

## Special Features



### Quantum Computing: The Key to Ultimate Reality?

By Paul Davies

As advances in computing approach the quantum level of operation, untold powers could be unleashed, leading us to an encounter with the ultimate nature of reality.

### The Art of Life: Body, Emotion and the Making of Consciousness

By Antonio Damasio

In an excerpt from his book, *The Feeling of What Happens*, the noted neurologist traces the emergence of self-awareness from its biological foundations in the brain.

## Special Series

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By Kevin Sharpe

In the fifth of a series of articles from his upcoming book, Kevin Sharpe explores the scientific underpinning of John Templeton's *Laws of Life*. Part V—The Moving Mirror: Confirming our Self-Image

## News Feature

### Disturbing the Universe: Freeman Dyson Wins the 2000 Templeton Prize for Religion

Physicist and futurist Freeman Dyson wins the Templeton Prize for Progress in Religion—a brief portrait of the winner and his work.

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## Features

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#### Wired for the Ultimate Reality: The Neuropsychology of Religious Experience

By Andrew Newberg and Eugene d'Aquili

Examining the biological mechanisms underlying religious and spiritual experience.

#### Mind and Metaphor: Archaeology and the Evolution of Mind An Interview with Steve Mithen

By Kate Prendergast

The eminent archaeologist delves deep into the pre-history of human consciousness, showing how that history has shaped the modern mind.

#### Daniel Dennett's Darwinian Mind An Interview with a 'Dangerous' Man

By Chris Floyd

The outspoken philosopher of science distills his rigorous conceptions of consciousness, and aims withering fire at the dialogue between science and religion.

#### Mind at Work: The Computational Consciousness An Interview with Steven Pinker

By Chris Floyd

The best-selling psychologist explains the computational theory of consciousness, and its implications for science, religion, ethics, and culture.

#### Darwin on the Brain: Reductionism and Religious Belief By Michael Ruse

Can Darwinism—long feared by believers for its ruthless materialism—actually be turned to theological account? Philosopher Michael Ruse investigates, and finds some surprising possibilities.

#### Publisher's Muse: Spirituality & Science—The Future By Kevin Sharpe

A look at what lies ahead for the science-religion dialogue as it absorbs the encounter with non-western thought, growing secularization, and our increasingly individualized search for spirituality.

#### Pursuing the Ingenious: Re-Evaluating the History of the Scientific Revolution

An Interview with Lisa Jardine

By Kate Prendergast

The historian of science debunks some of the myths surrounding the great leap forward of Western science in the 17th century.

#### Pushing the Process: Science, Religion and Society An Interview with Ann Pederson

By Mary Lacombe

The ethicist and theologian tells of her hopes to help push the science-religion dialogue into the "wider domain of culture."

## Regular Departments

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# Daniel Dennett's Darwinian Mind:

## An Interview with a 'Dangerous' Man

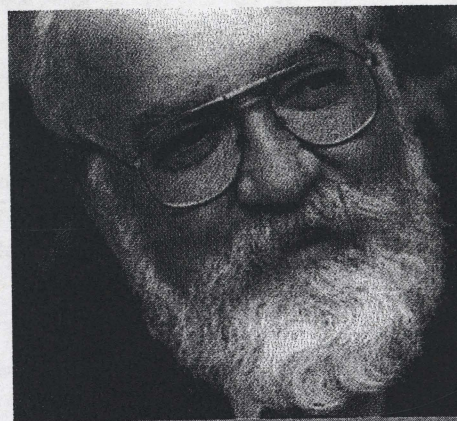
By Chris Floyd

**I**n matters of the mind—the exploration of consciousness, its correlation with the body, its evolutionary foundations, and the possibilities of its creation through computer technology—few voices today speak as boldly as that of philosopher Daniel Dennett. His best-selling works—among them *Consciousness Explained* and *Darwin's Dangerous Idea*—have provoked fierce debates with their rigorous arguments, eloquent polemic and witty, no-holds-barred approach to intellectual combat. He is often ranked alongside Richard Dawkins as one of the most powerful—and, in some circles, feared—proponents of thorough-going Darwinism.

Dennett has famously called Darwinism a “universal acid,” cutting through every aspect of science, culture, religion, art and human thought. “The question is,” he writes in *Darwin's Dangerous Idea*, “what does it leave behind? I have tried to show that once it passes through everything, we are left with stronger, sounder versions of our most important ideas. Some of the traditional details perish, and some of these are losses to be regretted, but...what remains is more than enough to build on.”

Consciousness has arisen from the unwilling, unordained algorithmic processes of natural selection, says Dennett, whose work delivers a strong, extensive attack on the “argument from design” or the “anthropic principle.” But a world without a Creator or an “Ultimate Meaning” is not a world without creation or meaning, he insists. When viewed through the solvent of Darwinism, he writes, “the ‘miracles’ of life and consciousness turn out to be even better than we imagined back when we were sure they were inexplicable.”

Dennett's prominence does not rest solely on his high public profile in the scientific controversies of our day; it is also based on a large body of academic work dealing with various aspects of the mind, stretching back almost 40 years. Dennett has long been associated with Tufts University, where he is now Distinguished Arts and Sciences Professor and director of the Center for Cognitive Studies. Boston-born, Oxford-educated, he now divides his time between North Andover, Massachusetts, and his farm



in Maine, where he grows hay and blueberries, and makes cider wine.

In this exclusive interview with *Science & Spirit*, Dennett talks about his ideas on consciousness, evolution, free will, and the “slowly eroding domain” of religion.

**Science & Spirit:** Can you give us an overview of your ideas on consciousness? What is it? Where does it come from? Where might it be going?

**Dennett:** The problem I have answering your question is that my views on consciousness are initially very counterintuitive, and hence all too easy to misinterpret, so any short summary is bound to be misleading. Those whose curiosity is piqued by what I say here are beseeched to consult the long version *carefully*. Aside from my books, there are dozens of articles available free on my website, at [www.ase.tufts.edu/cogstud](http://www.ase.tufts.edu/cogstud).

With that caveat behind us (and convinced that in spite of it, some people will leap on what I say here and confidently ride off with a caricature), I claim that consciousness is not some *extra* glow or aura or “quale” *caused* by the activities made possible by the functional organization of the mature cortex; consciousness *is* those various activities. One is conscious of those contents whose representations briefly monopolize certain cortical resources, in competition with many other representations. The losers—lacking “political clout” in this competition—quickly fade leaving few if any traces, *and that's the only difference between being a conscious content and being an unconscious content*.

There is no separate medium in the brain, where a content can “appear” and thus be guaranteed a shot at consciousness. Consciousness is not like television—it is like fame. One's “access” to these representations is not a matter of perceiving them with some further inner sensory apparatus; one's access is simply a matter of their being influential when they are. So consciousness is *fame in the*



*brain*, or *cerebral celebrity*. That entails, of course, that those who claim they can imagine a being that has all these competitive activities, all the functional benefits and incidental features of such activities, in the cortex *but is not conscious* are simply mistaken. They can no more imagine this coherently than they can imagine a being that has all the metabolic, reproductive, and self-regulatory powers of a living thing but is not alive.

There is no privileged center, no soul, no place where it all comes together—aside from the brain itself. Actually, Aristotle's concept of a soul is not bad—the “vegetative soul” of a plant is not a *thing* somewhere in the plant; it is simply its homeostatic organization, the proper functioning of its various systems, maintaining the plant's life. A conscious human soul is the same sort of phenomenon, not a *thing*, but a *way* of being organized and maintaining that organization. Parts of that organization are more persistent, and play more salient (and hence reportable) roles than others, but the boundaries between them—like the threshold of human fame—are far from sharp.

**S&S:** What are the implications of all this for the notion of free will and moral choice?

**Dennett:** The implications of all this for the notion of free will are many. I have come to realize over the years that the hidden agenda for most people concerned about consciousness and the brain (and evolution, and artificial intelligence) is a worry that unless there is a bit of us that is somehow different, and mysteriously insulated from the material world, we can't have free will—and then life will have no meaning.

That is an understandable mistake. My 1984 book, *Elbow Room: the Varieties of Free Will Worth Wanting*, set out to expose this mistake in all its forms and show how what really matters in free will is handsomely preserved in my vision of how the brain works. I am returning to this subject in my next book, with a more detailed theory that takes advantage of the tremendous advances of outlook in the last 15 years.

**S&S:** What then of religion, or, more specifically, of the *relationship* between religion and science? Stephen Jay Gould speaks of “Non-Overlapping Magisteria,” where the two realms of knowledge—or inquiry—stay within their own spheres, operating with mutual respect but maintaining a strict policy of non-interference. Is this possible, in your views? Is it even desirable?

**Dennett:** The problem with any proposed détente in which science and religion are ceded separate bailiwicks or “magisteria” is that, as some wag has put it,

this amounts to rendering unto Caesar that which is Caesar's and unto God that which Caesar says God can have. The most recent attempt, by Gould, has not found much favor among the religious precisely because he proposes to leave them so little. Of course, I'm certainly not suggesting that he should have left them *more*.

There are no *factual* assertions that religion can reasonably claim as its own, off limits to science. Many who readily grant this have not considered its implications. It means, for instance, that there are no factual assertions about the origin of the universe or its future trajectory, or about historical events (floods, the parting of seas, burning bushes, etc.), about the goal or purpose of life, or about the existence of an afterlife and so on, that are off limits to science. After all, assertions about the purpose or function of organs, the lack of purpose or function of, say, pebbles or galaxies, and assertions about the physical impossibility of psychokinesis, clairvoyance, poltergeists,

trance channeling, etc. are all within the purview of science; so are the parallel assertions that strike closer to the traditionally exempt dogmas of long-established religions. You can't consistently accept that expert scientific testimony can convict a charlatan of faking miracle cures and then deny that the same testimony counts just as conclusively—“beyond a reasonable doubt”—against any factual claims of violations of physical law to be found in the Bible or other religious texts or traditions.

*“Religious people will seldom acknowledge in public that their God has been reduced to something like a figurehead, a mere constitutional monarch, even while their practices and decisions presuppose that this is so.”*

What does that leave for religion to talk about? Moral injunctions and declarations of love (and hate, unfortunately), and other ceremonial speech acts. The moral codes of all the major religions are a treasury of ethical wisdom, agreeing on core precepts, and disagreeing on others that are intuitively less compelling, both to those who honor them and those who don't. The very fact that we agree that there are moral limits that trump *any* claim of religious freedom—we wouldn't accept a religion that engaged in human sacrifice or slavery, for instance—shows that we do *not* cede to religion, to *any* religion, the final authority on moral injunctions.

Centuries of ethical research and reflection, by philosophers, political theorists, economists, and other secular thinkers have not yet achieved a consensus on any Grand Unified Theory of ethics, but there is a broad, stable consensus on how to conduct such an inquiry, how to resolve ethical quandaries, and how to deal with