# Science and Religion: Bridging the Great Divide

Ever since science began drifting away from religion, centuries ago, each has dreamed of subsuming the other. Scientists, in their boldest moments, speak of explaining away all the mysteries by empirical inquiry, leaving no need for ancient wisdom. And the faithful, fervently believing in spiritual forces unmeasurable by any meter, find it absurd that God's children would aspire to heaven solely by building telescopes and computers -- scientific Towers of Babel. They have longed for a reality beyond the shadowplay of the material realm.
Credit: Joan Hall

Left between these extremes are many people who are both scientific and religious, and confused about whether a bridge can ever cross the divide. Every few decades, this hope for reconciliation, or "dialogue," experiences a revival. The most recent may be the biggest, with books, conferences and television shows trying to find a common ground between two fundamentally different ways of thinking about the world.

In the 1970's scholars tried to merge science with Eastern religion; the emphasis now is on rejoining science with monotheistic, usually Christian, faith.

Not all the work is motivated by religious passion. In his new best-selling book, "Consilience" (Knopf), the Harvard biologist Edward O. Wilson tries to revive the Enlightenment dream of a unified system of knowledge that would embrace not only the sciences but also morality and ethics, removing them from the uncertainties of religion. Here the effort is not to make science spiritual but to make religion scientific.

But most of the longing for reconciliation comes from the religious side. With a $3 million grant from the John Templeton Foundation, which is fueling much of the metaphysics boom with its considerable resources, a modest newsletter on science and religion was reborn this year as a glossy magazine called Science & Spirit.

"We see a growing number of individuals looking toward religion to explain what science cannot, and asking science to validate religious teachings," the publisher, Kevin Sharpe, said.

This fall, PBS will broadcast "Faith and Reason," a documentary written and narrated by Margaret Wertheim and partly financed with $190,000 from the Templeton Foundation, featuring interviews with scientists about God. In the last two years, a steady stream of books with titles like "Cybergrace: The Search for God in the Digital World" and "God & the Big Bang: Discovering Harmony Between Science & Spirituality" has been published.

THE CONFERENCE
A Universe With Purpose

One of the most conspicuous events was a heavily promoted conference called "Science and the Spiritual Quest," held this month in Berkeley, Calif., by the Center for Theology and the Natural

Sciences. The Templeton Foundation gave the center $1.4 million for the conference. For four days scientists, most of them Christians, Jews or Muslims, testified about their efforts to resolve personal conflicts over science and religion. All seemed to share the conviction that this is a purposeful universe, that there is a reason to be here.

"Theology is not some airy-fairy form of metaphysical speculation," said John C. Polkinghorne, a Cambridge University particle physicist turned Anglican priest whose books include "Quarks, Chaos & Christianity" and the newly published "Belief in God in an Age of Science." Like science, he said, religion is rooted in encounters with reality -- though in the latter case encounters include spiritual revelations whose truths lie in the unreachable realm of the subjective.

The pervading question was whether this kind of experience could ever be studied scientifically.

For most of the century people have espoused the view that science and religion should be kept apart to avoid the inevitable combustions.

But to logical minds it has always been troubling that two opposing ways could exist to explain the same universe. Science and religion spring from the human obsession with finding order in the world. But surely there can be only one true explanation for reality. Life was either created or it evolved. Prayer is either communication with God or a psychological salve. The universe is either pervaded by spiritual forces or ruled by nothing but physical laws.

One way out of the dilemma has been to embrace a kind of deism: The Almighty created the universe according to certain specifications and then left it to run on its own. "God" becomes a metaphor for the laws that science tries to uncover.

Or religion can be explained away scientifically. "There is a hereditary selective advantage to membership in a powerful group united by devout belief and purpose," Wilson wrote in "Consilience." He warned against letting this genetically ingrained drive overpower the intellect. "If history and science have taught us anything, it is that passion and desire are not the same as truth. The human mind evolved to believe in the gods. It did not evolve to believe in biology." It is important not to confuse the universe as it is with the universe as we wish it would be.

THE THEORIES
Limits of Science Can Lead to Religion

For many scientists, the point of the scientific enterprise is to replace religious teachings with verifiable theories, and to pretend otherwise is self-delusion. "We're working on building up a complete picture of the universe, which, if we succeed, will be a complete understanding of the universe and everything that's in it," Richard Dawkins, a University of Oxford biologist, said in a preview copy of "Faith and Reason." He found it baffling that some of his colleagues struggle to keep God in the picture. "I don't understand why they waste their time going into this other stuff, which never has added anything to the storehouse of human wisdom, and I don't see that it ever will," he said.

But others, like the cosmologist Allan Sandage, have found that their search for objective truth has led them to questions that science cannot answer. "The most amazing thing to me is existence itself," Sandage said at the Berkeley conference. "Why is there something instead of nothing?" He said this impenetrable mystery drove him to become a believer. "How is it that inanimate matter can organize itself to contemplate itself? That's outside of any science I know."

Science, like religion, is ultimately built on a platform of beliefs and assumptions. No one can prove that the universe is mathematical or that the same laws that seem to hold in the here and now can be applied to the distant quasars or to the first moments of time. These are among the tenets of the faith, marking the point at which reasoning can begin. "Science is not able to question these issues," Dr. George Ellis, a professor of applied mathematics at the University of Capetown and a Quaker, said at the conference.

"It takes them for granted as its bedrock."

It is not just the coincidence of the approaching millennium that is inspiring hopes for what would be the grandest unified theory. Faced with science's undeniable success in modeling the world, people find it harder to accept religious teachings that cannot be verified.

Many Christians were disturbed when radiocarbon dating suggested that the Shroud of Turin was not Jesus's burial cloth but a medieval forgery, and they hope that new scientific data, not religious fiat, will overturn the old research. Even the creationists realized long ago that they can't sway the opposition simply by asserting that their beliefs are true because they are written in the Bible. They proffer scientific proof -- pseudoscientific, those outside the faith would say -- that life and the universe were created as described in Genesis.

But science, too, is feeling its limits, leaving a vacuum that religion is happy to rush into. Neuroscientists can explain the brain, on a rough level, as networks of communicating cells called neurons. But it is hard to imagine a satisfying theory of the conscious experience -- what it is like to be alive. And no amount of theorizing is apt to converge on a persuasive explanation of where the mathematical laws are written or what happened before the Big Bang. Humans can observe and reason, but ultimately the mind encounters chasms. Then the only choice is to retreat or take the great leap and choose what to believe.

THE MONEY
Dollars Fuel Effort To Put God in Science

For all the genuine philosophical longings, the recent drive to put God back in science would not be nearly so intense without the millions of Templeton dollars looking for places to land. "We are searching for a serious rapprochement between science and religion," Charles Harper, the executive director and vice president of the Templeton Foundation, said at the conference.

The money and the inspiration come from the investor John Marks Templeton, founder of the Templeton Growth Fund and other ventures, who retired in 1992 to work full time on his philanthropy. The most prominent of Sir John's endeavors (he was knighted in 1987) is the annual Templeton Prize for Progress in Religion, guaranteed to exceed the Nobel Prizes in monetary value. (Templeton thought Alfred Nobel snubbed spirituality.) Early winners of the Templeton award, first given in 1973, were usually religious leaders like Mother Teresa.

More recently the prizes, now more than $1 million, have gone to the political scientist Michael Novak and the physicist and science writer Paul Davies.

The Center for Theology and the Natural Sciences in Berkeley is receiving $12.6 million from Templeton to help develop science and religion programs at universities.

The American Association for the Advancement of Science received $1.3 million "to help establish a science and religion dialogue."

Last year the foundation's announcement that it would award grants of $100,000 to $200,000 for a program in "forgiveness studies" sent behavioral scientists scrambling to write proposals. Among the work being funded are "Forgiveness and Community: A Game-Theoretic Analysis," "Assessment of Forgiveness: Psychometric, Interpersonal, and Psychophysiological Correlates" and "Does Forgiveness Enhance Brain Activation Associated With Empathy in Victims of Assault?"

Those who submitted proposals were asked to include a section about how their research would address the issues clarified in Templeton's books "Discovering the Laws of Life" and "Worldwide Laws of Life: 200 Eternal Spiritual Principles." A major focus of the foundation is publishing some 20 works by and about Templeton. The foundation is also encouraging scientific research on what its literature describes as "optimism, hope and personal control."

THE DISCOURSE
Polite Talk, But No Passion

Judging from the conference, no amount of money is likely to succeed in blending science and religion into a common pursuit. A kind of Sunday school politeness pervaded the meeting, with none of the impassioned confrontations expected from such an emotionally charged subject. "Many of the speakers have been preaching to the choir," Sandage complained. "There are no atheists on the program, only strict believers."

Many of the speakers avoided grappling with religion directly, content to ponder mysteries that have disturbed scientists for decades. The Stanford University cosmologist, Andrei Linde, speculated on the tantalizing possibility that consciousness, the very hallmark of humanity, could be an intrinsic part of the universe -- as fundamental to the warp and woof of creation as space and time. After all, he said, our subjective experience is the only thing each of us is really sure of. All else is speculation.

"Our knowledge of the world begins not with matter but with perceptions," Linde argued. "I know for sure that my pain exists, my 'green' exists, and my 'sweet' exists. I do not need any proof of their existence, because these events are a part of me; everything else is a theory." It is to explain the source of these perceptions that we posit the existence of an outside reality, forgetting that this is just a supposition.

The existence of a real world is another of the tenets of the scientific faith. It is impossible to proceed without it.

But many scientists would find the view that consciousness is the root of everything to be hopelessly anthropomorphic and even solipsistic. The conference might also have booked prominent scientists, like Stephen Jay Gould, who argue that consciousness, as powerful as it necessarily seems to its holders, may be just an accident of evolution.

Behind consciousness, one can choose to find God. Or not. Without a decisive experiment, it is a matter of personal belief, not of science.

The astrophysicist John Barrow of the University of Sussex spoke of another longstanding mystery: the dazzling cosmological coincidences that make life possible. If certain physical constants had slightly different values, stars would not have formed to cook up the atoms that made the biological molecules.

Since early in the century some truth seekers have taken this sort of argument as a reason to believe that the universe was created with people in mind.

But one is also free to choose the opposite belief: that the coincidences simply show that life is indeed an incredible fluke.

It was hard to know what to make of some of the presentations. Dr. Mitchell Marcus, chairman of the computer science department at the University of Pennsylvania, speculated that the craft of artificial intelligence -- designing thinking computers -- is a modern realization of the school of Jewish mysticism based on the Kabala.

According to this ancient teaching, it is not quarks and leptons but the first 10 numbers and the 22 letters of the Hebrew alphabet that are the true fundamental particles: the elements of the divine utterance that gave rise to creation. "Computer scientists," he declared, "are the Kabba lists of today." The ancient rabbis are said to have used magical incantations to create beings called golems. The programmers create their simulated creatures with incantations of computer code.

The audience politely applauded after each presentation.

But there was little sense of intellectual excitement, that people were coming to grips with the disturbing issue of whether there really is a God.

Most of the presentations consisted more simply of heartfelt testimonials about the difficulties of constantly being pulled by two powerfully conflicting attractions, the material and the spiritual, the known and the unknowable. And some of the speakers seemed to believe that, for all the efforts to bring them together, science and religion must inevitably go their separate ways. "Would I do science differently if I weren't a Quaker?" asked Dr. Jocelyn Bell Burnell, chairwoman of the physics department of the Open University in England.

"I don't think so."

Sandage, the cosmologist, matter of factly put it like this: "I don't go to a biology book to learn how to live. I don't go to the Bible to learn about science."

As science continues to draw its picture of the physical world, each question it answers will inevitably raise more. So there will always be mysteries, the voids in human knowledge where religious awe can grow.

By George Johnson

George Johnson has written ``Fire in the Mind: Science, Faith, and the Search for Order" (Knopf, 1995).

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