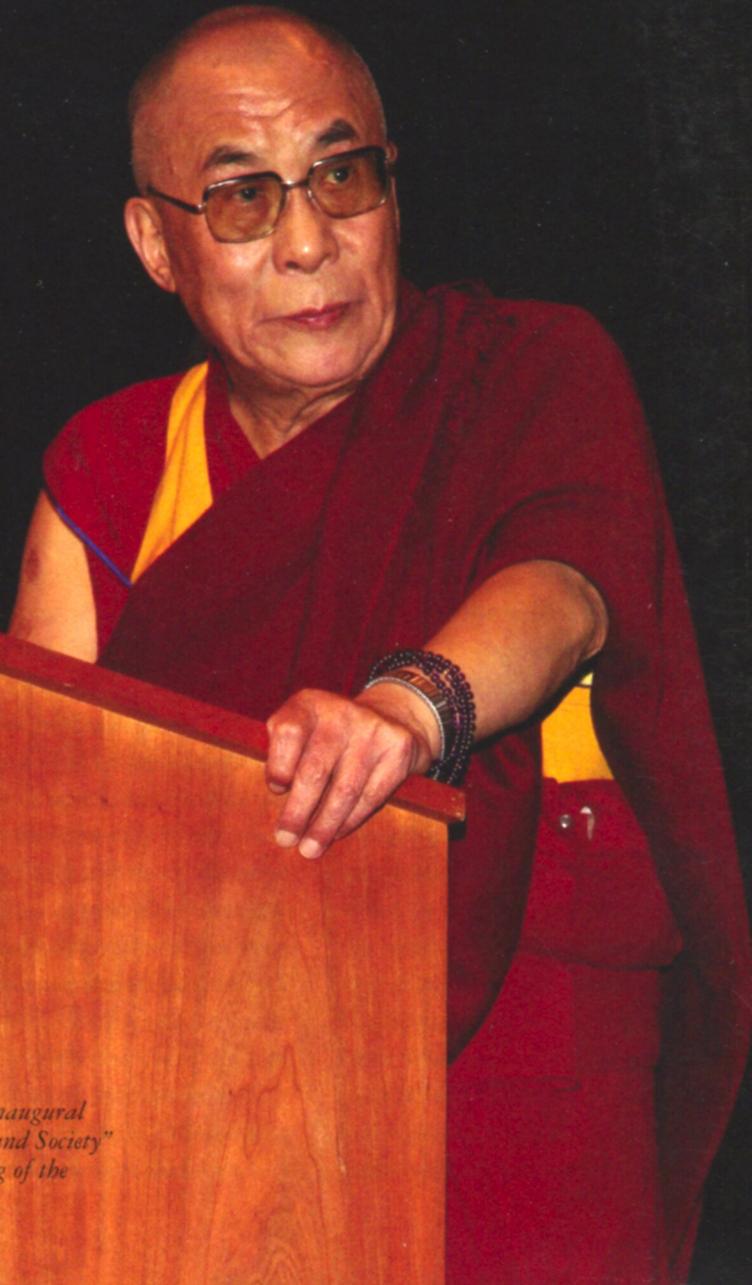


# worlds apart

A skeptical **GEORGE JOHNSON** takes in the Dalai Lama's speech at the annual meeting of the Society for Neuroscience.



DALAI LAMA + SCIENCE

*The Dalai Lama delivering the inaugural "Dialogues between Neuroscience and Society" lecture at the 35th annual meeting of the Society for Neuroscience.*

**Doughball Divination:** This method is practiced mainly in the monasteries or by individual lamas when an important decision needs to be made, such as in the search for the reincarnation of very high lamas. A number of possible answers to the enquiry, such as the names of likely candidates for a reincarnation, are written on slips of paper. These are then encased in equal sized balls of dough. Great care is taken to weigh the doughballs to ensure that they are exactly the same size. The doughballs are then placed in a bowl, which is carefully sealed and placed in front of a sacred object, such as the Jowo statue in the main temple in Lhasa, images of dharma protectors or the funerary monuments of great lamas, requesting their inspiration in deciding the outcome. For a period of three days monks remain in the temple reciting prayers day and night. During that time no one is allowed to touch the bowl. On the fourth day, before all those present the cover of the bowl is removed. A prominent lama rolls the doughballs round in the bowl before the sacred object until one of them falls out. That is the ball containing the answer.

—From the website of the Government of Tibet in Exile, [www.tibet.com](http://www.tibet.com)

**AS A NON-BUDDHIST**, non-Christian, nontheist (mono- or poly-), I would say that the doughball falls out of the bowl at random, like the yarrow sticks cast upon a table for a reading of the *I Ching*. Air currents, gravity, muscular twitchings, the physical imperfections of the balls—all interact to produce an outcome whose meaning lies only in the mind of the beholder. Most of what happens in the universe is not about us, which doesn't make it any less wonderful to be alive.

Most people in the world, I've learned, don't feel that way, and I am thinking of them as I enter the vast enclosed spaces of the new Washington Convention Center in Washington, D.C., where His Holiness the Fourteenth Dalai Lama will address an audience of brain researchers on meditation and the connections between Buddhism and science. The presence of his name on the agenda of the thirty-fifth annual meeting of the Society for Neuroscience has already incited controversy, with hundreds of people insisting in a petition that the invitation was in "poor scientific taste" and should be withdrawn. (I count myself among the skeptics. A review I'd written last September for *The New York Times* on the Dalai Lama's new book on science and spirituality had caused a quiet uproar among Buddhists of all stripes.) I see now that the protests were but a whisper, and that any attempt to boycott the session has spectacularly failed.

Stepping off the escalator that leads toward the second-floor auditorium where His Holiness —H.H., as some associates affectionately call him— will speak, I instinctively try to estimate the crowd. Dozens, hundreds—I give up at thousands—standing or sitting in a frozen multithreaded queue that winds through the

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corridors. Eventually I work my way to the front, where a phalanx of metal detectors stands ready to receive the throng. A young woman near the beginning of the line tells me she has been waiting there since noon. It is now 2:15 p.m. The Dalai Lama's talk is not scheduled to begin for another two hours.

I resolve to watch instead with the rest of the reporters on closed-circuit TV, knowing that as a tradeoff I'll get to see the Dalai Lama in person when he joins us afterward for a short press conference. In the meantime I find myself lapsing into my more familiar role as a reporter and commentator on science. Descending into the bowels of the convention center, I head for the Saturday afternoon poster session, in which hundreds of the latest nanodevelopments on brain research are concisely displayed on poster boards. As always, the sheer number of these is overwhelming, starting with A-1 (*Roles of IL-6 and LIF in the Amplification of the Numbers of Neural Stem/Progenitors in the Subventricular Zone after Perinatal Hypoxia-Ischemia*) through D-51 (*Initiation and Maintenance of Dystonic Attacks in the Tottering Mouse Mutant Are Mediated by Separate Mechanisms*) all the way on to WW-83.

The titles may be opaque, but you can tell what is hot from the density of the spectators. While some corridors are almost empty, the one separating rows E and F

By 3 p.m., when I return upstairs, the escalators have been turned off for safety reasons, for the crowd now flows down the steps to the lobby below. The auditorium will hold 7,500, and another few thousand will be packed into three overflow ballrooms to watch the telecast. I head for the press conference room—more metal detectors—where a friend has saved me one of the last vacant seats. It is still an hour and fifteen minutes until show time.

**FROM MY OFFICE WINDOWS** back home in Santa Fe, I can look out across the valley at old adobe houses where prayer flags fly, some as faded and tattered as the multi-colored pennants strung up at businesses for grand openings. These are the homes not of exiled Tibetans (though a small number do live in town) but rather of the mostly white upscale Westerners Donald Lopez wrote about in *Prisoners of Shangri-La*—Tibetophiles who revere a lost mountain paradise that exists mostly in their imagination, who display "Free Tibet" stickers on the bumpers of their cars without really knowing much about the culture. Theirs is the Buddhism of the Dharma bums, not the ritualistic, mystical version that is actually practiced by devout Tibetans. A large part of the Dalai Lama's mass appeal has come from blurring such distinctions, giving Americans what they want.

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has become host to a pedestrian traffic jam as visitors flock to read about neuroplasticity—how the brain physically changes in response to experience. This was the subject of last year's Mind and Life conference, a regularly scheduled event at which researchers gather to talk about science and Buddhism with the Dalai Lama [see "This is Your Brain on Buddhism," page 56]. I've written a lot about plasticity—the basis of memory—and the lingo is still familiar: long-term potentiation, CA1 synapses, theta rhythms, NMDA receptors, dendritic spine formation . . . so many details about a phenomenon that at its root remains a mystery. There are no posters on consciousness, as I later confirm with an electronic search, and nothing, of course, on doughball divination.

I saw this firsthand in 1992, when he came to Santa Fe to speak at a high school gymnasium, so I had an idea of what to expect in Washington: the smile, the laugh, the childlike delight to be standing before so many well-wishers; the seeming lack of pretension and self-consciousness that keeps listeners from noticing or even caring how little he actually says. His unadorned presence is the message, and the first thing he does onstage in Washington is to remind us of that with a long, loud, unrestrained coughing fit. An assistant rushes forth with a bottle of water, and H.H. apologizes for his nervousness and his broken English. The audience already loves him, and he proceeds, sometimes in English, sometimes in Tibetan (a translator is standing by) to deliver what is basically a summarization of the

book I had reviewed, *The Universe in a Single Atom: The Convergence of Science and Spirituality*: How as a boy growing up at Potala Palace he would gaze at the stars and wonder what they were; how he looked through a telescope at the rabbit in the moon, and was excited to find sunlit craters instead; how he realized as his studies advanced that some of the Buddhist teachings would have to be superseded by findings in physics and cosmology. "If the authors were to write today, they would be writing differently," he tells us. In Buddhism, he assures the audience, experiential knowledge takes precedence over what is in ancient texts and, as in science, the universe is seen as a skein of cause-and-effect.

It is refreshing to hear such words from a religious leader. His enthusiasm for science—especially neuroscience—comes through strongly as he laments how the world spends billions of dollars exploring outer space when there is so much uncharted territory inside the head. The relationship between mind and brain and the nature of consciousness are "mysterious issues," he concedes, but he holds out hope that scientists will someday reach an understanding and learn how to correct the emotional imbalances that cause so much suffering. He haltingly offers a plea for scientists to remember their ethical responsibilities, to practice a science based on compassion, and he ends as abruptly as he started—"So that is all. Thank you"—to sustained applause.

"They liked it," Carol Barnes, the president of the society, assures him as she comes to the podium, and he humbly motions the crowd to please sit down.

**IN THE END SOME FOURTEEN THOUSAND** scientists watched the lecture and the short question-and-answer session that followed. Many of them, I'd guess, left the convention center wondering what all the fuss was about. Seeing the Dalai Lama was fun, but he had said nothing surprising or controversial. Some may have wondered why they had waited in line for hours to hear someone whose position of authority derives from a belief in reincarnation. One can question the propriety of his appearance at the conference and the ambiguous message it sends without, as some of his supporters have implied, being an agent of a Communist Chinese plot.

Buddhist acquaintances have told me that the Dalai Lama himself has considered whether reincarnation is among those outmoded teachings that are due for revi-

sion. But that would still leave a core of unverifiable belief that is outside the domain of science. In *The Universe in a Single Atom*, the Dalai Lama writes that it is difficult to remain true to Buddhism and believe, as the modern theory of evolution holds, that the development of life is guided entirely by blind physical forces, or that consciousness arises solely from biochemical reactions. There has to be something extra—in the book he calls it "hidden causality"—to ensure that sentient, compassionate, Buddha-like beings will emerge, like the right doughballs falling from the bowl. At the press conference, a reporter from the British science journal *Nature* asks about this conflict. H.H. and his translator whisper and whisper, composing a reply. "The question," he finally says, "is where karma comes into the chain of causation."

This is one of those junctures where science and religion—any religion—inevitably part ways. Karma is not something that can be measured on a meter, and science admits into reality only that which can be tested, verified—phenomena upon which any intelligent person, of whatever religious persuasion, can ultimately agree. You can still choose to believe in something beyond the material world, but you cannot look to science for confirmation. "Hidden causality," subtle as that may sound, has more in common with the supernatural doctrine of Intelligent Design—a point I tried to make in my review.

I've since learned that in the early teachings, Buddhism does not necessarily entail a transcendent guiding intelligence or an ethereal mind separate from the neurological gristle. But however finely you parse it, religion, spirituality—whatever you choose to call it—is rooted in a deep belief in the ineffable, a guiding force or presence forever beyond the reach of the most powerful telescope or particle accelerator.

As His Holiness and his entourage moved on to the next stop on the tour, workers cleared the lecture hall for the week's other showcase presentations: "Cognitive Memory System in Primates: Local Circuits and Global Networks," "Spatial Maps in Hippocampal and Parahippocampal Cortices," "Sensory Discrimination: Neural Codes, Perception, Memory, and Decision Making," "Computations and Adaptive Plasticity in the Auditory System of the Barn Owl."

H.H. was right: there is so much inner space still to be explored. It was time for the scientists to get back to work. ▼