

1 Science, Consciousness and Human Values

A tremendous burgeoning of interest in the problem of consciousness is now in progress. The grip of the behaviorists who sought to banish consciousness from science has finally been broken. This shift was ratified, for example, by the appearance several years ago of a special issue of *Scientific American* entitled *The Hidden Mind* (August 2002).

The lead article, written by Antonio Damasio, begins with the assertion: “At the start of the new millennium, it is apparent that one question towers above all others in the life sciences: How does the set of processes we call mind emerge from the activity of the organ we call brain?” He notes that some thinkers “believe the question to be unanswerable in principle”, while: “For others, the relentless and exponential increase in knowledge may give rise to the vertiginous feeling that no problem can resist the assault of science *if only the science is right* and the techniques are powerful enough” (my emphasis). He notes that: “The naysayers argue that exhaustive compilation of all these data (of neuroscience) adds up to correlates of mental states but to nothing resembling *an actual mental state*” (his emphasis). He adds that: “In fact, the explanation of the physics related to biological events is still incomplete” and states that “the finest level of description of mind [...] might require explanation at the quantum level.” Damasio makes his own position clear: “I contend that the biological processes now presumed to correspond to mind in fact are mind processes and will be seen to be so when understood in sufficient detail.”

Damasio at least hints at the idea that “biological process [...] understood in sufficient detail” is a quantum understanding.

The possibility that quantum physics might be relevant to the connection between conscious process and brain process was raised also by Dave Chalmers, in his contribution ‘The Puzzle of Conscious Experience’ to *The Hidden Mind*. However, Chalmers effectively tied that possibility to the proposal put forth by Roger Penrose (1989, 1994) and, faulting that particular approach, rejected the general idea.

The deficiency of Penrose's approach identified by Chalmers is that it fails to bring in consciousness. It is about certain brain processes that may be related to consciousness, but "the theory is silent about how these processes might give rise to conscious experience. Indeed, the same problem arises with any theory of consciousness based only on physical processing."

Penrose's treatment does indeed focus on physical processing. But quantum theory itself is intrinsically psychophysical: as designed by its founders, and as used in actual scientific practice, it is ultimately a theory about the structure of our experience that is erected upon a radical mathematical generalization of the laws of classical physics.

Chalmers goes on to expound upon the 'explanatory gap' between, on the one hand, theoretical understanding of the behavioral and functional aspects of brain processes and, on the other hand, an explanation of how and why the performance of those functions should be accompanied by conscious experience. Such a gap arises in the classical approximation, but not in orthodox quantum theory, which is fundamentally a causal weaving together of the structure of our streams of conscious experiences, described in psychological terms, with a theoretical representation of the physical world described in mathematical language.

The conflating of Nature herself with the impoverished mechanical conception of it invented by scientists during the seventeenth century has derailed the philosophies of science and of mind for more than three centuries, by effectively eliminating the causal link between the psychological and physical aspects of nature that contemporary physics restores.

But the now-falsified classical conception of the world still exerts a blinding effect. For example, Daniel Dennett (1994, p. 237) says that his own thinking rests on the idea that "a brain was always going to do what it was caused to do by current, local, mechanical circumstances". But by making that judgment he tied his thinking to the physical half of Cartesian dualism, or its child, classical physics, and thus was forced in his book *Consciousness Explained* (Dennett 1991) to leave consciousness out, as he himself admits, and tries to justify, at the end of the book. By effectively restricting himself to the classical approximation, which squeezes the effects of consciousness out of the more accurate consciousness-dependent quantum dynamics, Dennett cuts himself off from any possibility of validly explaining the physical efficacy of our conscious efforts.