

Scientists on Religion

THEIST AND MATERIALIST PONDER THE PLACE OF HUMANITY IN THE UNIVERSE BY GEORGE JOHNSON

GOD'S UNIVERSE

by Owen Gingerich
Belknap Press (Harvard University Press),
2006 (\$16.95)

THE LANGUAGE OF GOD: A SCIENTIST PRESENTS EVIDENCE FOR BELIEF

by Francis S. Collins
Free Press (Simon & Schuster), 2006 (\$26)

THE GOD DELUSION

by Richard Dawkins
Houghton Mifflin, 2006 (\$27)

THE VARIETIES OF SCIENTIFIC EXPERIENCE: A PERSONAL VIEW OF THE SEARCH FOR GOD

by Carl Sagan. Edited by Ann Druyan
Penguin Press, 2006 (\$27.95)

Ten years after his death in 1996, science writer Walter Sullivan's byline occasionally still appears in the *New York Times* on obituaries of important physicists, as though he were beckoning them to some quantum-mechanical heaven. This is not a case of necromancy—the background material for *Times* obits is often written in advance and stored. If the dead really did communicate with the living, that would be a scientific event as monumental as the discovery of electromagnetic induction, radioactive decay or the expansion of the universe. Laboratories and observatories all over the world would be fiercely competing to understand a new phenomenon. One can imagine Mr. Sullivan, the ultimate foreign correspondent, eagerly reporting the story from the other side.

Light is carried by photons, gravity by gravitons. If there is such a thing as

spiritual communication, there must be a means of conveyance: some kind of "spiritons"—ripples, perhaps, in one of M Theory's leftover dimensions. Some theologians might scoff at that remark, yet there has been a resurgence in recent years of "natural theology"—the attempt to justify religious teachings not through faith and scripture but through rational argument, astronomical observations and even experiments on the healing effects of prayer. The intent is to prove that, Carl Sagan be damned, we are not lost among billions and billions of stars in billions and billions of galaxies, that the universe was created and is sustained for the benefit of God's creatures, the inhabitants of the third rock from the sun.

In *God's Universe*, Owen Gingerich, a Harvard University astronomer and science historian, tells how in the 1980s he was part of an effort to produce a kind of anti-*Cosmos*, a television series called *Space, Time, and God* that was to counter Sagan's "conspicuously materialist approach to the universe." The program never got off the ground, but its premise survives: that there are two ways to think about science. You can be a theist, believing that behind the veil of randomness lurks an active, loving, manipulative God, or you can be a materialist, for whom everything is matter and energy interacting within space and time. Whichever metaphysical club you belong to, the science comes out the same.

In the hands of as fine a writer as Gingerich, the idea almost sounds convincing. "One can believe that some of the evolutionary pathways are so intricate



HELIX NEBULA, also known as the eye of God.

and so complex as to be hopelessly improbable by the rules of random chance," he writes, "but if you do not believe in divine action, then you will simply have to say that random chance was extremely lucky, because the outcome is there to see. Either way, the scientist with theistic metaphysics will approach laboratory problems in much the same way as his atheistic colleague across the hall."

Thus, a devoutly Christian geneticist such as Francis S. Collins, author of *The Language of God* and leader of the Human Genome Project, can comfortably accept that "a common ancestor for humans and mice is virtually inescapable" or that it may have been a mutation in the *FOXP2* gene that led to the flowering of human language. The genetic code is, after all, "God's instruction book."

But what sounds like a harmless metaphor can restrict the intellectual bravado that is essential to science. "In my

view," Collins goes on to say, "DNA sequence alone, even if accompanied by a vast trove of data on biological function, will never explain certain special human attributes, such as the knowledge of the Moral Law and the universal search for God." Evolutionary explanations have been proffered for both these phenomena. Whether they are right or wrong is not a matter of belief but a question to be approached scientifically. The idea of an apartheid of two separate but equal metaphysics may work as a psychological coping mechanism, a way for a believer to get through a day at the lab. But theism and materialism don't stand on equal footings. The assumption of materialism is fundamental to science.

Richard Dawkins, in *The God Delusion*, tells of his exasperation with colleagues who try to play both sides of the street: looking to science for justification of their religious convictions while evading the most difficult implications—the existence of a prime mover sophisticated enough to create and run the universe, "to say nothing of mind reading millions of humans simultaneously." Such an entity, he argues, would have to be extremely complex, raising the question of how it came into existence, how it communicates—through spiritons!—and where it resides.

Dawkins is frequently dismissed as a bully, but he is only putting theological doctrines to the same kind of scrutiny that any scientific theory must withstand. No one who has witnessed the merciless dissection of a new paper in physics would describe the atmosphere as overly polite.

Sagan, writing from beyond the grave (actually his new book, *The Varieties of Scientific Experience*, is an edited version of his 1985 Gifford Lectures), asks why, if God created the universe, he left the evidence so scant. He might have embedded Maxwell's equations in Egyptian hieroglyphs. The Ten Commandments might have been engraved on the moon. "Or why not a hun-

dred-kilometer crucifix in Earth orbit?... Why should God be so clear in the Bible and so obscure in the world?"

He laments what he calls a "retreat from Copernicus," a loss of nerve, an emotional regression to the idea that humanity must occupy center stage. Both Gingerich and Collins, along with most every reconciler of science and religion, invoke the anthropic principle: that the values of certain physical constants such as the charge of the electron appear to be "fine-tuned" to produce a universe hospitable to the rise of conscious, worshipful life.

But the universe is not all that hospitable—try leaving Earth without a space suit. Life took billions of years to take root on this planet, and it is an open question whether it made it anywhere else. To us carboniferous creatures, the dials may seem miraculously tweaked, but different physical laws might have led to universes harboring equally awe-filled forms of energy, cooking up anthropic arguments of their own.

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Editors' note: Two other noteworthy books on religion by scientists have appeared recently: E. O. Wilson's The Creation: A Meeting of Science and Religion (W. W. Norton, 2006) and Joan Roughgarden's Evolution and Christian Faith: Reflections of an Evolutionary Biologist (Island Press, 2006).

THE EDITORS RECOMMEND

FROM LUCY TO LANGUAGE

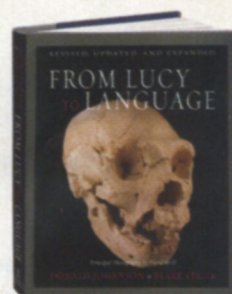
by Donald Johanson and Blake Edgar.

Revised, updated and expanded.

Simon & Schuster, 2006 (\$65)

Since the original edition was published in 1996, paleoanthropologists have made several important finds. Among them are *Sahel-*

anthropus tchadensis, a seven-million-year-old specimen uncovered in Chad that has features that are part ape, part hominid, and *Homo floresiensis*, diminutive people who apparently were not *Homo sapiens* and who lived on the Indonesian island of Flores as recently as 13,000 years ago. Johanson, director of the Institute of Human Origins and best known for his discovery of the "Lucy" skeleton, and Edgar, a writer and an editor at the University of California Press, present other new finds and add updates throughout the book. With more spectacular photographs by David Brill, most of them depicting specimens at actual size, the new tome is even more awe-inspiring than the earlier version.



THIS DYNAMIC PLANET: WORLD MAP OF VOLCANOES, EARTHQUAKES, IMPACT CRATERS, AND PLATE TECTONICS

Smithsonian Institution, USGS and U.S.

Naval Research Laboratories, 2006 (\$14)

Another new edition of a classic is this map, which shows the dynamic plate tectonic processes that shape the planet. All elements of the updated map are digital, and an interactive version is at www.minerals.si.edu/minisci/tdpmap. The site is somewhat slow, but the enormous amount of data at your fingertips is worth the patience required. You can make your own regional map, for example, by choosing the layers of information you want [volcanoes, plate motion, latitude and longitude, and so on]. The one-by-1.5-meter paper version is a bargain at \$14.

