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THE TRANSFORMATION OF ELECTRICITY IN MY BRAIN

A Thesis submitted in partial fulfillment of the requirements for the degree of Master of Fine Arts at Virginia Commonwealth University.

by

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Bachelor of Fine Arts, Kansas City Art Institute, 1996  
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May 2004

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## Abstract

### THE TRANSFORMATION OF ELECTRICITY IN MY BRAIN

By Claire Watkins, M.F.A.

A Thesis submitted in partial fulfillment of the requirements for the degree of Master of Fine Arts at Virginia Commonwealth University.

Virginia Commonwealth University, 2004

Major Director: Elizabeth King  
Professor, Sculpture Department

This Thesis is an exciting and enthralling story about the history of the world as seen through the eyes of Claire Watkins. The story takes place in the dusty corners of her art studio in the old confederate capital, Richmond, Virginia. Ms. Watkins leads her audience through such unsuspecting places as her brain, the life of an African Dung Beetle, the center of an atom and the dark reaches of outer space. The story is inspirational and thought provoking. It will force you to see the world as an interconnected web that weaves your life together with the cosmos. A must read for the summer!

“Truly exceptional...a wonderful Thesis...highly recommended!”

- Ruby Westcoat

“I never thought of the world quite like that...now I see everything in a new and electrifying way.”

- Timothy Devoe

“Once again she proves to be my favorite contemporary artist and author”

- Virgil Hale Rhames



## THE TRANSFORMATION OF ELECTRICITY IN MY BRAIN

There are few academic pursuits that allow for multiple disciplines and the breadth of one's life to enter into them. Scientists do not look to art history for answers, mathematicians do not read fiction when solving their problems, but an artist can turn to any discipline, science, math, history or language can all feed the ideas of an artist. It is for this reason that I find myself making art. It is an academic pursuit that accommodates a generalist. I would have been a writer, where all you need is something to write with and on, where you don't depend on table saws, cordless drills, drill presses, soldering irons and torches. But the problem with writing is that you never get dirty, you spend all your time sitting, and the idea never really becomes physical. The beauty of the visual arts is that your thoughts can become corporeal. The manifestations of your ideas can literally sit in front of you or you can hold them in the palm of your hands, concepts that are haptic. It is through making ideas tangible that they change and morph into new ones. Like writing, the act of making is a way of thinking. Thoughts are revealed and excavated, new directions are exposed and pursued in the process of creation. The first version of an idea exists in the mind's eye. This idea is destroyed by the deed of actualizing it. I can never remember how I intended a piece, only how it ended up.

Years ago, I had this idea of making a sculpture that fit in my mouth and moved. At the time I knew nothing of mechanics or engineering. I was studying in the fiber

department at the Kansas City Art Institute, and no one in the department knew anything about movement, motors or electricity. The only mechanisms I had to reference in the fiber department were looms, spinning wheels and sewing machines. In my attempt to understand how things moved, I started taking things apart. I took apart tape players, flashlights, toys, clocks, anything that told the story of a gesture, the translation of a movement. During this investigation, I realized that this translation of energy is everywhere, the food I eat becomes my eyelashes, and the books I read become part of this paper.

In science, the theory is that nothing is destroyed or created it just changes form. Matter /energy may be changed from one form into another, but the total amount remains unchanged. This is something to think about. "From the age of the dinosaurs, cars have run on gasoline"((Nothing but) Flowers, Talking Heads) Fossil fuel, which powers our cars consists of the remains of organisms preserved in rocks in the earth's crust. What a spectacular translation of energy it is to drive my car.



Figure 1

I am interested in amplifying the transformation of energy, making it an active part of my sculptures. Wires bring electricity from the wall to motors, lights and microcontrollers. These wires can become drawings that, like all drawings, visually inform the viewer of relationships. In my work the relationships in the drawings are about the

transfer of energy, electricity travels from the wall through a tangle of wires through the circuit board to the LED's.



Figure 2



Figure 3



Figure 4

Think of the great drawing that is the city's electrical grid; lines traveling throughout the city, connecting people's private domiciles and then powering an electrical shaver that strokes the surface of a man's face.

In electrical systems, a circuit is connected and electricity flows. The story of circuitry is a story of touch. How subtle or slight can that touch be and still allow electrical flow? I want to question this notion of electrical contact by performing it. The touch in my artwork is like that of a necklace or bracelet that gently brushes the skin's surface, almost imperceptible. I imagine the surface of the circuit board to be skin.



Figure 4

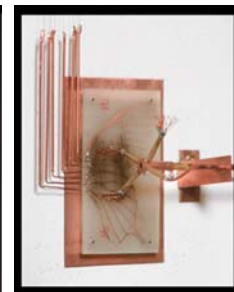


Figure 5

I aspire for my work to embody electricity:

1. A physical phenomenon associated with stationary or moving electrons and protons.
2. A keen and shared excitement; "the stage crackled with electricity whenever she was on it" (hyperdictionary.com)

I often use electricity to power motors that create movement in my work. I am curious of how motion can give life to an object. A motor can turn a peacock feather into an entomological organism (see Fig 8), or a slight gesture makes a branch come to life, machines that become creatures (see Fig 6 and 7).



Figure 6



Figure 7

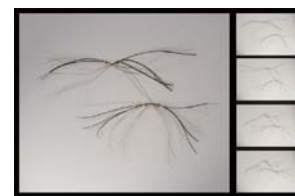


Figure 8

Movement is an experience of time, a performance. It communicates in a way that stasis cannot, it can demand the viewer's attention. Movement is anthropomorphic. It is emotive. We understand motion through our own body, we emulate it through dance and theater. I want the gestures in my sculptures to surprise me, which they somehow always do. They override my intention. It is the mistakes, the imperfections that make the movements most interesting. It is my inability to make the perfect joint or a mistake in writing a program for a microcontroller that catapults the work into places that are more interesting than I could have ever imagined or intended. I want my work to be meditative and curious, like watching a jellyfish swim or a spider spin its web. I want my work to move in such a way that it is almost imperceptible. If out of the corner of your eye you see a spider slowly

falling from an invisible thread, you could miss this, if not for the movement that caught your eye.

I desire for my art to be sublime with a subversive delicacy. There is a great power in the whisper or in a clear poignant statement. It is often when a statement is pared down and stripped bare that it is most potent. Take the Chris Marker film "*La Jetee*." This is a narrative film that is almost entirely told through a series of black and white still photographs. Nestled in these still images lies one brief sequence of actual movement. This movement is quiet, simple and fleeting, only lasting for a few seconds. The movement is comprised of a close-up of a woman waking up and blinking her sleepy eyes. This unadorned gesture is incredibly efficacious. It is puissant because it lies in the context of still snapshots, that are at best reminiscent, like photos from a vacation, but her waking up is a gesture in real time, that for once in the film includes the viewer as a witness to the moment. The snapshots will never include the audience. This is the power of movement. I have watched the film with other people that completely miss this moment of waking and with others that see it as the seminal part of the film.



Figure 9



Figure 10



Figure 11



Figure 12

Movement, especially mechanical movement, is often affiliated with mystery. An early automaton that was made in the late 18th century, would write with its mechanical hands, "I think, therefore I am" (Wood, Edison's Eve p xiv). I brood over this, imagining all the cams, gears and springs working together to create a hand that writes legible text on a page, "I think, therefore I am." Even now this seems like a great accomplishment. Computers, cars, television, and video games surround us but making an actual object move on its own is still magical.

Movement means life. We know plants and animals are alive because they move, but rocks and mountains just sit there, seemingly static. But they too are also moving. Mountains are crumbling away; plate tectonics are creating new ones. Planets, stars, galaxies are all spinning around. Our earth is rotating at just over 1000 miles per hour, 25,000 miles in a day, but I do not perceive this. I quietly sit here trying not to move, but I breathe, my heart beating, my blood is pumping, my body rocks with my pulse, and my stomach is growling. There is no such thing as being still. There is movement everywhere. I think of the old glass windowpane in my house and know that it is slowly falling, slumping towards the bottom, descending like a waterfall in slow motion, very slow motion. What would it look like to watch the world sped up, in a time-lapse video; we are born, we die, the glass windowpane slumps with gravity, plate tectonics moving, shifting, melting, and flowing back out? The point is that stillness is an illusion, it is only a matter of how much time you have to watch the movements unfold. I think of the table in front of me. It not only slowly moves towards its disappearance, (imagine the table after 5000

years). It is also moving right now, on the atomic level. Electrons hastily spin around a nucleus, so fast, that to my slow eyes it looks still and solid.

The atom is a vacuous space. Nearly all the atom's mass is in the nucleus, which consists of protons and neutrons. The electrons circling around the nucleus supply nearly all the atom's volume.

"To put these figures in perspective, imagine a pinhead, perhaps a millimeter across, at the center of St. Paul's cathedral, surrounded by a cloud of microscopic dust motes far out in the dome of the cathedral, say 100 meters away. The pinhead represents the atomic nucleus; the dust motes are its retinue of electrons. That is how much empty space there is in the atom- all the seemingly solid objects in the material world are made of these empty spaces, held together by electric charges."

(Gribbin, In Search of Schrodinger's Cat, p31-32)

There is so much space in an atom that it seems as if I could pass my finger right through the table.



Figure 13



Figure 14

I must remind myself of the world that does not belong to the human scale. While taking an entomology class I realized the exorbitant complex life that melodramatically unfolds whether we witness it or not. Dung beetles walk on spheres of elephant shit. The dung beetles fashion freshly laid dung into huge circular structures that they then roll by walking on top of them. The female then lays a single egg into each ball of dung. When

the eggs hatch, the larvae will feed on the fecal matter. Without this natural septic machine, the earth would be piled high with manure. Dragonfly nymphs live in the water. As they grow, they molt six to 15 times. Nymphs of some species may take as long as three years to mature. The nymph undergoes an incredible transformation to become a dragonfly, when it is mature it stops feeding and the process begins. Its mouthparts dissolve, its eyes become translucent and its wing pads swell. The nymph will then crawl out of the water and anchor itself to a rock or plant stem. After its exoskeleton splits, the dragonfly will draw in a big breathe of air, pumping up its body out of the larval skin and unfolding its wings. The process takes about two hours. Adult dragonflies live only a few months, living only to mate. These incredible activities happen all the time, all over the world. This life is everywhere and our planet is teeming with it.

"Take just the top inch of the soil the world squirming right under my palms. In the top inch of forest soil, biologists found "an average of 1356 living creatures present in each square foot, including 865 mites, 265 springtails, 22 millipedes, 19 adult beetles and various numbers of 12 other forms " (Dillard, Pilgrim at Tinker Creek, p94)

I feel that it is my duty to notice the minutia, to watch an inchworm climb a stalk, or to contemplate the success of a walking stick. This world is mysterious and beguiling to me. As the German Bauhaus architect, Ludwig Mies van der Rohe said: "God is in the details". In hopes to remind the viewer of this minute scale, I incorporate it into my work.





Figure 15



Figure 16

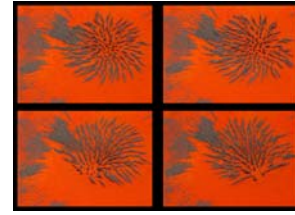


Figure 17

Perspective and scale interest me. So much can be accessed with the naked eye. In the New Mexican desert, I can see two million light years to the Andromeda galaxy. Two million light years is far, but it is nothing compared to what we can see with the combination of our eyes and the tools we make with our hands. Galileo gave us the surface of the moon with his telescope. We now know that Andromeda is more than a woman made of light, in fact it contains our (the Milky Way's), nearest spiral galaxy. Who would have known this bit of information back when they named her Andromeda? The Hubble telescope delivers images that reveal the first galaxies to emerge from the time shortly after the big bang. These are pictures of our history, not just pictures of my grandfather as a child, the cave paintings of Lascaux, or dinosaur bones, but beyond all of these. This is the history of the universe. Gazing at the stars not only tells us about what is out there but also what is here now, who we are, the history of life.

"Life begins with the process of star formation. We are made of stardust. Every atom of every element in your body, except for hydrogen, has been manufactured inside stars, scattered across the Universe in great stellar explosions, and recycled to become part of you.... everything else (beside hydrogen and helium) has been built up by nuclear fusion in stellar furnaces." (Gribbin, Stardust, p ix)

How do I go grocery shopping with this in mind?

Perhaps I have always known this, for I happen to have a replica of the big dipper in a constellation of freckles on my arm. Now I always see freckles as constellations. Scales can get intertwined and resemble each other, as demonstrated in the 1977 film “Powers of Ten” by Charles and Ray Eames. Nerves look like trees, cities like cell structures, and constellations like freckles.



Figure 18



Figure 19



Figure 20

I am curious about the brain and electricity. I want my brain to become the size of a room so I can walk into it, explore it, being surrounded by electricity. Electricity powers my computer, plays my c.d., curls my hair and houses my memory. How does the memory of my life exist as electricity inside of my nervous system? I can remember 1192 people from my life (see Portrait of my Brain), only a fraction of the people I have met. I can think of my mother, her face, her voice but where is she located in my nervous system? Where does the memory of Mrs. Mazzeffi, my kindergarten teacher, live within me?

"One important feature of the more complex brains is that they are rich in circuits - linked cells from various parts of the brain that become active at the same time. Imagine a Christmas tree with millions of lights, each representing a cell group. The thought of a dog would activate a small set of lights. The thought of a beloved dog that died last year would activate some of the same lights plus others"

(Blakeslee, “Humanity? Maybe it’s in the Wiring”, NY Times).

In my work I fantasize about where the people I have known in my life live as a memory within me (see Figures 21-24).



Figure 21



Figure 22



Figure 23



Figure 24



Figure 25

How is that memory formed? How do you remember one moment but not another?

"Nothing sorts out memories from ordinary moments. Later on they do claim remembrance when they show their scars." (Marker, Chris. La Jetee: cine-roman). Where are the moments that do not claim territory in my brain?

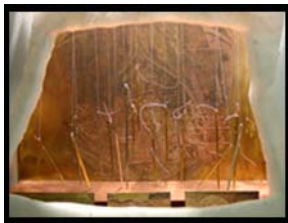


Figure 26



Figure 27



Figure 28

My hope is that I can make work that can nestle inside someone, to sit in their nervous system, gently shocking them with the memory of the art. Our lives are full of disposable images that are constantly thrown at us. I want to slow down the viewer, engage them for a moment longer, giving a moment of respite and contemplation. I also want to give and to receive from my work the reminder to take note, the prompting to witness and observe the peculiarities and wonders that our surroundings have to offer.

“I am no scientist. I explore the neighborhood. An infant who has just learned to hold his head up has a frank and forthright way of gazing about him in bewilderment. He hasn't the faintest clue where he is, and he aims to learn. In a couple of years, what he will have learned instead is how to fake it: he'll have the cocksure air of a squatter who has come to feel he owns the place. Some unwonted, taught pride diverts us from our original intent, which is to explore the neighborhood, view the landscape, to discover at least where it is that we have been so startlingly set down, if we can't learn why.”

(Dillard, Pilgrim at Tinker Creek, p 11-12)

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*State of the Art* - Arlington Art Center, Arlington VA  
*Homecoming* – Bank Gallery, Kansas City MO  
*Pulse* – 1708 Gallery, Richmond VA  
*M.F.A. Thesis Exhibition* (solo), VCU Anderson Gallery - Richmond VA  
*Juried Student Exhibition*, VCU Anderson Gallery - Richmond VA (Dean's Award Recipient)  
*Casserole* - Artworks, Richmond VA Curated by Ray Kass

2003 *804 Noise*, Polkadot Gallery, Richmond VA  
*It Came from the Graduate Studios*, FAB Gallery - Virginia Commonwealth University, Richmond VA  
*Free Radicals and Concrete Sequentials*, Orange Door Gallery, Richmond VA  
*2nd Annual Trans-Appalachian Tractor Pull*, Future Tenant - Carnegie Mellon University, Pittsburgh, PA

2002 *Subtle Interventions*, Fayerweather Gallery - University of VA, Charlottesville VA

2001 *Moonshine*, 500 Second Street Art Space, Albuquerque NM

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1996 *Gravity and Flying* (solo), Broadway Art Space, Kansas City MO  
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#### SCHOLARSHIPS AND GRANTS

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International Sculpture Center, Outstanding Student Achievement Nominee  
Graduate Teaching Fellowship, Virginia Commonwealth University
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