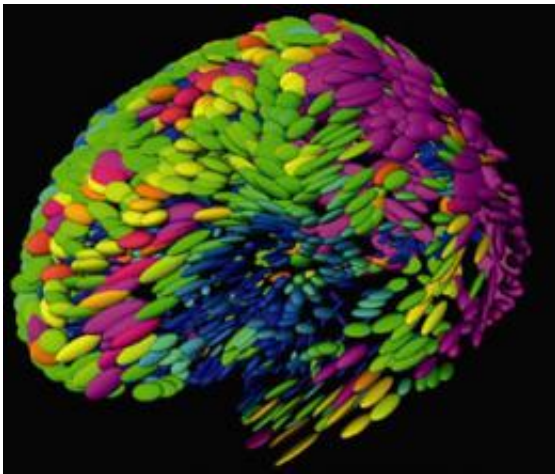


WUSTL physicist debates 'quantum mind' at New York roundtable

February 7 2011, By Diana Lutz



The brain made strange. The theory of quantum consciousness supposes that consciousness arises from the periodic collapse of the wave function of a sea of quantum-entangled electrons in the brain. (MAGE COURTESY OF DR. PAUL THOMPSON)

(PhysOrg.com) -- Mark Alford, PhD, professor of physics in Arts & Sciences at Washington University in St. Louis, spent Saturday, Jan. 29, on Manhattan's Upper East Side discussing the nature of reality at the modern equivalent of an Enlightenment salon.

The salon was held at the Philoctetes Center for the Multidisciplinary Study of the Imagination. The Philoctetes Center brings together scientists, artists and scholars for roundtable discussions that attempt to

bridge the separation between the worlds of science and the humanities.

Alford participated in a roundtable about the quantum mind, the theory that quantum mechanical phenomena, such as quantum entanglement and superposition, may form the basis of an explanation of consciousness.

The discussion was moderated by Deepak Chopra, MD, an endocrinologist who now publishes self-help books on New Age spirituality and alternative medicine.

Among the discussants was Stuart Hameroff, MD, professor of anesthesiology and psychology and director of the Center of Consciousness Studies at the University of Arizona. Together with British physicist Roger Penrose, Hameroff espouses the idea that perception and consciousness arise from the collapse of the wave function of a Bose-Einstein condensate of quantum-entangled electrons in the brain. (For a detailed explanation, see the [Wikipedia entry on quantum mind](#).)

This happens, Hameroff said, 40 times a second, or in the case of Tibetan monks trained in meditation, 80 times a second, so that the perceived world slows down as it would if perception were a movie filmed at a higher than normal frame rate.

The guests also included Menas Kakatos, PhD, the Fletcher Jones Professor of Computational Physics at Chapman University in California, and Stuart Firestein, PhD, professor of neurobiology and chair of the Department of Biological Sciences at Columbia University.

Alford, a theoretical physicist who studies quark matter, was invited to join the discussion because he had previously defended a position that severely limits the metaphysical implications of physics. In an article

that [appeared in the Foundations of Physics in 2006](#), he asserted that physics can “only cover limited aspects of our experience.”



Is a pitcher still a pitcher if nobody is looking at it? Does reality exist independent of the observer?

Alford questioned the idea of quantum mind, explaining that quantum entanglement is “usually very delicate” and “difficult to arrange.” Physicists struggle to entangle even a few particles for any substantial period of time. It seems improbable, he said, that “these very delicate processes are the crucial feature of the functioning of the human brain,” which is “not a suitable environment” for quantum subtlety.

“It’s more likely,” he said, “that consciousness arises from other, more conventional bits of science, and you don’t need to reach all the way to this, the most exotic, the most delicate, the most bizarre bit of modern physics. You don’t need to reach all that way.”

As the discussion got under way it became evident that Chopra was

interested in pushing the boundaries of Alford's pragmatism.

Chopra to Alford: Is there an observer-independent reality in your opinion?

Alford: Yes, I don't think that anybody seriously thinks the jug of water on this table is dependent on you or dependent on me.

Chopra: I think the shape of the jug, the color and texture depends on the nervous system. A different nervous system would perceive it totally differently. A honeybee would not experience [the same] jug. A bat would experience that as the echo of ultrasound. A chameleon's eyeballs swivel on two different axes. I can't even remotely imagine what that would look like to a chameleon.

So does that jug exist as a jug by itself?

Alford: Yes.

Chopra went on to say “matter is an illusion and only consciousness is real.”

Later in the debate, Alford offered some common ground: “I'm quite sympathetic to the idea of constructing these sorts of patterns of ideas that you're talking about. I just think that you don't need to — as I would think of it — -contaminate them with stuff from science like quantum mechanics.”

Quantum mechanics is early 21st-century physics, he said, and may one day be discarded, just as was the late-19th century notion that light traveled through a medium called the luminiferous aether.

“If you rely too much on the current scientific paradigm — wait a

hundred years — it’s been replaced. So I don’t think you want to be using [quantum mechanics] as a foundation. You can use it as inspiration, you can use it in various ways, but I don’t think you want to actually build on it like it’s a foundation.”

Chopra, the mystic, had begun the debate by saying he wanted “to home in on the limitations of science” and in the end it was Alford, the scientist, who emphasized those limitations, asking that science be understood in a humble way and not as the key that unlocks the door to the “ultimate” reality.



Philoctetes with his stinking foot as imagined by Jean Germain Drouais in 1788. Behind him is the bow of Hercules.

The Philoctetes Center was created in 2003 by Francis Levy, an author and son of a real estate magnate whose foundation initially underwrote the center, and Edward Nersessian, a clinical professor of psychiatry at

Weill-Cornell Medical College.

Philoctetes was the Trojan warrior, bitten on the foot by a snake, whose festering wound became so foul that his men stranded him on the island of Lemnos to escape the stench. Fortunately, he owned the bow of Hercules and when the Greeks learned by prophecy that they would not win the Trojan war without the bow, they were forced to go back to Lemnos and beg Philoctetes to rejoin their cause.

The reference, however, is not to the original myth, but rather to *The Wound and the Bow*, in which the literary critic Edmund Wilson associates the wound with psychic trauma and the bow with the healing power of insight as he examines how art arises from suffering.

The entire two-hour debate over the quantum mind can be viewed at the [Philoctetes website](#).

Provided by Washington University School of Medicine in St. Louis

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