

**by George Johnson**

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**i) Doughball Divination:** This method is practiced mainly in the monasteries or by individual lamas when an important decisions 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 dough balls 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, non-theist (mono- or poly-), I would say that the doughball falls out of the bowl at random, as do the yarrow sticks cast across a table for a reading of the *I Ching*. Air currents, gravity, muscular twitchings, physical imperfections in the balls -- all interact to produce an outcome whose meaning lies only in the interpretation provided by the mind. 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 Washington, D.C.'s new convention center where His Holiness the Dalai Lama, the 14th reincarnation of the Bodhisattva of Compassion, 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 35th 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petition that the invitation was in "poor scientific taste" and should be withdrawn.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 see now that the protest was but a whisper, and that any attempt to boycott the session has spectacularly failed.

Stepping off the escalator leading toward the second floor auditorium where His Holiness -- HH, for short -- will speak, I instinctively try to estimate the crowd. Dozens, hundreds -- I give up at thousands -- standing or sitting in a frozen multi-threaded queue that winds through the 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 HH in person when he joins us afterwards for a short press conference. Meanwhile I decide to sample what science has learned in the last year about the brain. Descending into the bowels of the convention center, I head for the Saturday afternoon poster session, in which hundreds of the latest nanodevelopments are concisely displayed on poster boards. 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 has become 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 the Dalai Lama's most recent Mind & Life conference, in which researchers come to Dharamsala, India to talk science and Buddhism. 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. It's not the deepest of the brain's secrets. There are no posters on

consciousness, as I later confirm with an electronic search, and nothing of course on doughball divination.

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. Another few thousand will be packed into three overflow ballrooms to watch the telecast. I head for the press conference room -- more metal detectors -- and take one of the last vacant seats. It is still an hour and fifteen minutes until show time.

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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 not the homes of exiled Tibetans (though a small number do live in town) but 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. The Roman Catholicism of Buddhism, some scholars call it. A large part of the Dalai Lama's mass appeal has come from blurring such distinctions, giving Americans what they want.

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 of substance 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 HH 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 his new book *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 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.

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In the end some 14,000 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 and the ambiguous message it sends without, as some of his supporters have implied, being

agents of a Communist Chinese plot.

I've been told by other Buddhists that HH himself has considered whether reincarnation is among those outmoded teachings that are due for revision. 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" -- that ensures sentient, compassionate, Buddha-like beings will emerge, like the right doughballs falling from the bowl. At the press conference, a reporter from *Nature*, the British science journal, asks the Dalai Lama about this conflict. He 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 last fall in a review of the Dalai Lama's book.

I've since been told that in its original, unadulterated form Buddhism does not necessarily entail belief in a transcendent guiding intelligence or an ethereal mind separate from the neurological gristle, that Tibetan Buddhism is, in some people's view, a throwback to the theistic ideas of the West. Maybe that helps account for the vehemence of the response to my book review: emails from some of the Dalai Lama's admirers that were not so different in tone from what I've received in the past from fundamentalist Christians objecting to something I'd said about creationism. An earlier invitation from the Mind & Life Institute, sponsor of the Dharamsala meetings, was curtly withdrawn. A Tibetan reader called me a fanatic.

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