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The Uses and Misuses of Quantum Jargon

Many people involved in frontier areas of scientific study display a tendency to invoke the nomenclature of quantum mechanics to bolster their scholarly credibility with both the public and mainstream academia. While such strategies can be effective for clarification of subtle concepts, and may be useful ways of emphasizing the need for alternative perspectives of reality, carried to excess they can easily become counterproductive and should be deployed cautiously. First of all, there is an understandable, if not totally legitimate, recalcitrance of the “exact science” communities to surrender their proprietary quantum conceptualizations and classifications to what they regard as less precise and rigorous sectors, especially when such appropriations are blatantly shallow, if not totally incorrect. In our ongoing struggle for development of a broader conceptual framework capable of accommodating the subjective dimensions of reality, such naïve representations tend to be more offensive than persuasive. But beyond this, they also tend to obscure the important fact that quantum mechanics, like any theoretical structure, is itself an essentially metaphorical technique for formalizing and communicating objective representations of subjective observations and interpretations of experimental data. As Albert Einstein so aptly put it:

Concepts which have proved to be useful in ordering things easily acquire such an authority over us that we forget their human origin and accept them as invariable.¹... The system of concepts is a creation of man together with the rules of syntax, which constitute the structure of the conceptual systems.... All concepts, even those which are closest to experience, are from the point of view of logic freely chosen conventions...²

Early in the course of our Princeton Engineering Anomalies Research program, we too were struck by certain common features appearing both in our empirical observations of consciousness-correlated anomalous physical phenomena and in various theoretical aspects of quantum science, that lent themselves to useful metaphorical associations. Subsequently we attempted to verbalize these analogies in a sequence of such metaphorical propositions as “consciousness atoms,” “consciousness molecules,” and “consciousness resonant bonds,” along with “consciousness uncertainty, complementarity, exclusion, and indistinguishability principles” that we had unabashedly

appropriated from their Bohr/Schrödinger/Heisenberg physical counterparts. Wave/particle complementarities likewise were invoked to help conceptualize certain wave-like features of consciousness experience and behavior that had appeared in our empirical observations. Unfortunately, many readers misconstrued these metaphorical representations as literal descriptions of the activity of consciousness being derived from physical quantum processes, rather than as a set of “concepts which have proved to be useful in ordering things.”

Over prior and ensuing years, scholars of various other backgrounds and insights also have proposed quantum mechanical treatments of consciousness mechanics, using an assortment of mathematical formalisms and figurative illustrations that have reflected their personal theoretical backgrounds and skills. In fact, many of the patriarchs of early quantum theory themselves had, individually and collectively, pondered the relevance to mind/matter issues, but largely deferred any attempts at resolution thereof pending the acquisition of more comprehensive and reliable empirical data.^{3,4}

More recently, however, the popularity of quantum analogies for modeling all manner of anomalous phenomena has been penetrating much further into the communities currently addressing the assessment, comprehension, and utilization of a much broader range of consciousness-related topics. Not only does this trend further alienate quantum physicists, but it adds the unfortunate effect of promulgating implicit assumptions that limit the effects under study to strictly physical interpretations, thereby precluding options for more profound ways of thinking. In our view, this proliferation of quantum logic and jargon is now becoming intellectually and pragmatically unproductive, and should be utilized more astutely lest it deteriorate into simplistic mantras and slogans that obfuscate attempts to develop more seaworthy models of the fundamental processes underlying the consciousness dynamics in play.

Fascinating as our consciousness-correlated anomalies may be in their own right, their higher intellectual value lies in the hints they provide regarding the broader experiences of consciousness, *per se*, and of the inadequacies and outright errors that persist in our prevailing attempts to construct incisive models thereof. Titillating coffee table conversations invoking “quantum leaps” or “collapsing wave functions” do not greatly advance our comprehension of the full sweep of the capabilities of the human mind. To pursue that epistemological challenge, rather than resorting to some metaphorical

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that earlier had been perceived as always having been sparsely populated by relatively primitive peoples. Such earthworks—ridged fields, canals, causeways, and mounds—were mostly in low-lying plains subject to periodic flooding and were difficult to detect on the forested ground. They were first recognized from the air, in the Mojos of eastern Bolivia, more than 40 years ago (e.g., Denevan, 1966, Mann, 2005:3-12). Remarkably, such works have also been discovered in the upper Xingú drainage (Grann, pp. 310-14, Heckenberger, 2005, Mann, 2008), particularly surprising in view of the fact that in post-1500 times that region has been a refugium for some of the most primitive tribes of the Amazon Basin. More recently still, vast areas of the upper Purús drainage of Brazil near the Bolivian border have been recognized as displaying huge, precisely geometrical, human-made, ditch-and-embankment “geoglyphs” as well as arrow-straight roads (Pärssinen, Schann, & Ranzi, 2009). These all are regions in or near which Fawcett explored; but, ironically, he (like everyone else at the time) never recognized that he was traveling past striking manifestations of an advanced ancient culture.*

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*These rainforest societies seem to have depended on raised fields in the flood-prone flats and, atop the bluffs, on the recently archaeologically recognized *terra preta do indio*, a dark, partially artificial soil that had resulted from past peoples' augmenting the natural low-nutrient lateritic soil with nutrient-absorbing charcoal and other organic materials.

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re-fry of sexy quantum concepts and language, we need rather to develop a fresh lexicon of scientific conceptualization that can capture and advance the deeper essence of our most precious and powerful capacities for information acquisition, processing, and utilization. Most notably, we need to extend the sweep of scientific methodology to embrace the subjective as well as the objective dimensions of human experience. This caution by no means needs to exclude the use of aptly selected metaphors, but it does enjoin us to recognize them as such and to realize that even they cannot convey the deeper ontological aspects of reality. Rather, like all other theoretical tools, they are attempting merely to share useful representations of how human consciousness perceives reality, and indeed in some sense, participates in its very creation and organization. This is no playground for naïve or sloppy language or thought; it is very sacred scientific terrain.

References

- ¹ A. Einstein, in P.A. Schilpp, ed., *Albert Einstein: Philosopher-Scientist*, Evanston, IL: The Library of Living Philosophers, 1949, pp. 175-76.
- ² *Ibid.*, p.13.
- ³ W. Heisenberg, *Physics and Beyond*. New York: Harper and Row, 1971.
- ⁴ W. Heisenberg, *Physics and Philosophy: The Revolution in Modern Science*. New York, Harper and Row (Harper Torchbooks), 1962.

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Color reconstruction of Oct. 2009 TLE event by the Finnish astronomical journal *Tähdet ja avaruus*, showing bright red sprites inside an elf, two forms of lightning now known to occur between the tops of electrical storms and the ionosphere.