

## EINSTEIN'S RELIGION

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### READINGS

From Albert Einstein, Ideas and Opinions

“The most beautiful experience we can have is the mysterious. It is the fundamental emotion which stands at the cradle of true art and true science. Whoever does not know it and can no longer wonder, no longer marvel, is as good as dead, and his eyes are dimmed. It was the experience of mystery—even if mixed with fear—that engendered religion. A knowledge of the existence of something we cannot penetrate, our perceptions of the profoundest reason and the most radiant beauty, which only in their most primitive forms are accessible to our minds—it is this knowledge and this emotion that constitute true religiosity; in this sense, and in this sense alone, I am a deeply religious man. I cannot conceive of a God who rewards and punishes his creatures, or has a will of the kind that we experience in ourselves....I am satisfied with the mystery of the eternity of life and with the awareness and a glimpse of the marvelous structure of the existing world, together with the devoted striving to comprehend a portion, be it ever so tiny, of the Reason that manifests itself in nature.”

From Ursula Goodenough, The Sacred Depths of Nature

“I’ve had a lot of trouble with the universe. It began soon after I was told about it in physics class. I was perhaps twenty, and I went on a camping trip, where I found myself in a sleeping bag looking up into the crisp Colorado night. Before I could look around for Orion and the Big Dipper, I was overwhelmed with terror. The panic became so acute that I had to roll over and bury my face in my pillow.

- All the stars that I see are part of but one galaxy.
- There are some 100 billion galaxies in the universe, with perhaps 100 billion stars in each one, occupying magnitudes of space that I cannot imagine.
- Each star is dying, exploding, accreting, exploding again, splitting atoms and fusing nuclei under enormous temperatures and pressures.
- Our Sun, too, will die, frying the Earth to a crisp during its heat-death, spewing its bits and pieces out into the frigid nothingness of curved spacetime.

The night sky was ruined. I would never be able to look at it again. I wept into my pillow, the long, slow tears of adolescent despair. And when I later encountered the famous quote from physicist Stephen Weinberg—‘the more the universe seems comprehensible, the more it seems pointless’—I wallowed in its poignant nihilism. A

bleak emptiness overtook me whenever I thought about what was really going on out in the cosmos or deep in the atom. So I did my best not to think about such things.”

Einstein said, “I cannot conceive of a personal God who would directly influence the actions of individuals....My religiosity consists of a humble admiration of the infinitely superior spirit that reveals itself in the little that we can comprehend of the knowable world. That deeply emotional conviction of the presence of a superior reasoning power, which is revealed in the incomprehensible universe, forms my idea of God.”

This succinct statement, which was quoted in Einstein’s obituary in the New York Times, sums up my own religious beliefs. I couldn’t have said it better myself. But then again, I’m no Einstein.

Today I want to explore that religious attitude a little bit, examine where it falls short, and point to a way in which it can be developed into something deeper and richer.

Albert Einstein was the dominant scientific figure of the twentieth century, and, since science itself plays such a powerful role in our time—both for the good of humanity and for evil—he became much more than a mere scientist. He became nothing less than a historical figure of commanding stature. The editors of Time magazine chose well when they put him on the cover of the Y2K edition as the Person of the Century. Even more telling is Herblock’s obituary cartoon of a tiny planet Earth floating forlornly among the celestial bodies. The only visible sign of life is a little sign tacked onto its surface. It says simple: “Albert Einstein lived here.”

Albert Einstein was born in Germany in 1879 and died at Princeton, New Jersey, in 1955, the year I started college. I never saw him, but I know lots of physicists with whom he worked, including my father’s uncle who was his colleague in Berlin. His ideas touched every single scientific problem I have worked on in my scientific career.

When Einstein was twenty-six years old, and working as a patent examiner in Switzerland, he shook the world of physics by publishing three short papers, each of which was worthy of a Nobel Prize. The first one showed a way to prove that atoms are not merely convenient chemical abbreviations, but real, material particles. The consequences of this paper have penetrated into the popular imagination more deeply than those of the other two. Before Einstein, atoms existed only in the minds of scientists. After 1905, they were accepted by everyone as nature’s building blocks that make up you, me, and the whole universe. Einstein helped to transform them from hypothesis to fact.

His second paper laid the foundations of quantum mechanics—the fundamental theory of all atomic and nuclear processes, and one of the pillars of modern physical science. The third article presented the special theory of relativity, which elevated time to the status of a fourth dimension, introduced the unified concept of spacetime for the vast, unseen

scaffolding from which the material universe hangs, and, as an afterthought, led to  $E=mc^2$ .

Without those three papers of Einstein's miracle year, twentieth century physics is unimaginable. Nevertheless, it would be four years before he got a proper academic job, and more than a decade before his name received public recognition. In 1915, he finished his general theory of relativity, the first new theory of gravity since Isaac Newton, exactly a quarter of a millennium earlier. The general theory of relativity is the foundation upon which the Big Bang, and indeed all modern cosmology, are based. But when Einstein announced it, the First World War was raging, and fame continued to elude him.

Then, in 1919, on the occasion of a solar eclipse, the British astronomer Sir Arthur Eddington confirmed the most spectacular consequence of general relativity—that spacetime is warped by the sun and the stars. With that announcement Einstein became a celebrity overnight. From that moment on, and for the rest of his life, his name and face became familiar to every schoolchild in the world. Few people understood what was meant by the mysterious phrase “curved spacetime”, but the notion nevertheless had a wonderfully fascinating ring to it. That the puny human mind could discern the very architecture of the universe, and fathom the shape of the heavens, inspired admiration bordering on awe.

Henceforth, Einstein's life changed. He acquired a new wife, high office, a Nobel prize, and scientific honors too numerous to count. To escape the Nazi terror he came to the United States and stayed. His later scientific work did not pan out, but his reputation as the greatest scientist of the century, if not of all time, was secure, and his advice was universally sought. Near the end of his life he was offered the presidency of Israel, but declined. The publication of his collected papers began in 1987, thirty years after his death, and won't be completed for years to come.

Every word that Einstein spoke or wrote, on any subject whatsoever, was taken for gospel. He was, after all, the smartest man on Earth. And so he expressed his opinions on subjects ranging from politics to pipe smoking. Among the issues he touched on, one was religion.

Our religious journeys begin at home, in childhood, and so it was with Einstein, but tracing its true course turns out to be all but impossible. The historian of science Max Jammer tried to do that in his excellent new book, Einstein and Religion, which inspired me to give this sermon. Unfortunately, he found that the numerous supposedly reliable sources, including Einstein's own testimony, contradict each other hopelessly. What is known is that Einstein's parents were liberal, non-practicing Jews. When Albert was six he entered public school with the Catholic religious education that was then compulsory in Bavaria. To balance it, Einstein's parents hired a distant relative to give the boy instruction in Judaism. Sources differ on whether it was the Catholic Church, or the tutor, or Einstein's inborn love of nature, or music that were the cause, but they agree that for a while Albert went through a phase of intense religious belief. He read the Bible,

stopped eating port, and felt enthralled by the “luminous figure of Jesus”. In later life, he called this period his “religious paradise”.

The expulsion from the garden followed soon, as it does for many children. At age twelve, Einstein discovered science and suddenly became completely irreligious, refusing to participate in the bar mitzvah, which is a ritual even non-practicing Jews observe. He described the fall from grace as follows: “Through the reading of popular scientific books I soon reached the conviction that much in the stories of the Bible could not be true. The consequence was a positively fanatic orgy of freethinking.” Youthful rebelliousness, or call it independence of thought—which we UU’s celebrate as a virtue—had led Einstein beyond traditional religion. As far as is known, he never took part in a religious service or private prayer in a house of worship after that. His two marriages were civil, and his last wish was not to be buried in the Jewish tradition. He lived and died outside the church.

And yet, he maintained that he was religious, and that he believed in God. Two stories illustrate these claims.

In 1927, when Einstein was at the height of his fame, he attended a party in Berlin. One guest, the famous literary critic Alfred Kerr, kept making sarcastic comments about religion in general and God in particular. Cautioned by others that this might be offensive to Einstein, he confronted the great man himself: “Professor! I hear that you are supposed to be deeply religious?” Calmly and with great dignity Einstein replied as follows: “Yes, you can call it that. Try and penetrate with your limited means the secrets of nature and you will find that...there remains something subtle, intangible and inexplicable. Veneration for this force beyond anything that we can comprehend is my religion. To that extent I am, in point of fact, religious.”

The second story took place two years later. In April, 1929, the Archbishop of Boston warned members of his flock not to read anything about the theory of relativity, because it might conjure up the ghastly apparition of atheism. When Rabbi Herbert Goldstein of New York heard about this, he got worried and looked for evidence to the contrary. Finally, he took the bull by the horns and sent a memorable telegram to Einstein: “Do you believe in God? Stop. Prepaid reply fifty words.”

Einstein, who believed in simplicity, directness, and brevity, must have been amused. He took up the challenge and replied: “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.”

It is not surprising that Einstein should admire Spinoza—the two men, it turns out, had a lot in common. Baruch Spinoza was a Dutchman of the seventeenth century, a contemporary of Newton. He was a scientist, philosopher, and theologian who saw God manifest in all of nature. This divine presence was so vivid for him that he was called “the God-intoxicated man”. Far from being an atheist, he was a pantheist. The dictionary informs me that there are two separate senses of that word. A pantheist could

be someone who worships all sorts of gods, but that is not the meaning of the word in this case. Spinoza was a pantheist in the second sense of the word, in that he believed that everything is God, and God is everything. All laws, forces, and other manifestations of nature are God. Like Einstein, Spinoza was a rebel. He began his religious journey as a devout Jew, but his liberal views so frightened the authorities that after all bribes and threats failed to silence him, he was excommunicated from the Amsterdam synagogue.

Spinoza's chief philosophical legacy was the rejection of the separation of body and soul. He just couldn't understand how to explain human activities—or the working of nature, for that matter—if one held onto that romantic notion. He was a pure rationalist, who endeavored to understand everything about the world in simple, straightforward terms, and the famous mind/body split didn't seem to fit into the picture.

I must confess that I have a lot of sympathy for Spinoza's misgivings. As a scientist I find it troubling to learn that quarks and leptons make up elementary particles, particles make up atoms, atoms make up molecules, molecules make up cells, and cells make up animals in a perfect, unbroken chain of explanation. So is that what we are made of? Oh, no, I am told, there's one more thing you have to add to make a human being. What's that? I ask. The soul. And what is the soul made of? Nobody knows. I find it easier to imagine the soul as an unbelievably complex collaborative effort of my body cells—a behavior that's very real but much too wonderful for the feeble human mind to understand. Just as thousands of colored pebbles are all that make up a mosaic, and the image only emerges from the collective effect of all of them, my soul may be the meaning that arises when the untold trillions of atoms that make up my body work their collective miracle.

This philosophical aspect of Spinoza's thinking also influenced Einstein: "I am fascinated with Spinoza's pantheism," he wrote, "but admire even more his contribution to modern thought because he is the first philosopher to deal with the body and soul as one, and not two separate things."

Rejecting traditional Judaism and Christianity, and profoundly influenced by the teachings of Spinoza, Einstein set out to build his own theology, just as we UU's are encouraged to do. In later life, he came back to this set of beliefs again and again, patiently laying it out in conversations, lectures, letters, essays, and newspaper articles. He even had a name for it. He called it his "Cosmic Religion".

Fortunately, we have a description in English of this conception, without having to translate it from the German, because Einstein wrote it expressly for the New York Times Magazine on November 9, 1930. Tracing back the origin of religion to primitive fears, he finds that in the second stage of development, religion turns to morality, and an anthropomorphic God who rewards, punishes, comforts in distress, and preserves the souls of the dead. Finally, he arrives at the third, and highest stage of religious experience—the cosmic religious feeling. This, according to Einstein, is difficult to explain to anyone who is entirely without it, especially since there is no personal conception of God to embody it.

“The individual feels the futility of human desires and aims and the sublimity and marvelous order which reveal themselves both in nature and in the world of thought. Individual existence impresses him as a sort of prison, and he wants to experience the universe as a single, significant whole. The beginnings of cosmic religious feeling already appear at an early stage of development, for example, in many of the Psalms of David and in some of the Prophets. Buddhism...contains a much stronger element of this. The religious geniuses of all ages have been distinguished by this kind of religious feeling, which knows no dogma and no God conceived in man’s image; so that there can be no church whose central teachings are based on it. Hence, it is precisely among the heretics of every age that we find men who are filled with this highest kind of religious feeling and were in many cases regarded by their contemporaries as atheists, sometimes also as saints. Looked at in this light, men like Democritus, Francis of Assisi, and Spinoza are closely akin to one another.”

From this vantage point, Einstein manages to effect a reconciliation of science and religion. “In my view,” he writes, “it is the most important function of art and science to awaken this [cosmic religious] feeling and keep it alive in those who are receptive to it.” He concludes with the belief that cosmic religious experience “is the strongest and noblest driving force behind scientific research”, and that Kepler and Newton were inspired by it.

The essay provoked a fire-storm of comment, ranging from devout admiration, especially by liberal Jews, to strident condemnation, especially by orthodox Christians who called it nonsense, or, predictably, atheism. But throughout his life, Einstein vigorously rejected that label. “Rejection of a personal God is not the same as rejection of God”, he protested over and over again. Perhaps the clearest summary of his true reverence for religious belief was the motto: “Science without religion is lame, religion without science is blind.” In it, we hear echoes of an aphorism by the Unitarian minister Ralph Waldo Emerson: “The religion that fears science insults God and commits suicide.”

And yet, there is something inhuman and otherworldly about Einstein’s religion. Most of us are not geniuses—of the religious or any other kind. Even if we want to follow Einstein’s lead to the summits of religious experience, we may find ourselves cowering terrified in the foothills. We know how to relate to people, but the universe as a whole is beyond our reach. The very name “cosmic” conjures up feelings of despair and terror like those described by Ursula Goodenough which I read earlier. Let’s go back and see how she dealt with those feelings.

Ursula Goodenough is a distinguished cell biologist and professor Washington University in St. Louis. Her spiritual home is Trinity Presbyterian Church where she sings in the choir. I discovered her little book, The Sacred Depths of Nature, published in 1998 by Oxford University Press, long after I had agreed to give this sermon. I admire it deeply, and hope that many people read it.

Goodenough begins with the observation that for many of us the great discoveries of modern science in the realms of the incomprehensibly large and the unimaginably small—the big bang, quantum physics, relativity—point to an existence that is devoid of meaning. This is what terrified her when she was younger. But since then she has found a way “to defeat the nihilism that lurks in the infinite and the infinitesimal. I have come to understand that I can deflect the apparent pointlessness of it all by realizing that I don’t have to seek a point. In any of it. Instead, I can see it as the locus of Mystery.”

The mysteries she celebrates include Big Questions that have baffled philosophers for millennia, and that may never be answered: Why is there something, rather than nothing? Where do the laws of physics come from? Why does the universe seem so strange? The realization that she doesn’t need to have the answers to such questions came as an epiphany to Goodenough. Mystery, she realized, generates wonder, and wonder generates awe.

A covenant with Mystery is the starting point of Goodenough’s proposed new system of beliefs called Religious Naturalism. But wait—what was the first thing I read to you today? Let’s look back: “The most beautiful experience we can have is the mysterious,” wrote Einstein. So we realize that Goodenough’s Religious Naturalism begins precisely with what Einstein called cosmic religion. In her book, she does not mention this kinship—and I don’t know whether or not she is aware of it. In fact, she refers to Einstein only once, and then manages to misquote him (perhaps by relying on a faulty translation), but that is beside the point. The point is that she has the same insight he does, which qualifies her, in his view, as a religious thinker at the highest stage of spiritual development. More importantly, she goes way beyond where he stops. And in the process, she fills a huge gap in his religious philosophy.

Goodenough’s method is to review the facets of the story of cosmic and biological evolution, and to pause between chapters to draw religious and emotional lessons from the scientific facts. “For example,” she writes, “the evolution of the cosmos evokes in me a sense of mystery.” We have already seen how that comes about. She continues: “The increase in biodiversity invokes the response of humility; and an understanding of the evolution of death offers me helpful ways to think of my own death.” Other, more difficult scientific issues she ponders are attempts to understand consciousness, and the evolution of sexual reproduction. From each she derives religious lessons. But she stops short of developing a full doctrine of religious naturalism, humbly leaving that task for others to complete.

Religion is supposed to address two fundamental human concerns: What Is, and What Should Be, or, in fancier words, cosmology and ethics. The glaring omission in Einstein’s religion is that it says not a word about ethics. On the contrary, Einstein insists that morality has nothing to do with his religious or scientific beliefs, and must be developed on a different basis. The reason for his opinion is that science describes what is, and that no logical argument can lead from there to what should be.

The problem with this austere, extremely rational point of view is that it conflicts with common practice: All religions except Einstein's give guidance on human behavior. By proposing, contrary to Einstein, that ethical principles actually can grow out of cosmological discoveries, not by thinking but by feeling, Goodenough humanizes Einstein's religion and gives it a new lease on life.

Religious naturalism, it seems to me, provides the perfect balance to the Cosmic Religion. It adds the feminine view to Einstein's male perspective, the lessons of life science to those of physics, the realm of the small to that of the large, the emotional to the intellectual, and ethics to cosmology. I believe that the cold, impersonal rigor of Einstein's mind and the gentle warmth of Goodenough's feelings can combine into a challenging, viable religion for the twenty-first century, and I am grateful that as a Unitarian Universalist I am free to pursue this new path to wherever it may lead. I invite you to come along for the journey.