

If, as Aidan is experiencing, there are two ways: the first ~ the state ~ is the singularity of understanding. Environmental things that under-stand all otherness as Myself, and which can only be described by us in conceptual terms. The second ~ the condition of the state ~ is the reality of difference ~ which is the com-prehending of objects in space and time, being different from Myself, and which we describe in languages. Where and how are these two ways manifest? Is it in the brains of living organisms, which in a process of differential understanding com-prehend singular things as different spacetime objects before the gaze? Or does this process happen in the absense of any brain to understand and com-prehend it?

Let us see if we can answer these questions by looking into Aidan's brain with his Celtic insight. In his skull there are two apertures. Through the topmost aperture we can see the conceptualisation of singularity - a [red] two-dimensional matrix of under-standing for which each circular thing is a constituent environment ~ a symbol ~ of all the others. Through the other aperture, where his right eye would normally be, we see an electron microscope image of Aidan's brain cells [in green].

Cells are the basic structures of all living organisms. They provide structure for the body, taking nutrients from food and carrying out other important functions. In animals, cells group together to form tissues, which in turn group together to form organs such as the heart and brain. At the heart of each cell is its command centre or nucleus. Surrounding the nucleus, the cytoskeleton is a network of long fibres that make up the cell's structural framework, and which supports the cell's outer membrane, and determines its shape. Brain cells are called neurons. A neuron is an electro-chemically excitable cell that communicates with other cells via specialized connections called synapses. The cytoskeleton of a neuron is partly composed of tubular filaments called microtubules.

In 1996 the mathematician Roger Penrose and the anaesthesiologist Stuart Hammeroff proposed a model of consciousness concerning neuron microtubules, which they called the Orchestrated Objective Reduction or 'Orch OR' model.

[Very] roughly, their idea is that inside neuron microtubules, [Planck length] objects don't exist as they do in the world around us, but rather in a wave-like state that physicists call 'quantum superposition'. The microtubule walls are made from a latticework of proteins, which have the ability to slide across each other. In the Orch OR model, the way that they do this is determined partly by orchestrated commands from the neucleus of the neuron and partly as a result of objective fluctuations in the spacetime geometry of superpositioned quanta. The resulting orchestrated collapse of the wave function ~ or reduction ~ flows, as consciousness along the wall lattices and into the neuron; from thence to the rest of the brain for processing. (See figure 1 on the next page.)

The problem for Orch OR ~ as it is for any mathematical model ~ is that being real, it can only deal with things inside spacetime - even the singularity of understanding, which it can only describe in terms of difference, as 'quantum superposition', and why its quanta then bump into paradoxes in which they appear to have been mysteriously 'entangled' ~ even when miles apart.