

Book Review

Review of Henry P. Stapp's Book: *Mindful Universe: Quantum Mechanics and the Participating Observer (The Frontiers Collection)*

Stephen P. Smith*

ABSTRACT

Stapp gives a very deep and scientific account of his ideas, that must now be taken serious. He is far from a New Age quantum guru here, even as he ventures into philosophy. Stapp finds agreement with Whitehead's ontology, and with this revelation Stapp's theory is now found more far reaching than what even Stapp is willing to admit. For example, Stapp makes heavy reference to an agent that carries intention and causal efficacy, but I am afraid that even Stapp's very mature quantum mechanics is unable to define this agent into existence. I need only follow Whitehead to the logical conclusion. You can find this book at Amazon http://www.amazon.com/Mindful-Universe-Mechanics-Participating-Collection/dp/3540724133/ref=cm_cr-mr-title.

Key Words: mindful, universe, quantum mechanics, participating observer.

Stapp (page 20) writes on Heisenberg's appreciation of actions at the level of Planck's scale: "The aspects of nature represented by the theory are converted from elements of being to elements of doing. The effect of this change is profound: it replaces the world of material substances by a world populated by actions, and by potentialities for the occurrence of the various possible observed feedbacks from these actions. Thus the switch from being to action allows - and according to orthodox quantum theory demands - a draconian shift in the very subject matter of physical theory, from an imagined universe populated by allowed possible physical theory, from an imagined universe consisting of causally self-sufficient mindless matter, to a universe populated by allowed possible actions. A purported theory of matter alone is converted into a theory of the relationship between matter and mind."

Stapp (page 23) writes about the limitation of the classical physics approach, or approximation: "there is no need for, and indeed no room for, any effect of any probing action. The uncertainty - arising from the non-zero size of the quantum cloud - that in the unapproximated theory needs to be resolved by intervention of some particular probing action is already reduced to zero by replacement of Planck's constant by zero. Thus all effects upon the physically/mathematically described aspects of nature's process that are instigated by the actions freely chosen by agents are eliminated by the classical approximation. Consequently, any attempt to understand or explain within the framework of classical physics the physical effects of consciousness is irrational, because the classical approximation eliminates the effect one is trying to study."

It is quantum mechanics that Stapp (page 23-24) turns to in his investigation of the "purposeful action of a human agent." He writes: "One aspect is his conscious intention, which is described in psychological terms. The other aspect is the linked physical action, which is described in physical terms; i.e., in terms of mathematical entities assigned to spacetime points. For successful living the physical described action should be a functional counterpart of conscious intension; after sufficient empirical honing by effective learning processes the physically described aspect of the felt intentional

Correspondence: Stephen P. Smith, Ph.D., Visiting Scientist, Physics Department, University Of California at Davis, CA
E-mail: hucklebird@aol.com

act should have a tendency to produce the intended experiential feedback. John von Neumann, in his seminal book, *Mathematical Foundations of Quantum Mechanics*, calls by the name process 1 the basic probing action that partitions a potential continuum of physically described possibilities into a (countable) set of empirically recognizable alternative possibilities."

Stapp (page 30) writes: "The channels through which the calcium ions enter the nerve terminal are called ion channels. At their narrowest points they are only about a nanometer in width, hence not much larger than calcium ions themselves. This extreme smallness of the opening in the ion channels has profound quantum mechanical imports."

It is the "quantum Zeno effect" that permits the Planck scale effects to impact the nerve terminals in the brain. Stapp (page 36) writes: "The quantum Zeno effect can, in principle, hold an intention and its template in place in the face of strong mechanical forces that would tend to disturb it. This means that agents whose mental efforts can sufficiently increase the rapidity of process 1 actions would enjoy a survival advantage over competitors that lack such features. They could sustain beneficial templates for action in place longer than competitors who lack this capacity. Thus the dynamical rules of quantum mechanics allow conscious effort to be endowed with the causal efficacy needed to permit its deployment and evolution via natural selection." I must correct Stapp here, because it is now consciousness that does the selection and this is far from Darwin's natural selection (e.g., see Amit Goswami's "Creative Evolution").

Stapp's account is different from Penrose's, and other accounts. He (page 52) stresses the importance of the quantum Zeno effect: "The only macroscopic quantum effect that appears to survive the decoherence effects [in warm brains] is the quantum Zeno effect. This permits neuroscientist unfamiliar with quantum theory to have a very accurate, simple, intuitive idea of the quantum state of a brain. It can be imagined to be an evolving set of nearly classical brains." However, as Stapp indicates, some non-classical properties also remain.

Stapp gives a very deep and scientific account of his ideas, that must now be taken serious. He is far from a New Age quantum guru here, even as he ventures into philosophy. Stapp finds agreement with Whitehead's ontology, and with this revelation Stapp's theory is now found more far reaching than what even Stapp is willing to admit. For example, Stapp makes heavy reference to an agent that carries intention and causal efficacy, but I am afraid that even Stapp's very mature quantum mechanics is unable to define this agent into existence. I need only follow Whitehead to the logical conclusion.

Stapp (page 105) writes: "I am merely proposing that Heisenberg's incomplete ontology be completed by accepting what I regard as Whitehead's main ideas. ... I need to stress that the core idea that the events in our streams of consciousness are two-way causally linked to events in the physical world lies at the intuitive heart of daily dealings with reality." But a two-sided reality is not well described by a psychological window and a physical window. There are two windows all right, but what holds the two together is an emotive middle-term that can escape both windows leaving both scientist and theologian dumfounded! Did you think that the agent, or agents, were us little egos running around that must compete to win favor with Darwin? Think again!

Stapp (page 121) pretends not to have answers to these questions: "why are the laws of nature so well structured to sport biological structures? Are idea-like qualities primordial? Or do they emerge from a world completely devoid of all mind-like qualities?" And this pretense is maintained even after Edward (page 124) accuses Stapp of "creationism." Again, who exactly is this agent? I think Basil Hiley (page 135) came closest to an answer: "To use consciousness to formulate the laws of quantum

mechanics seems circular, unless of course you assume some kind of universal consciousness lying at the centre of being as is proposed by certain forms of Hinduism."

The fact is that we are driven by our affections while being trapped in circular reasoning, until we one day realize that our emotions source the middle-term that holds our two sides together.

References

Henry P. Stapp, 2007, *Mindful Universe: Quantum Mechanics and the Participating Observer (The Frontiers Collection)*, Springer.