of the random genetic variation which provides natural selection with the eerie capacity to produce some living thing that will survive any contingency.

It is my faith that informs me of my obligation as a scientist to use my own free will to work against these deepest mechanisms of the natural world, and thereby to work against the meaningless of these mechanisms.



To restate this answer to the question before us in concrete and current terms, I argue that scientists of faith have the obligation to “broaden reason” by working together to assure that their science is put to the amelioration of injustice, and to the creation and protection of those freedoms prerequisite to the free-will choice to treat one another with love.

Dr. Martin Luther King taught this in a speech delivered on April 4, 1967 at a meeting of “Clergy and Laity Concerned” at Riverside Church:

“We must ... rapidly begin the shift from a thing- oriented society to a person-oriented society. When machines and computers, profit motives and property rights, are considered more important than people, the giant triplets of racism, extreme materialism, and militarism are incapable of being conquered.

”A true revolution of values will soon cause us to question the fairness and justice of many of our past and present policies. On the one hand, we are called to play the Good Samaritan on life's roadside, but that will be only an initial act. One day we must come to see that the whole Jericho Road must be transformed so that men and women will not be constantly beaten and robbed as they make their journey on life's highway. True compassion is more than flinging a coin to a beggar. It comes to see that an edifice which produces beggars needs restructuring.”