Art is born of the observation and investigation of nature.
Joe Ketner, Nov 2009

Certainly when the Roman philosopher Cicero pronounced this statement in the first century BC he could not have imagined the majestic images of microscopic worms that Brian Knep has created in a scientific laboratory. Despite the cavernous gulf in form and content between the classical, idealizing art of ancient Rome and contemporary new media art, the philosopher astutely recognized that art shares with science the basic experimental process, which in science is the empirical method. That is the gathering of data to test hypotheses, and to experiment in order to imaginatively deduce particular results. In Knep's case the results reveal the visual wonder of the micro-cosmos. In this extraordinary group of digital images centered around the four high definition videos, Knep presents us an accurate observation of the unseen world—unenhanced by digital effects--while retaining the mystery and awe of the unknown.

The relationship between art, science, and technology has a lengthy history. New media is not new. Artists began incorporating new media well before Jan van Eyck fully realized the artistic potential of the then new medium of oil pigments in the fifteen century; or, the *camera obscura* created the uncanny illusion of space in the seventeenth-century. And, we are still living through the cultural repercussions forced by the invention of the daguerreotype in the mid-nineteenth century, capturing the fleeting figments of reality on a chemically treated plate. The tremendous acceleration of mechanical, electrical, chemical revolutions in the twentieth century forged a modern art revolution that breached the sanctity of the *objet d'art* crafted by the sacred touch of the artist's hand. Now we are on the crest of a wave of computer and scientific development that has spawned a generation of artists to employ the tools of our time, including genetics and biotechnology, in order to "observe and investigate" the world that we are creating for ourselves. Brian Knep is one such innovative new media artist, who has incorporated the process and tools of modern science and technology into his artistic practice to create an entirely new corpus of visual images and experiences.

After earning his degrees in mathematics and computer science, Knep has spent much of the past decade reflecting on how science and technology have contributed

tremendous advances in our lives and can simultaneously isolate us from direct experience and distance us from one another. In his interactive environments, video projections, and photographs, Knep has been utilizing science and technology to humanize the sometimes cold, analytical, and increasingly technological culture that is wrought by science and technology. Since 2005 he has worked as the artist-in-residence at the Harvard Medical School's Department of Systems Biology, where scientists are studying the microscopic worm, *Caenorhabditis elegans*, seeking to understand aging. *C. elegans* is an excellent specimen for these studies: it has only 1,000 cells, a transparent corpus, and lives for two weeks. In their experiments the researchers have managed to isolate the gene that doubles the lifespan of these worms and are now attempting to apply this to our knowledge of aging in humans.

Knep is enamored with the scientific process, respects its results, and is deeply engaged with it. But he wants to take the research in a different direction. Building microscopic environments, Knep examines the behavior of *C. elegans*, attempts to interact with them, and tests the level of their self-consciousness. The artist draws a series structures, labyrinths, and mazes--that are created with the same technology used to create the circuitry of silicone microchips—then places his specimens in these environments. What choices do they make when they are placed in a maze? Do they demonstrate social behavior in communal environments? Do they seek one another when they are in a structure in which they can smell one another, but not touch? He even attempts to determine if *C. elegans* can develop a spiritual consciousness.

Knep's search for signs of spiritual consciousness in microscopic organisms with limited cognitive capacity could appear to parody the scientific process. But that is not his intention. Neither is he being ironic. He genuinely relishes the value of scientific inquiry, but he aspires to contribute the inexact dimension of human inquiry to the process. He wishes to stretch the scientific process into the areas of its greatest limitations to understanding cultural value, morality, and spirituality. By so doing Knep is engaged in the centuries long dialogue concerning the limits of science to deal with human understanding and psychology that began at the genesis of the scientific revolution during the Enlightenment with John Locke, through Emmanuel Kant, and continues today with renewed fervor in books and blogs.

Peering through his microscope, Knep asks, are there patterns of behavior in these microscopic organisms that parallels our own? Can we compare ourselves to them? After all, we start out as embryonic organisms of about the same size. Some of the answers are surprising. Knep says, "I like the experiments when we are trying to draw them out. It's clear that they don't care." When the artist presents the worm a choice of direction in the *Branching Choice* (2009) maze, he reinforces the recognition of the contradictions in human thinking and conduct. People shout our demand for freedom and choice. But how often have we witnessed a base human indifference and the desire to have decisions made for us. The worm at the mouth of the maze, randomly choosing his path reminds me of the Grand Inquisitor from Fyodor Dostoyevsky's *Brothers Karamazov*, who chastises a captive Christ for giving people "so fearful a burden as freedom of choice."

In some of his *Traces* Knep attempts to establish contact with his microscopic test subjects, the most impressive being the diptych, *Namaste* (2009). Here *C. elegans* negotiates environments formed in the likeness of the space age Adam and Eve, who were emblazoned on the side of the Pioneer space capsule as it was sent into deep space to announce our existence to other life forms. The title, *Namaste*, is the Sanskrit greeting meaning "I bow to you," often used when a younger or inferior person greets an older or higher class person. Here, the worms encounter humanity and nod their heads towards the "higher" (?) beings. As with everything we touch on our planet, Knep has contaminated the environment with the dark ring of human bacteria that forms around the male and female figures. The artist emphasizes imposition of human presence in a series of images of *Hair Mold*, *Fingertip Mold*, and *Hair Strand* (his own) that both grace and spoil *C. elegans* micro-cosmos.

The artist challenges the limits of science when he attempts to impose on these elegant worms personifications of human behavior, to communicate with them, and to aspire that they may develop a spiritual awareness. Knep's inquiry echoes Thomas Nagel's question, "What is it like to be a bat?" And, Nagel's warning that it is impossible to achieve that awareness, but it is the "human weakness for explanations of what is incomprehensible, in terms suited what is familiar and well understood." And, so Knep fabricates a series of beautiful *Circular*, *Serpentine* and *Labyrinthine* environments as meditative structures through which *C. elegans* can crawl. Historically, the labyrinth was not used as Greek mythology suggests as a

maze, but for ritual and meditative purposes. Knep is facetiously crafting a retreat for the spiritual transcendence of his subjects. Of course, it is ludicrous to impose consciousness onto microscopic worms. But it is natural for us to do so. It is what we know. It is how we come to understand the world and draw order out of chaos.

As we observe the worms meandering through these worlds created by the artist, we conceive of a micro-cosmos of our own environment. Certainly, the worm deserves its appellation as "elegant" as it gracefully winds its way through these mysterious territories bathed it the golden glow of its microscopic world. As Knep reveals to us the worms in their world, we interpret it in terms of what we know and see their rich, sepia-toned landscapes as an aged antiquity. The fantastic buildings that the artist constructs suggest futuristic, intergalactic worlds of our fantasy. The thick atmosphere of their environment is, indeed, also reminiscent of the images from the interplanetary Mars Rover. And, our mind races back and forth from the metaphors of the micro-cosmos and macro-cosmos to a vast space-time continuum from antiquity to the future. We impose our understanding on these images, but they retain the sublime awe of the unknown. Through his *Traces* Knep piques our curiosity to ask the profound questions and unravel the great mystery of life. Who are we? From where do we come? Where are we going?