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## *The Enigma of Consciousness*

*Report on Lucerne Conference, 20–21 January 2001*

Every two years René Stettler, the owner and director of the Neue Galerie of Lucerne, organizes a two-day symposium for scientists, philosophers, and artists to present and discuss their views on a topic thought to be of interest to a general audience. The main purpose of these events is to foster interdisciplinary discussion and the New Gallery sees itself as a 'cultural laboratory'. This year's symposium had the title 'The Enigma of Consciousness' and attracted between four and five hundred people, filling in the city's theatre.

Never having been involved in neurophysiological research, I was invited to give an opening talk on the constructivist approach to the concept in question. I suggested that the notion of consciousness seemed to arise hand in hand with the notion of a 'self' as it isolates itself from an originally amorphous field of experience. I agreed with Piaget in assuming that consciousness is not an all-or-nothing affair but develops gradually on successive levels. My central observation was that although consciousness can reflect on and monitor what we are doing, it cannot observe its own operating. Consequently there seems to be a problem about empirically testing any hypothetical model of its operative mechanism.

Four of the other seven invited speakers were specifically concerned with the question of how much quantum mechanics could contribute to a solution of the enigma and I was struck by the fact that with regard to epistemological position, this quartet was split down the middle. Sir Roger Penrose and Stuart Hameroff, who come from mathematics and anesthesiology respectively, have collaborated for more than a decade. The basic claim of their theory is that consciousness arises from intracellular protein structures, which are called microtubules and are thought to be able to 'process information' at the molecular level inside neurons and other cells (see, for example, Penrose, 1994; Hameroff, 1994; Hameroff & Penrose, 1996). According to Penrose, the measurement paradox inherent in the usual interpretations of quantum theory can be avoided, if a physical process referred to as 'objective reduction' is inserted as an explanation. Both see this process as the key to consciousness at the fundamental level of quantum computation which, for them constitutes an objective reality. But it is not easy to see how

a process that is characterized by equations containing symbols designating and relating physically measurable quantities could explain the qualitative phenomenon we call consciousness.

The physicist Anton Zeilinger and the chaos specialist Otto Rössler, presented views diametrically opposed to the realism, Platonic or more material, that was espoused by Penrose and Hameroff. Zeilinger stuck to the Copenhagen interpretation of quantum mechanics and reiterated that whatever information could be ascribed to ‘basic units’ on the quantum level had to be subjective because it depended on the observer’s choice of measuring apparatus. He also strongly objected to the idea that there was a possibility of reconciling basic concepts of quantum theory with those of classical physics. (I found myself remembering Schrödinger’s splendid exposition ‘What is an elementary particle?’ [1950], which neatly showed that the particles of quantum theory are in more than one way incompatible with Newtonian point masses.) Rössler gave a performance, a kind of ballet of equations, that appeared to be a fascinating spontaneous improvisation to the theoretically ignorant, yet was, I am sure, meticulously thought out and meaningful to the initiated. It led him to a couple of statements I understood and found congenial: (1) that ultimately everybody lives in his or her own quantum world, and (2) that it is pointless to try to think of any world before a consciousness has arisen that could experience and know it.<sup>1</sup>

The Austrian philosopher Josef Mitterer appeared solely as discussant and therefore had no opportunity to unpack his theory of non-dichotomous knowing. This was a pity, because during the discussion he suggested that there was indeed a way of avoiding the subject/object split and thus the various paradoxes that spring from the notion that consciousness must become conscious of things that are already there.

The three other speakers did not focus on the theoretical questions surrounding consciousness, but described instances of its experiential manifestation. Ulrike Gabriel, an internationally known media artist, who specializes in installations of ‘interactive virtual reality’, observed that our perceptions of the ‘real’ world are usually ambiguous and claimed that virtual reality exploits this ambiguity to create a virtual space and in it the possibility of developing ‘post-physical’ perception. We had to take her word for it, because interactive installations cannot really be conveyed by static transparencies and slides.

Roy Ascott, the director of a centre for ‘Inquiry in the Interactive Arts’, gave an enthusiastic prognosis of what electronic technology will do for the consciousness of artists and for aesthetics in general. He suggested that consciousness could be re-framed and perhaps better understood by investigating the function and the effects of psychedelic plants as another form of virtual realities. Luis Eduardo Luna presented an overview of visions that can be triggered by Ayahuasca, a sacred brew used by tribes in the upper Amazon region. It was a fascinating account of phenomena that seem incompatible with those of our ordinary experience. If this assessment is correct, it may be useful to conceive of consciousness as a layered entity such that each layer can generate a separate ‘reality’.

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[1] For an earlier version of Professor Rössler’s presentation see Rössler *et al.* (1998).

The Lucerne Symposium was not expected to solve the enigma of consciousness, and it didn't. In my view, however, it added further incentive to relinquish the notion that physics and especially quantum mechanics could provide a viable conceptual model of the phenomenon that needs itself to be conceived and spoken about.

### References

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