stages. "Engaging non-dancers is a major part of what we do here in the Dance Program," notes dance program assistant Joshua Legg. "It's about expanding perceptions. We're mindful that some of these students will have an opportunity to be board members of foundations that might be in charge of financing arts in our society, or perhaps work with government institutions that determine arts policy."

"When you think of dance, you don't automatically think of Harvard," says Kate Ahlborn. "But that there is a program in place, with performance opportunities and now credit courses, is something people should know—that, in and of itself, is an accomplishment. Our beautiful new dance center not only created a state-of-the-art facility to enjoy, but a sense of dance's own place to grow on campus. We have a space to exist."

Boston dance critic Debra Cash earned a master's degree in design studies from the Graduate School of Design in 1995. A former scholar-in-residence at Jacob's Pillow, she teaches dance history at Emerson College.

Twin Passions

Two scientists explore science and religion.
by SARAH COAKLEY

BOTH THESE elegant little books on science and religion are by eminent Harvard professors *emeriti*—much-revered researchers, writers, and educators. Both authors hope their monographs may stimulate some less tired thinking about the disputed relationship between science and religion than has recently been the case in the United States. More heat than light has indeed been produced in the political debates about the teaching of secular evolutionary theory or "Intelligent Design" in schools; or in the sensationalist press discussions of the assaults of Richard Dawkins and Daniel C. Dennett on religious belief; or, even closer to home, in the seemingly ill-fated attempt to insert a requirement on "reason and faith" into the successor to the Harvard College "Core" curriculum. But both Owen Gingerich and E.O. Wilson believe, in their different ways, that religion and science need not be at such logger-heads—indeed, that they can, and should, harmoniously cooperate.

E. O. Wilson, Pellegrino University Professor emeritus, *The Creation: A Meeting of Science and Religion* (W. W. Norton, $21.95); and Owen Gingerich, professor of astronomy and of the history of science emeritus, *God's Universe* (Belknap/Harvard, $16.95).

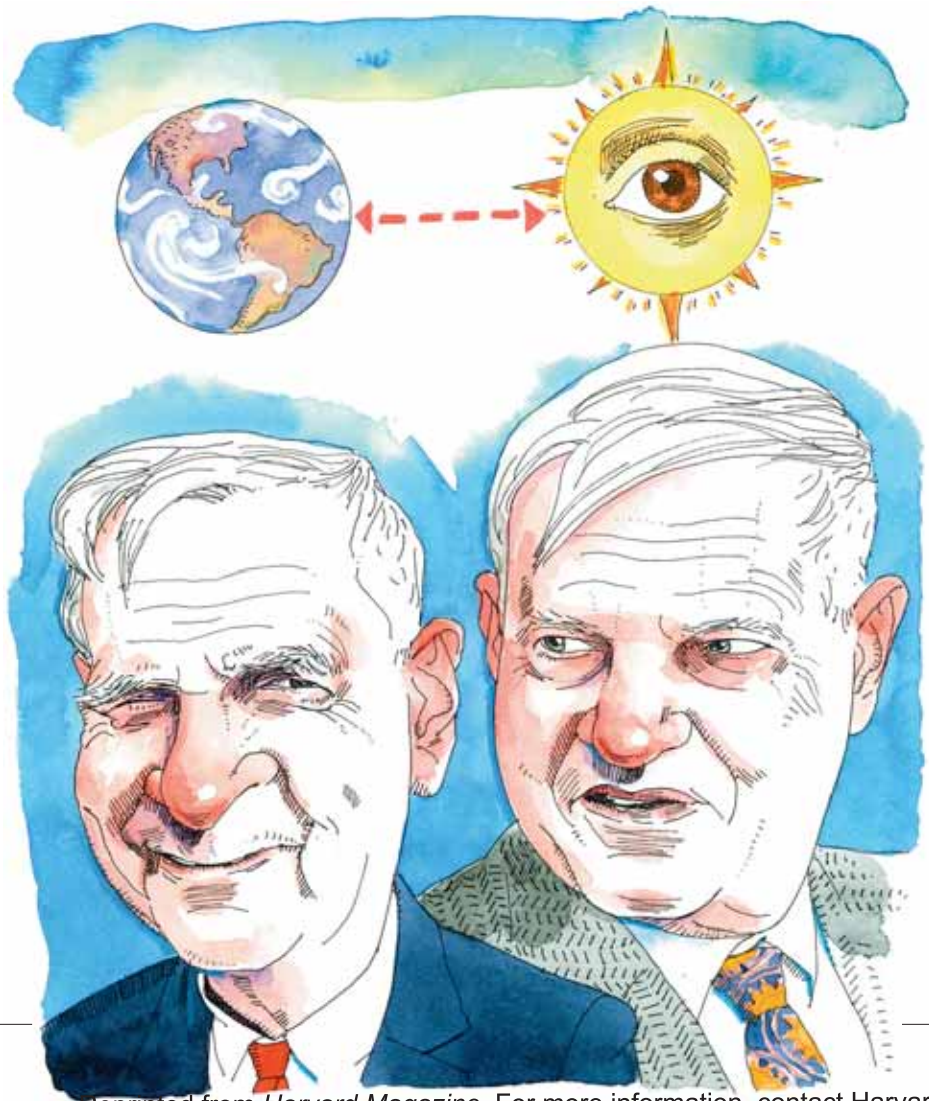

Illustration of E.O. Wilson and Owen Gingerich by Joseph Ciardiello

Wilson, the sociobiologist, a Baptist in his youth but long a religious agnostic, fashions his book on creation and the ecological crisis into an imaginary dialogue with a fundamentalist pastor. His stated hope is to harness conservative Christianity into a shared passion with science to save the earth from impending ecological disaster. Gingerich, the astronomer and historian of science, who is also a firm Mennonite believer, has stronger intellectual ambitions, ostensibly: not merely to declare a truce between science and religion for the sake of an urgent practical end, but to demonstrate the intrinsic compatibility of the two realms. God, for Gingerich, is alive and well and sustaining the cosmos purposively from Big Bang to contemporary moments of personalized salvation.

Both books have the great merit of being attractively and accessibly written: no obfuscating jargon or confusing theoretical complexities will distress the scientific novice. Indeed Wilson devotes an entire excursus to the damage he sees

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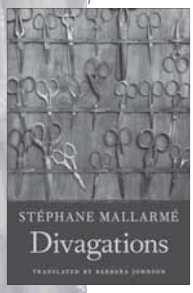

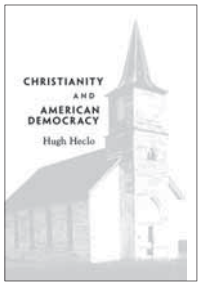

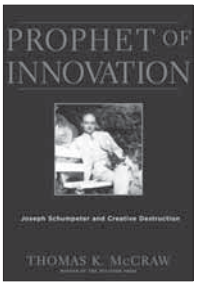

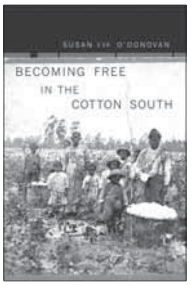

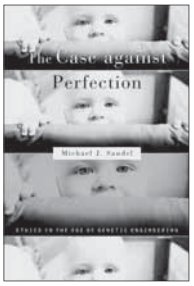

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done to budding potential scientists by what he calls "math phobia": he insists that "Mathematics is just a language," and that any motivated person can learn it by practice. But readers who may easily be lulled by the clarity and wit of each man's prose should be on their guard for some interesting rhetorical elisions and lacunae in the arguments. Let me treat each book briefly in turn.

THE SUBTITLE of Wilson's book is "a meeting of science and religion," but this may be a slight misnomer. The conversation he imagines with a fundamentalist pastor is not one in which he seeks to bring the realm of secular science and fundamentalism into any sort of metaphysical convergence, let alone agreement ("I may be wrong, you may be wrong. We both may be partly right"). Rather, he

Any reader—Christian or otherwise—who is left unmoved must be ostrich-like indeed.

presumes that some form of fundamental "ethics" must become an urgent point of meeting, because "half the species of plants and animals on Earth could be either gone or at least fated for early extinction by the end of the century" unless immediate preventive action is taken by concerted human will. Much of the rest of the book is devoted to a vivid and frightening account of how and why this threat now looms; and any reader—Christian or otherwise—who is left unmoved must be ostrich-like indeed. Wilson weaves into his deft analysis of the now-critical state of the "most critical biodiversity hotspots" on earth many delightful asides about particular species, whether dominant, defunct, or threatened; and we are not surprised to find the master of the ant-world lingering, autobiographically, for a whole chapter on the modern odysseys of the fire ant.

Wilson tells us that his cautionary tale is straightforwardly the story from "science," and it does indeed reflect the latest predictions that biologists and ecologists can offer us, albeit with much room for

remaining uncertainty. However, it is fascinating how *religious* Wilson's rhetoric is throughout. Humans strayed from "Eden," he says, when "Nature" (at one point actually identified with "God") was originally threatened by "civilization"; the primal capacity for "wonder" has been eroded by human selfishness and blindness; and our "souls" and "spirits" need to rediscover "Nature's" wisdom and so seek "redemption." If this is not actually the altar-call of Wilson's youth, it at least has the overtones of a latter-day Rousseau: without the return to "Nature," it insists, we are morally and spiritually adrift. In some sense we have to recover a more ancient purity in order to go forward.

Yet this is where two sorts of reader—the Christian theologian and the secular scientist—may alike be left somewhat puzzled. Is Wilson actually espousing a new *religion* of "Nature," in which, contrary to the past lessons of Darwinian selection, we must now aim to preserve every existing species? Or is he urging on us a new and unprecedented kind of *morality*, a manifestation of universal "cooperation"—well beyond "kin" and even "group" dynamics—that must now be achieved to save the earth? Either way, he seems to acknowledge, albeit between the lines, that only religious wonder, only "spiritual" rhetoric, could effectively mobilize such a novel human goal.

Owen gingerich's William Belden Noble Lectures, originally delivered in November 2005 at the Memorial Church, aim much more explicitly than Wilson to demonstrate the compatibility of science and Christian faith. Three basic arguments are wielded in support of his claim, stirred into an alluring potpourri of autobiographical digressions and tales from the history of early modern science. First, there is the Aristotelian distinction between "efficient" and "final" causes: we can allocate noncombative roles for science and religion if we see the former as dealing with efficient causes (ordinary scientific explanations of finite natural phenomena, such as how steam is produced when water is boiled in a kettle) and the latter as dealing with final ones (involving teleology and purpose, such as my intention to make tea, or, more cosmically, God's providential intentions for the universe). Second, however, Gingerich wields the argument from "fine tuning":

OPEN BOOK

An Earlier Bid for Mastery

New genetic knowledge may let us manipulate our nature: beef up our muscles, brush up our memory, make designer children. What's wrong with that? Bass professor of government Michael J. Sandel proposes an answer in *The Case against Perfection: Ethics in the Age of Genetic Engineering* (Harvard University Press, $18.95). Along the way, he recalls the eugenics movement (and contributions to it by Harvardians Charles Davenport, A.B. 1889, Ph.D. '92; Theodore Roosevelt, A.B. 1880, LL.D. '02; and Oliver Wendell Holmes Jr., A.B. 1861, LL.B. '66, LL.D. '95). In 1910, biologist and eugenic crusader Davenport opened the Eugenic Records Office in Cold Spring Harbor, New York.

In Davenport's words, the project was to catalog "the great strains of human protoplasm that are coursing through the country." Davenport hoped such data would provide the basis for eugenic efforts to prevent reproduction of the genetically unfit.

…Theodore Roosevelt wrote Davenport: "Some day, we will realize that the prime duty, the inescapable duty, of the good citizen of the right type, is to leave his or her blood behind him in the world; and that we have no business to permit the perpetuation of citizens of the wrong type." Margaret Sanger, pioneering feminist and advocate of birth control, also embraced eugenics: "More children from the fit, less from the unfit—that is the chief issue of birth control."

…By the 1920s, eugenics courses were offered at 350 of the nation's colleges and universities, alerting privileged young Americans to their reproductive duty.

REPRINTED FROM *WAR AGAINST THE WEAK* BY EDWIN BLACK

Carrie Buck, ordered to undergo sterilization

But the eugenics movement also had a harsher face. Eugenics advocates lobbied for legislation to prevent those with undesirable genes from reproducing, and in 1907 Indiana adopted the first law providing for the forced sterilization of mental patients, prisoners, and paupers. Twenty-nine states ultimately adopted forced-sterilization laws, and more than 60,000 genetically "deficient" Americans were sterilized. In 1927 the U.S. Supreme Court upheld the constitutionality of sterilization laws in the notorious case of *Buck v. Bell*. The case involved Carrie Buck, a seventeen-year-old unwed mother who had been committed to a Virginia home for the feeble-minded and ordered to undergo sterilization. Justice Oliver Wendell Holmes wrote the opinion for the eight-to-one majority upholding the sterilization law: "We have seen more than once that the public welfare may call upon the best citizens for their lives. It would be strange if it could not call upon those who already sap the strength of the State for these lesser sacrifices…. The principle that sustains compulsory vaccination is broad enough to cover cutting the Fallopian tubes. It is better for all the world, if instead of waiting to execute degenerate offspring for crime, or to let them starve for their imbecility, society can prevent those who are manifestly unfit from continuing their kind." Referring to the fact that Carrie Buck's mother and, allegedly, her daughter were also found to be mentally deficient, Holmes concluded: "Three generations of imbeciles are enough."

the world as we know it has displayed extraordinarily intricate adjustments to enable life, which seem almost incomprehensible without a purposive teleology. This suggests a divine designer, but not "Intelligent Design" as set up to *rival* or displace the explanations of Darwinian evolution. Whereas the highly politicized Intelligent Design movement seeks to debunk Darwin by finding particular moments in the evolutionary tale that it claims could have been effected only by a miraculous divine intervention, Gingerich insists that Darwin's basic hypotheses stand, yet are fully compatible with a generic divine purpose. Third, to argue that the universe is "pointless," Gingerich says, is no more rational than to believe in a purposive creator; metaphysical atheism is no less dogmatic, in fact arguably more so, than Christian theism.

By the end of his book, Gingerich is declaring that this is a "dappled world, where chance and randomness join with choice and inexorable law." The trouble is that he goes only so far as to show the *possibility* of such "joining": "[W]e cannot conclude," he avers finally, "either that God is absent or that God does not act in the universe." In other words, the metaphysical wings of the atheists may have been trimmed a little, and Christians have been shown to be flouting no actual epistemic duties in holding scientific and theological beliefs alongside one another. But the all-important issue of whether the latter are *justified* in their theological beliefs, and whether the deliverances of science might in any regard provide convincing evidential support for those beliefs, is left curiously dangling. For the most part, Gingerich suggests that it would be wiser to keep the two realms in a strictly "no-contest" relationship; at other times, he can insist, "We can hope that our increased scientific understanding will eventually reveal more to us about God the Creator and Sustainer of the cosmos."

For further such scientific evidences from Gingerich we must presumably now wait; but in response to Wilson's call for ecological salvation we clearly cannot afford to wait. In this sense, even Gingerich's sophisticated "no-contest" position between theology and science might dangerously collude in distracting us from the current ecological challenge. Yet ironically, if Wilson is right, only a profoundly "spiritual" affectivity of the sort that Gingerich offers can motivate us to respond.

Sarah Coakley is Mallinckrodt professor of divinity at Harvard Divinity School and co-principal investigator (with Martin Nowak, professor of mathematics and of biology and director of the Program for Evolutionary Dynamics) of a three-year interdisciplinary research program, "Evolution and the Theology of Cooperation," funded by the Templeton Foundation.

F O L I O

Joculor, Ergo Sum

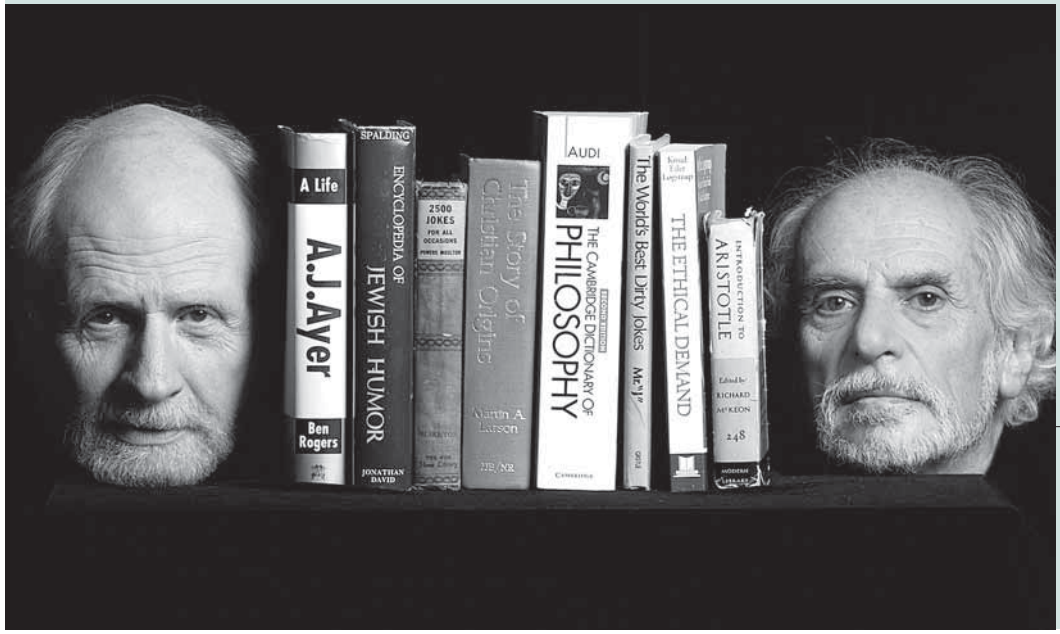
From their freshman year in college they were inseparable pals, once called "the Mutt and Jeff of post-Kantian idealism." That epithet somehow failed to catch on, even though both were philosophy concentrators and Tom Cathcart '61 and Daniel Klein '61 do stand six-foot-five and five-foot-eight, respectively. Both studied with Paul Tillich and Willard van Orman Quine, and took a junior tutorial with classmate and current U.S. Supreme Court Justice David Souter. Together they bucked the fashion of Harvard's philosophy department, which considered existentialism softheaded, and got onto a jag of existential ethics for a time. "We were going around being obnoxious about what was an 'authentic' life versus an 'inauthentic' life," says Klein.

Nearly half a century later, those epistemological theories, truth tables, and falsifiable propositions have borne fruit in Cathcart and Klein's new book, *Plato and a Platypus Walk into a Bar...: Understanding Philosophy through Jokes* (Abrams). Consider it Philosophy 101 as taught by Jackie Mason. A philosophical fallacy like *post hoc ergo propter hoc*—assigning a causal role to something simply because it preceded something else—becomes more engaging when illustrated:

A New York boy is being led through the swamps of Louisiana by his cousin. "Is it true that an alligator won't attack you if you carry a flashlight?" asks the city boy.

His cousin replies, "Depends on how fast you carry the flashlight."

Philosophy and humor "do spring from a common enterprise: taking a com-



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Socratic monologues? Coauthors Tom Cathcart (left) and Daniel Klein hold a skull session, flanking books that range from Ayer to Aristotle, with some Jewish humor and dirty jokes in between.