

The Cosmic Mind

An Essay Presented to the Unitarian Universalist Fellowship of Mobile

J. Scott Carter

October 5, 2008

The universe is, by definition, all that is. There is no-one, no-thing, no-body outside the universe, no prime mover. If there were, then the prime mover would *be*, and the universe is all that there *is*. I know that Cindy, for example, prefers action verbs to being verbs, and as I think of the universe as all-that-is, I describe processes.

I cannot think of the universe as an ever-changing 3-dimensional thing because I cannot think of a Now as a single instant. As soon as I say “now,” I mean “then.” An infinitude of nows passed between the now and then. I want to think of the past as being projected onto the now, but the now is ever changing. Light from the sun reaching the now emerged from our “then” 8 minutes ago. Future imperfects project into the now and flow to the later. So the universe is process; it is action; and actions, processes, dynamics are that-that-is.

To describe that-that-is, we use metaphors and stories. These make us human. The story I tell today has logical flaws, but it reflects ideas that I cannot shake.

Like all other living things, we seek food and shelter, and we have an innate desire to reproduce. Other animals form social networks. A colony of ants may better be described as a single organism with genetically identical workers. Elephants herd along matriarchal lines. Other large mammals have a single buck who has reproductive rights among all the cows. Lions form prides, and wolves and dogs hunt in packs with hierarchical structures. Birds build nests, and chimpanzees fashion tools out of twigs to capture termite

treats. So tool making alone does not define our humanity, nor does our social structure define us uniquely.

Humans tell stories. Yes, birds sing their persistent, “*I am*”s and “*I am here*”s. Whales seem to describe the constancy of the ocean in an slowly changing song, and elephants communicate across vast distances with sub-sonic hums. But to us, and maybe only to us, our stories seem more intricate, more elaborate and with deeper purpose.

Storytelling bonds communities. The stories, art, and music of culture define its mythos. Religions are story based. The stories include the instructions for behavior, the instructions for planting and hunting, and the community’s science and its survival. Stories provide a link to the past, a portal to the future, and the social contract of the present. Stories describe the processes of existence.

Stories are true, apocryphal, mythical, musical, scientific, and visual. They are expressed as paintings on the inside of the cave, or in the intricate counterpoint of a Bach fugue. Stories include the story of quantum mechanics, the history of the republican system of government, and my mother’s recipe for coconut cake. Stories include Michelangelo’s David, the Sistine Chapel, the blueprints for an MD-80, Johnny Rotten’s “Anarchy in the UK,” and the code for my computer’s operating system. Stories include the tenure and promotion package that Pat is writing and the grant proposal that funded Brian’s trips to China. Stories include the automated messages generated by the spam-bot who is encouraging me to invest in Nigeria Oil futures.

Our stories define our community, but more importantly they reflect the external reality. There is no greater truth about the human condition than that which is expressed in a work of good fiction. A poem takes you to a wondrous place if only for the moments it takes to read. And though I don’t really know the full meaning of Beethoven’s seventh symphony, I know that it speaks directly to me, and it reveals a truth that can only be expressed musically.

As a mathematician, I write (what I hope is) non-fiction. I analyze geometric objects that are mental constructions. I use algebraic techniques to quantify intersections among the geometric facets. And even though I and my colleagues, have never seen these objects directly, we have a metaphorical language that allows us to communicate to each other the critical aspects that we have seen. The mathematical ideas which we contemplate are part of the universe even if they are not designed to model the universe.

About 50 years before Einstein made a leap and posited that space and

time were a single entity that is curved by the objects that occupy it, geometers were discovering that Euclid's axioms were only one possible geometric system, and indeed there are surfaces and spaces that are curved. These metaphysical worlds — the worlds that seem to you to be nothing but mental constructs, and yes the intricate worlds that you fear — have been found to be models not only for the physical universe, but for economic systems and for the configurations of robotic arms in a factory.

I see the world from a mathematical perspective. I suspect that Brian sees it in biological terms, Doug in its sociological aspect. From what Sam has told us, he often sees the world in medical terms. In a recent interview, Stanley Jordon, the jazz guitarist, described his theories that music can be applied, not just to our aesthetic sense, but as a way of describing, in an explicitly way, different sociological or economic relationships. The example that he gave was audiological representation of data that are usually described graphically. He claims that he heard something was amiss in the market before the housing bust.

Each of us has a different story to tell. Each of us sees the world and describes it in terms of our own story.

Humans, some great apes, and elephants recognize ourselves in a mirror. Other animals do not. We have a self-awareness. And yet neuroscience cannot identify a single cell or group of cells that is the repository of the self. Who am I? This particular group of neurons or that is not me. This tall frame and aging face appears to be me. It looks like me today, but it looks quite a bit different than it did 40 years ago, and I still think of me as me. That which-I-am is unknown to the parts of me that are me. The muscles in my arm form my shape, but that shape is not me. They respond to my commands, flex, type, make a gesture, but the muscle itself seems to have no self-awareness. The awareness-that-the-muscle-has is its signal to the-me-that-has-no-locus which tells it that this book is heavy, or this flame is hot. My liver delivers no specific message to me, but it filters the myriads of poisons from me. I cannot function without it, nor it without me, and it is as unconscious of me as I am of it.

The bone in your toe knows nothing about the cartilage in your ear. Yet all of these organs, all of these systems, all of your emotions, passions, heartaches, joys, and laughter are made from the same strands of DNA that were fused during your parents' ecstasy. You are not your mother, but you once were part of her. Your consciousness awoke while in her, and suddenly or slowly you were no longer a part of her. Nor were you a part of your

father, but you still carry his eyes, his brow, her toes, his nose.

But the story that I tell is not about me, nor is it all about you.

Consider the world from the point of view of a cell inside your body. Anthromorphize. It sees neighboring cells that look and behave an awful lot like it. The muscle works as a social structure towards a common goal. It obeys the rhythms of the day, and for the most part each day the muscle cycles through various activities. It receives nourishment from the surrounding blood and secretes waste into the same blood. The ebb and flow of blood is a soothing constancy in the life of the cell. Neighboring cells die. Some reproduce. The body maintains homeostasis, and this constancy must comfort the cell.

Now consider the world from afar. Its primary rhythm is circadian. The ebb and flow of traffic on the New Jersey turnpike, looks to me like the flow of blood through the arteries. The Earth has its own homeostasis, and our existence upon her is part of her. We have built the arteries to transport us throughout the world. It is a mistake to think that all of our existence is harmful to nature: we are a part of her. But it is also a mistake to think that we are above her and control her. She controls us. Our self is certainly a part of her self, and we, as her only story tellers, and we, as those among the few self-aware beings, may be forming a part of her self-awareness.

She consists of living things with similar genetic make-up. We (humans and termites alike) rearrange her non-living materials (or her once living materials) to suit our needs. But we may also be suiting hers. Who is to say that the earth's vitality does not depend on the *e-coli* of the diaper of the Spanish baby who traveled with her mother to visit a Kangaroo farm in Australia?

Where is the consciousness of the earth? How can we pin-point it? The sum total of human ideas and ideals is being stored on an interconnected web. Even the most minute piece of information is available. Did Bob Marley steal the Banana Splits theme song? Find out on Wikipedia. The internet is a vast repository of information, and most of it is porn. I don't know that for sure, John C. told me. How do we as a species on this earth test the hypothesis that the earth is a thinking living self-aware entity? How will we know if and when the internet will begin to think?

I have seen it make puns. Once I could not recall the spelling of the name Kronecker. Kronecker was a mathematician who developed among other things a method of multiplying matrices called the Kronecker product. It is also know as a tensor product. I looked up Kronecker on a search engine,

and “tensor products” showed up. But “tensor products” was a company name. I didn’t type product, I didn’t type tensor. The internet made a joke at my expense. The randomizing function on iTunes intrigues me. Why does it so often go from Elvis Presley to Purcell’s Dido and Aeneas?

I think, therefore I am. Science cannot tell me the location of the id. As beings on this earth, are we part of a bigger thing, a bigger mind? Is the earth, as it sends signals to the far reaches of space via Voyager, part of a bigger mind? Is the universe the mind that constructs itself from its stories?

The syllogism, “I think, therefore, I am,” means something different than, “I am, therefore, I think.” Yet, the universe *is*, and we think. Are the stories that the universe tells at the subatomic level different than the stories it tells at the level of the galaxy? How does my arm know that I think?

If there is a moral lesson to be derived from this essay, it is this: if the universe is thought, make your own thoughts good ones.