Einstein's View of God

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Did Albert Einstein believe in God? In 1992 when astronomer George Smoot announced the discovery of ripples in the heat radiation still arriving from the Big Bang, he said it was "like seeing the face of God." A somewhat more modest astrophysicist, whose theory had correctly predicted the discovery, was quoted as calling the ripples, "the handwriting of God." Are these references to the Creator sacrilegious or legitimate interpretations? Either way, they are part of a search that Einstein began – the search for language to communicate the sacred dimension of doing science.

When Neils Bohr and others were developing the quantum theory, it was spiritually unacceptable to Einstein that the ultimate nature of reality was randomness. "The [quantum] theory yields much," he wrote to quantum physicist Max Born in 1926, "but it hardly brings us close to the secrets of the Ancient One. In any case, I am convinced that He does not play dice." Generations of physicists have been profoundly influenced by the faith of the man who wrote, "I am a deeply religious nonbeliever….This is a somewhat new kind of religion."

Recently an article in the magazine *Nature* reported the results of a poll that was first taken more than 80 years ago and repeated in 1998. Originally 40% of scientists had said they believed in God. People who assume God is incompatible with science were surprised that the percentage of scientists who answered yes in 1998 was the same. They expected far fewer. But if the question had been worded differently, there might have been even more. Einstein and the many scientists who are his spiritual companions were excluded, since the poll asked scientists if they believed in a personal God who answered prayers. To Einstein the concept of a personal God was naïve, and it was the main source of conflict between science and religion. God was not a father, king, or confidant. Nor was God the source of morality to Einstein. "The foundation of morality should not be made dependent on myth nor tied to any authority," he warned, "lest doubt about the myth or about the legitimacy of the authority imperil the foundation of sound judgment and action." Ethical behavior, he wrote, "should be based on sympathy, education, and social ties and needs; no religious basis is necessary."

What kind of God, then, did Einstein believe in? "I believe in Spinoza's God who reveals himself in the harmony of all that exists, but not in a God who concerns himself with the fate and actions of human beings." The rock of Einstein's faith was that the world is rational. The fact is, the world doesn't have to be rational. It can't be proved to be. But to Einstein, what made science possible was this faith: causes lead to effects not by anyone's changeable will but by the operation of natural laws. For him the greatest sacrilege was belief in miracles. If miracles were possible then knowledge of truth was impossible because there would be no truth. He felt no awe for a willful, human-like God

but for the brilliant simplicity of the laws that have guided the evolution of the universe. "Whoever has undergone the intense experience of successful advances made in [science]," he wrote, "is moved by profound reverence for the rationality made manifest in existence." He named this special reverence "cosmic religious feeling…which knows no dogma and no God conceived in man's image." Cosmic religious feeling he defined as awareness of a "spirit manifest in the laws of the universe – a spirit vastly superior to that of man." This awareness, he believed, was "the strongest and noblest motivation for scientific research." And scientific research to him was "the only creative religious activity of our time." Which may be Einstein's theory of why great scientists so often feel drawn to the imagery of God: those who experience cosmic religious feeling will tend to be more deeply dedicated to their work and thus more likely to become great scientists.

Was Einstein's spiritual objection to quantum theory correct? Smoot's discovery and the subsequent observations of ripples in the cosmic background radiation say no. The creation of the largest structures in the universe – the galaxies and the great clusters and superclusters of galaxies – was a random quantum process. If these results are confirmed by observations now in progress, then Einstein was wrong. Dice is God's favorite game. In his prejudice against this physical possibility, perhaps Einstein did not quite live up to his own faith: "no dogma." It now seems that God plays dice, but the universe is nevertheless rational since the game has rules.

The sacred dimension of science is a subject most scientists today avoid. They may fear misunderstanding and judgment by colleagues. Perhaps they have never really thought through their own ideas. Einstein's outspokenness on his religious attitude was rare. Today science is attacked both by post-modern philosophers claiming all truths are relative (a horrendous misuse of Einstein's concept) and by creationists claiming their metaphor is absolute truth. Under these circumstances, there are good reasons why most scientists avoid all possibility of confusion with religion by never using terms suggestive of divinity. But the price we pay is that there is no way to communicate an awesome reality: we are actually answering questions today whose very asking used to be a religious act. The astrophysicist who described the cosmic ripples as "the handwriting of God" is a co-author of this article. When we interpret the ripples in the cosmic background radiation, we are reading God's journal of the first days. What human action could be more sacred than that?

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