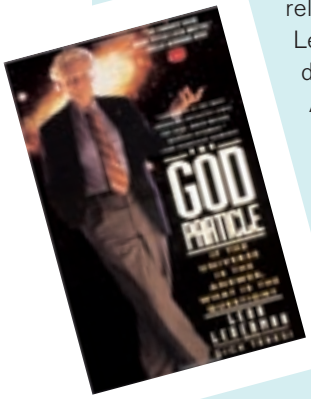
What's in a name? Parsing the 'God particle,' the ultimate metaphor

By Dennis Overbye

We need to talk about the "God particle."

Recently in *The New York Times*, I reported on the attempts by various small armies of physicists to discover an elementary particle central to the modern conception of nature. Technically it's called the Higgs boson, after Peter Higgs, an English physicist who conceived of it in 1964. It is said to be responsible for endowing the other elementary particles in the universe with mass.



In a stroke of either public relations genius or disaster, Leon M. Lederman, the former director of the Fermi National Accelerator Laboratory, or Fermilab, referred to the Higgs as "the God particle" in the book of the same name he published with the science writer Dick Teresi in 1993. To Dr. Lederman, it made metaphorical sense, he explained in the book, because the Higgs mechanism made it possible to simplify the universe, resolving many different seeming forces into one, like tearing down the Tower of Babel. Besides, his publisher complained, nobody had ever heard of the Higgs particle.

In some superficial ways, the Higgs has lived up to its name. Several Nobel Prizes have been awarded for work on the so-called Standard Model, of which the Higgs is the central cog. Billions of dollars are being spent on particle accelerators and experiments to find it, inspect it, and figure out how it really works.

But physicists groan when they hear it referred to as the "God particle" in newspapers and elsewhere (and the temptation to repeat it, given science reporters' desperate need for colorful phrases in an abstract and daunting field, is irresistible). Even when these physicists approve of what you have written about their craft, they grumble that the media are engaging in sensationalism, or worse.

Last week a reader accused me of trying to attract religiously inclined readers by throwing out "God meat" for them.

It was not the first time that I had been accused of using religion to sell science. Or was it using science to sell religion?

Last year, I described the onset five billion years ago of dark energy, the mysterious force that seems to be accelerating the expansion of the cosmos, with the words "as if God had turned on an antigravity machine."

More people than I had expected wrote in wanting to know why I had ruined a perfectly good article by dragging mythical deities into it.

My guide in all of this, of course, the biggest name-dropper in science, is Albert Einstein, who mentioned God often enough that one could imagine he and the "Old One" had a standing date for coffee or tennis. To wit: "The Lord is subtle, but malicious he is not."

Or this quote regarding the pesky randomness of quantum mechanics: "The theory yields much, but it hardly brings us closer to the Old One's secrets. I, in any case, am convinced that He does not play dice."

With Einstein, we always knew where he stood in relation to "God"—it was shorthand for the mystery and rationality of nature, the touchstones of the scientific experience. Cosmic mystery, Einstein said, is the most beautiful experience we can have, "the fundamental emotion that stands at the cradle of true art and true science."

"He who does not know it and can no longer wonder, no longer feel amazement," he continued, "is as good as a snuffed-out candle."

If we didn't already have a name for the object of Einstein's "cosmic religion," we would have to invent one. It's just too bad that the name has been tainted and trivialized by association with the image of a white-bearded Caucasian-looking creature who sits in the clouds attended by harp-strumming angels.

If Einstein were around today, he would likely be scolded every other time he opened his metaphor-laden mouth for giving aid and comfort to the creationists. Indeed, the architects of intelligent design have not been shy about interpreting his aversion to divine dice playing, and a remark wondering if God had any choice in creating the world, as support for an intelligent designer. Einstein didn't mean it that way, of course. He was only using a metaphor to wonder if it was possible to build more than one logically consistent universe. That's a question that still provokes hot debate.

As it happened, Dr. Lederman's book came out about the time that creationism was on the rise in this country, and "my colleagues gave me hell," as he put it in a recent e-mail message.

Neither time nor criticism seems to have dimmed Dr. Lederman's taste for metaphor or sense of humor. Only two weeks ago, he titled an article about particle physics "The God Particle, Et Al." Well, OK, he had a book to sell.

It's not easy to stand up for a moniker as over the top as the one that Dr. Lederman used—one we are likely to hear again and again in the next couple of years as the generation-long hunt for the Higgs particle reaches a climax. But I have to applaud Dr. Lederman's spirit. Historians have suggested that it was a mistake for the antiwar movement of the 1960s to yield the flag—a powerful symbol of patriotism—to the war's supporters, and likewise I think it would be a mistake for scientists to yield such a powerful metaphor to creationists and religious fundamentalists.

The Higgs particle is not God, but as theorized it is a piece of the sublime beauty of nature that had Einstein figuratively on his knees. I can't prove it, but I can't help wondering if Einstein, a man with what the geneticist Barbara McClintock called "a feeling for the organism"—in this case the universe—was aided in his intuition by being able to personify nature in such a familiar and irreverent way.

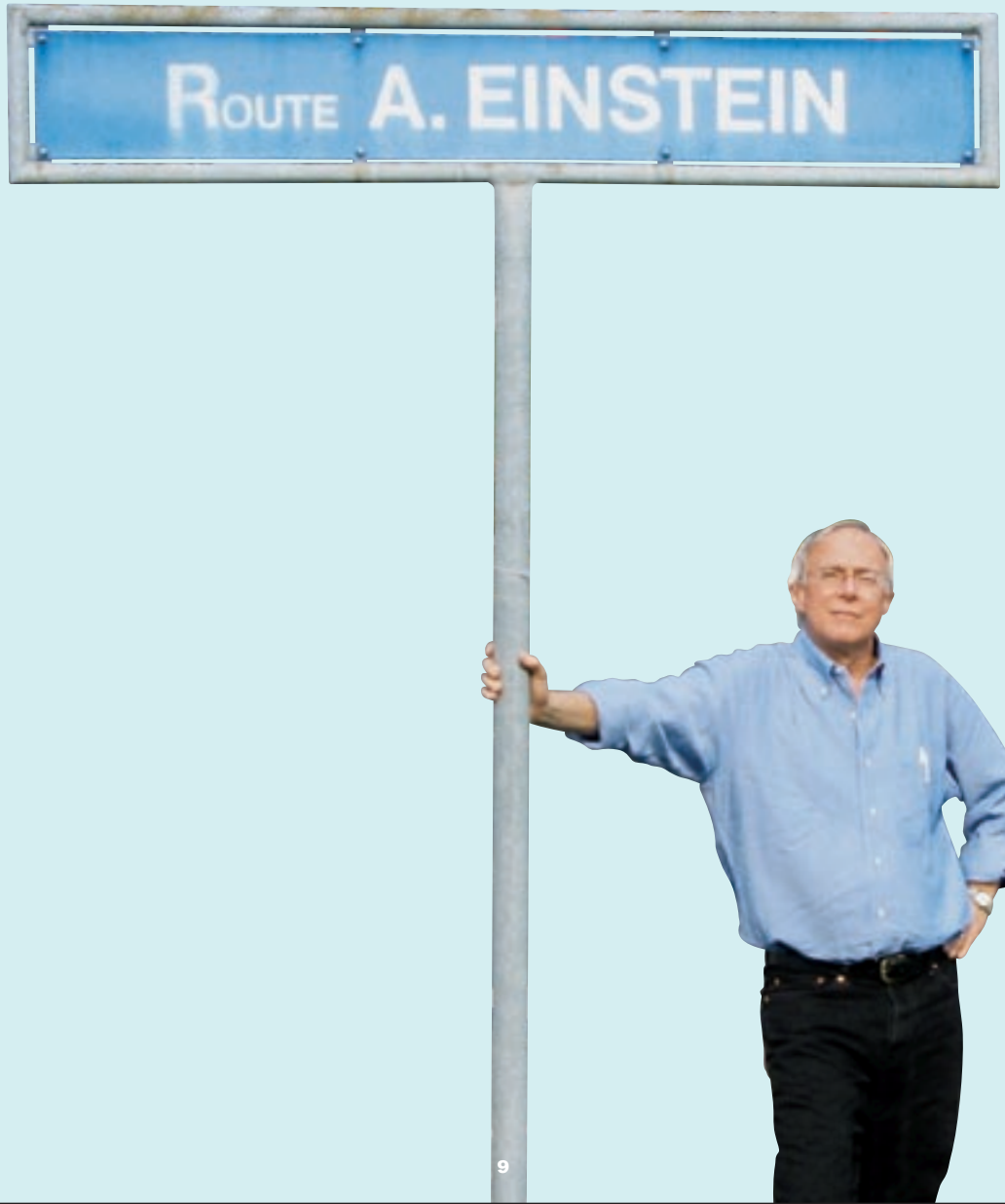
Is there a God who worries about the flight of every sparrow? Einstein said that was a naïve and even abhorrent idea.

Do I believe the universe is a mystery? Absolutely. Is that mystery ultimately explicable? Intellectual empires from Plato to Einstein have been founded on that presumption, bold and optimistic as it is, and I wouldn't advise betting against it.

In the meantime, I wouldn't dream of depriving any future Einstein of his or her rhetorical or metaphorical tools.

Not to mention myself.

Dennis Overbye is a correspondent for The New York Times, *which published this essay on August 7, 2007.*



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