



## Sometimes science must give way to religion

The Higgs boson, and its role in providing a rational explanation for the Universe, is only part of the story, says Daniel Sarewitz.

Visitors to the Angkor temples in Cambodia can find themselves overwhelmed with awe. When I visited the temples last month, I found myself pondering the Higgs boson — and the similarities between religion and science.

The Higgs, of course, has been labelled the ‘god particle’ because it accounts for the existence of mass in the Universe. But the term (coined by physics Nobel laureate Leon Lederman, perhaps to the regret of some of his colleagues) also signals the ambition of science, or at least of certain branches of physics, to probe the origins and meaning of existence itself — which, to some, is the job of religion. Science may seek a theoretically and empirically sound explanation of such origins and religion may not. But this distinction is less clear than it seems.

The wonder invoked by the Angkor temples is not an accident or a modern conceit. It flows, at least in part, from the intention of those who designed the temples. “In each of the Angkor monuments,” the architect Maurice Glaize explained in his exhaustive 1944 guide to the temples, “a preoccupation with symbolic order seeks to create a representation of the universe in reduction ... realising a kind of correctly ordered model”. The overwhelming scale of the temples, their architectural complexity, intricate and evocative ornamentation and natural setting combine to form a powerful sense of mystery and transcendence, of the fertility of the human imagination and ambition in a Universe whose enormity and logic evade comprehension.

Science is supposed to challenge this type of quasi-mystical subjective experience, to provide an antidote to it. The Higgs discovery, elucidating the constituents of existence itself, is even presented as a giant step towards the ultimate cure: a rational explanation for the Universe. That such scientific understanding provides a challenge to religion is an idea commonly heard from defenders of science, especially those in more militant atheist garb. Yet scientists who occupy that ground are often too slow to recognize the irrational bases of their own beliefs, and too quick to draw a line between the scientific and the irrational. Take, for example, how we come to know what science discovers. Most people, including most scientists, can acquire knowledge of the Higgs only through the metaphors and analogies that physicists and science writers use to try to explain phenomena that can only truly be characterized mathematically.

Here’s *The New York Times*: “The Higgs boson is the only manifestation of an invisible force field, a cosmic molasses that permeates space and imbues elementary particles with mass ... Without the Higgs field, as it is known, or something like it, all elementary forms of matter would zoom around at the speed

of light, flowing through our hands like moonlight.” Fair enough. But why “a cosmic molasses” and not, say, a “sea of milk”? The latter is the common translation of an episode in Hindu cosmology, represented on a spectacular bas-relief panel at Angkor Wat showing armies of gods and demons churning the “sea of milk” to produce an elixir of immortality.

If you find the idea of a cosmic molasses that imparts mass to invisible elementary particles more convincing than a sea of milk that imparts immortality to the Hindu gods, then surely it’s not because one image is inherently more credible and more ‘scientific’ than the other. Both images sound a bit ridiculous. But people raised to believe that physicists are more reliable than Hindu priests will prefer molasses to milk. For those who cannot follow the mathematics, belief in the Higgs is an act of faith, not of rationality.

Science advocates have been keen to claim that the Higgs discovery is important for everyone. Yet in practical terms, the Higgs is an incomprehensible abstraction, a partial solution to an extraordinarily rarified and perhaps always-incomplete intellectual puzzle.

By contrast, the Angkor temples demonstrate how religion can offer an authentic personal encounter with the unknown. At Angkor, the genius of a long-vanished civilization, expressed across the centuries through its monuments, allows visitors to connect with things that lie beyond their knowing in a way that no journalistic or popular scientific account of the Higgs boson can. Put another way, if, in a thousand years, someone visited the ruins of the Large Hadron Collider, where the Higgs experiment was conducted, it is doubtful that they would get from the relics of the detectors and superconducting magnets a sense of the subatomic

world that its scientists say it revealed.

Why does this matter? Challenges to the cultural and political authority of science continue to rise from both ideological and religious directions. It is tempting to dismiss these as manifestations of ignorance or scientific illiteracy. But I believe instead that they help to show us why it will always be necessary to have ways of understanding our world beyond the scientifically rational.

I am an atheist, and I fully recognize science’s indispensable role in advancing human prospects in ways both abstract and tangible. Yet, whereas the Higgs discovery gives me no access to insight about the mystery of existence, a walk through the magnificent temples of Angkor offers a glimpse of the unknowable and the inexplicable beyond the world of our experience. ■

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