

VII. The Perception of Depth in Art as Evidence of New Principles in Physics

Though Albert Einstein was searching for a unified description of reality, he was not able to reach his goal at the time of his death in 1955. However, others at Princeton, Hugh Everett and John Wheeler,¹ not to forget R.H. Dicke,² formulated concepts which led to such a description. Almost as a fitting tribute to Einstein, Hugh Everett completed his doctoral dissertation on The Theory of the Universal Wave Function.³ Through this thesis and other papers, Everett and Wheeler, as well as DeWitt and Graham, opened the door to a new era of physics and a new view of reality. They asked the question, What happens to the description and measurement of reality when you include more than one observer? They began the exploration of the importance of perception and consciousness in terms of describing reality by incorporating terms for subjective reality and perceptions in their equations. They maintained that subjective factors and perceptions were just as real as the physical material world and needed to be incorporated into mathematics in order to arrive at an adequate description of reality. Everett hypothesized that there was one mathematical expression or function which could describe the universe. He found that this assumption gave rise to a reality which was composed of many simultaneous worlds; though mutually unobservable, these worlds were equally real. In deriving this single function, he found that different subsystems of a composite previously described as independent, could have correlation. Further, the merging or superposition of different systems into a composite led to a mathematical description which described the possibility for new properties or states, the most interesting of which, was a condition in which the composite system could not be defined in terms of measurement of discrete entities or discontinuous processes. This composite system could only be described in terms of a continuous function manifested by all other states of the system. Everett described this theory of the universal wave function as objectively continuous and causal and subjectively discontinuous and probabilistic.⁴

Such a theory resembled the concept of the hologram in which information about one and sometimes many images is contained in each and every part of a photographic plate. Such a hologram is objectively continuous and causal. Depending on the angle at which the hologram is observed, different images may be seen; in this way, the hologram is subjectively discontinuous and probabilistic.

The importance of their work was in its validation of consciousness and perception as contributing to the nature of reality and in its recognition of these factors as being appropriate areas of study for discovering laws governing reality. Physicists were freed from the concepts of analysis and compartmentalization as the sole means of understanding reality. A search for

19 Chipmunk Lane
Media, PA 19063
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Hugh Everett, III, Ph.D.
President
Lambda Corporation
1501 Wilson Avenue
Arlington, VA 22205

Dear Dr. Everett,

I am writing a book on art, perception, and the mind and have enclosed a page in which I describe your work. Please let me know if this accurately describes your work on the universal wave function in general terms.

Thank you,

Lawrence F. Berkeley, M.D.
Lawrence F. Berkeley, M.D.

Yes, this is reasonably accurate. You might also be interested in "The Biological origins of Human Values" (Basic Books) by George E. Pugh, a co-worker of mine at Lambda.

Hugh Everett, III
DBS Corporation
1901 N. Moore St.
Arlington, Va 22209

HUGH EVERETT, III
8114 Touchstone Terrace
McLean, Virginia 22101