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3+1 Dimensions

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3 + 1 Dimensions

by

(Duke) Henry Oursler

(Under direction of Professor Marc Moulton)

Abstract

This Paper discusses the artwork produced for this thesis 3+1 Dimensions The paper discusses the works from an historical and theoretical perspective, focusing in particular on my influences which come from the larger scientific discipline of Quantum Mechanics. Connections are also made from the personal psychological perspectives of people and events that have had some impact on me personally. The paper will also discuss the sculptures individually and their connection to quantum physics as well any metaphorical content.

Index words: Sculpture, Abstract Expressionism, Physics, Metaphor, Space, Time, Quantum Mechanics,

3+1 Dimensions

by

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B.A., University of Northern Iowa, 2007

M.F.A., Georgia Southern University, 2010

A Thesis Submitted to the Graduate Faculty of Georgia Southern University in

Fulfillment of the Requirements of the Degree

MASTERS OF FINE ARTS

STATESBORO, GEORGIA

2010

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3+1 Dimensions
by
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DEDICATION

I dedicate this thesis to my wife, Katie Oursler; my father, Edward Oursler; my mother, Marsha Oursler, and my late stepmother, Gloria Black.

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I want to acknowledge Professor Marc Moulton of Georgia Southern University for his help throughout my stay at Georgia Southern University. His kindness, expertise and passion for teaching and art have influenced me greatly. Thank you!

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Chapter One

Introduction

The title of my thesis, “*3+1 Dimensions*” hints at my personal interest in quantum mechanics and physics, as well as its metaphorical content. As reflected in this exhibition, I have recently been interested in the theoretical and physical phenomena at the center of the scientific discourse in the field of quantum physics. Some of my recent works portray my interpretation of what small quantum particles may look like. Others offer my visual interpretation of large cosmic events. I am interested in the simplified, minimal, and geometric representation of such objects and natural events, specifically, through the use of forms such as the sphere, disc and cone.

A second, more personal, feature of my thesis works is the intent to metaphorically refer to events, ideas and people, such as my parents, that have played a major role in my life. These personal influences, both direct and indirect, are expressed metaphorically in the titles of sculptures.

A third aspect of my thesis exhibition is my approach to creating art. My methodology is twofold: first, approaching the work with an end in mind where I have a concept or intent and can visualize the finished work and produce a piece that is close to what I intended; Secondly is a more visceral and intuitive process in which I respond to the materials at hand. I allow expressive experience and the material to influence the direction of the sculpture. Both ways of working inform the other.

My work as an artist is a reflection of my personal interests and methods of making sculpture, combined with the influences both direct and indirect of those who have played a major role in my life, like my parents. In concept, the sculptures included in this MFA Thesis exhibition are a combination of all of these activities and influences.

My Father's Stories

My father could talk, and he loved talking. He seemed to know everything. He gave spontaneous lectures about almost any subject from oil pumps to Catholicism to the cosmos. My Father's stories were often very divergent conversations that would whirl around and hop from topic to topic.

My father, a smart man for someone without a college degree, gained most of his knowledge from reading. He had hundreds and hundreds of books that covered all types of subject's: psychology, dieting, art, baseball, mountaineering and countless other topics, including works by important authors like Hemmingway, Thoreau, Shakespeare and Melville. I can visually remember playing around in his library as a child, which consisted of three large bookcases, and books stacked so high on the floor at the end of the couch that they doubled as end tables.

My father and his friends were avid Trivial Pursuit players and were runners up in a Kansas State Trivial Pursuit tournament in the 1980s. My father's friends referred to him as "*The king of little known and useless facts*".

So as a child, I had more than my fair share of extensive lectures on all types of subjects.

I still talk to my father constantly. He is the most influential figure in my life. His stories allowed me to understand him, and in a way who I am becoming. Many of the sculptures in this exhibition directly reference experiences with and ideas from my father.

Spirituality: A Sweet Spot in Time

I found spirituality in a strange way. I loved to play baseball and was naturally good at it. I would emulate the stances and mannerisms of my favorite players like George Brett and Carlton Fisk. I idolized these players and wanted to do the same things that they did. I believed mimicking these players was the best method or formula for achieving similar success. George Brett, a *Hall of Fame* third basemen for the Kansas City Royals, hit left-handed and I had heard that left-handed hitters were more valuable players. However, I hit right-handed, so I wanted to teach myself how to hit left-handed. I went to my back yard and tied a knot in the climbing rope that my father had hung for me from a tree. I tied a knot near the bottom of the rope so it would hang in the middle of the strike zone. I religiously went to the back yard and hit the knot for hours every day. Eventually I felt comfortable enough to try it in a game.

I walked to the plate and stood up in the batters box. The pitcher wound up and delivered the pitch. That is when I had a true spiritual moment. I could not hear anything else around me and space-time seemed to slow down.

Everything in my being became focused as I watched the ball, leave the pitcher's hand, spinning so slowly that I could count the laces. As I began my swing, I recalled my father reading to me from *The Physics of Baseball* by Adair. He read, "When you push against the earth it pushes back against you". This concept, which at the time of its telling was beyond my comprehension, suddenly made sense. I swung and watched the bat collide with the ball.

I had experienced a "Sweet Spot in Time," a term coined by the author John Jerome in his book "The Sweet Spot in Time: The Search for Athletic Perfection". This book discusses events within sports when an athlete performs a task perfectly. I used the matter and mass of the earth and the carbon-based chemistry of my body to drive a baseball over the fence. I now understood that I no longer simply existed in universe; I was harnessing its power to create an event. After that moment all I could think about was doing it again. I felt closer to an understanding of the world than I ever had before. I also realized that it was not the result of the ball flying over the fence that was rewarding, it was the work that I had done, the doing of it that was the reward.

I am drawn to the intuitive and visceral nature of these "sweet spots in time" I also found my self-experiencing them in the studio while making art. I believe I have identified similar behaviors in the way that Abstract Expressionist Sculptor, David Smith works. I recall films of David Smith standing in his studio kicking around chunks of steel on the floor in an attempt to compose them. Smith is completely in the moment, working towards an end that he may not initially see. He is viewing the material as it is and allowing it, in some way to

dictate the direction of the work. Smith, it seems to me, is also pushing against the nature of the material and allowing it to push back.

Jackson Pollock is one of the most well known American Abstract Expressionist painters. Perhaps one of Jackson Pollock's most well known quotes, and certainly my favorite. Was from a question asked by Hans Hoffman also a prominent Abstract Expressionist painter.

Hoffman: Do you work from Nature?

Pollock: I am Nature.

I believe what Pollock is saying here, is that while he is working and painting he is experiencing a "sweet spot in time". An experience that is extremely intuitive and visceral. I feel these "sweet spots in time" or "being in the zone," are as close as one can come to tapping into a universal conscious. These experiences are some of the most spiritual moments in my life. Working in this manner just feels right both physically and emotionally. It in some way validates my work in my own eyes as an expression of who I am.

The intent of this thesis work is to create a cohesive body of work, which is authentic to my experiences, interests, and personal influences. All though the works are derivative of personal influences and interests, my hopes are that viewers can find some satisfaction and interest in the work and possibly create their own understanding for the sculptures by asking questions about how science and art interrelate.

Chapter Two

Historical Influences on the Thesis Works

Throughout the first few semesters of my graduate program I worked on refining my technical skills and my knowledge of art history. I focused my art historical studies on the periods from the 19th century through modern and contemporary art. Through my studies of contemporary and modern art I was able to better understand how form has been used to create meaning within sculpture, as well as ways in which artists were using different materials and techniques to create content and meaning. Through my studio practice and the critique of my own work by my instructors and peers I was able to understand how to approach my interests as potential concepts for future work.

When beginning this body of work I was unsure how the conceptual content of my work fit in historically with my artistic contemporaries as well as whom my artistic contemporaries were. I have found an answer in Arthur I. Miller's book *Einstein and Picasso Space, Time, and the Beauty that Causes Havoc*. Miller's book parallels the lives of Albert Einstein and Pablo Picasso and how physics and art relate. Miller discusses Picasso's creation of Cubism as a response to the theory of relativity. The Cubist movement from 1907 through 1930 consisted of two phases Analytical Cubism and Synthetic Cubism. However I am most interested in the conceptual aspects of Analytical Cubism.

In the Analytical Cubism phase Picasso is breaking down the image into very geometric forms of the circle, cone, sphere and disc. According to Arthur



Picasso, *Demoiselles d'Avignon*, 1907 (fig 1)

Millers book Picasso is responding to Einstein's work on the theory of relativity and is attempting to depict the fourth dimension. Miller discusses the formal aspects of Picassos *Demoiselles d'Avignon* in his book and how Picasso has depicted both the front view and side profile of some of women.

Miller explains Picassos approach to depicting things in the fourth dimension as if the viewer were able to look down on the three dimensions we live in from a fourth-dimensional plane. If you could do this you would see all sides of a three-dimensional object blooming out at once. The Cubist movement is Picasso's visual representation of what that perspective might look like.

Paul Cézanne whom Picasso considered to be his "One and only master" influenced Picasso greatly. Cezanne meshed the planes of the foreground and background of his paintings into fused planes. Which created an ambiguity of space. He later began to introduce multiple perspectives or viewpoints within his work.

Both Picasso, Cézanne and other artists in other movements such as Russian Constructivism, Italian Futurism and Supermatisim began to respond to science and physics in the late 19th and early 20th centuries due to innovations

and technological advancement at the time. An overarching theme or similarity I see between these movements is that they are attempting to depict more than we can see. They all these movements raise the question that we almost always know more than what we see. Picasso's goal is to: represent "Not what the eye sees but what the mind knows."

Miller's book not only discussed the affect Einstein and physics have had on Picasso and the art world. But discusses creativity from a unique perspective. Miller discusses the similarities between the creative nature of advanced mathematics and physics and the creative nature of art.

Artists and scientists are doing very similar things when it comes to solving problems. They are merely using different languages. An artist works from an artistic problem, which could be any thing from viewing images from the fourth dimension to creating metaphorical content with the arrangement of seashells. A problem presents itself and one must explore the language in which they are most fluent to communicate a solution. Scientist work the same way, they have a problem which can be any thing from finding out if the world is round or looking for the Higgs Boson particle also know as "The God Particle" in the Large Hadron Collider. To achieve satisfactory results there is a lot of trial and error as well as studies and studio time. These explorations in art and science are often result in beautiful and elegant objects and ideas. It is my contention that artists and scientists creatively often follow the same aesthetic line.

Although I do not place myself in the same class as that of a Stephen Hawking, Leonard Susskind or Albert Einstein, I do feel I am attempting to ask similar and valid questions. I believe that the questions we as artist and scientists ask are almost more important than the answers we discover. We as artist and scientists are adding to a greater knowledge.

Direct Artistic Influences on Thesis Works



Fletcher Benton, Folded Circle, 1997 (fig 2)

Although early 20th century artists indirectly influenced my work, Artists such as Fletcher Benton, Anish Kapoor and Albert Paley have had a greater influence on my work, though for different reasons. The artistic movement and artists associated with Abstract Expressionism have also provided some direction concerning methodology. They are all discussed individually in greater depth below.

The Influence of Fletcher Benton: His animated compositions of arbitrary form have informed the compositions on my work. Benton's sculptures are broken down into geometric abstraction very much like the visually information within scientific illustrations of quantum physics. Benton's work not only formally speaks to some of my work; his method of making is also similar to mine. Benton responds to the shapes and forms that he has on hand to create an

intuitive and spontaneous composition. His method of making also shares a commonality with Abstract Expressionism.

The Influence of Anish Kapoor: Kapoor's sculptures have encouraged me to think about how we might relate to a sculpture and the space personally. His

Anish Kapoor, Untitled, 2007 (fig 3)



wonderfully pristine sculptures have elements about them that I cannot quite understand until I have moved in and around them. I often look to Kapoor's work as a reference for formal or conceptual information in addition to encouragement.

Kapoor often deals with the metaphysical and creating space with his sculpture. His sculpture and discussion have prompted me to think about how we operate in space and the nature of space. These questions led me to further research into what makes up space through quantum physics. Kapoor does not necessarily refer to quantum physics when talking about his work however, when viewing his work I cannot help but contemplate the physical world. Visual similarities between Kapoor's work and mine is evident with my sculpture *Beethoven's Ear* (fig 14)



Albert Paley, Helix, 1997 (fig 4)

The Influence of Albert Paley: I attribute some of the expressive nature of my work to another artist Albert Paley. Though conceptually we are not striving toward the same goal, I find the expressive nature of his works to be fantastic. I have studied his work and find myself

returning to it time–after–time for inspiration.

Paley’s work often consists of large hard–edged formal elements contrasting with flowing ribbon like forms. His work has directly inspired my own sculpture *Brace For Impact* (fig 10) in which I have used a similar visual language. The sculpture *Brace For Impact* consists of a collection of ribbon like forms that suggests the tail of a comet.

David Smith in his studio (fig 5)



The influence of Abstract Expressionism: My art making also has a strong root in Abstract Expressionism. As I mentioned in chapter one about Jackson Pollock and his reference to nature: Jackson Pollock and David Smith’s methods of making art have influenced my own approach to making art. Although my work is often minimal and somewhat direct, the process through which I arrive at the

completion of a work is often very experimental. I am allowing the materials

and my abilities to direct the final outcome of the work. I am attempting to live in the moment and responding to the materials that I have, as well as the ideas and emotions I am thinking about or experiencing at the time. Working this way gives the work some kind of authenticity.

Other influences include scientists and authors like Leonard Susskind, Stephen Hawking and Malcolm Gladwell who have provided significant influence on the conceptual aspects of my work. Their individual contributions are acknowledged in the discussion that follows.

The influence of Leonard Susskind's Writing: Leonard Susskind's book, *The Black Hole War: An Argument with Stephen Hawking to Make the World Safe for Quantum Mechanics*, has influenced much of my work. Leonard Susskind is an elementary particle physicist who has recently made astounding discoveries in the world of quantum mechanics. Susskind's Writings have provided me with formal inspirations. Through reading his book, *The Black Hole War*, I was bombarded with the visual explanations of scientific phenomenon. For example while reading you are attempting to visualize what a quantum particle might look like or what a string from string theory might look like. The images that I generated from his explanations provided me with many of the forms found in my thesis exhibition. Most notable would be the sculpture *Bits*. I will discuss the formal aspects of *Bits* in the next chapter.

The influence of Stephen Hawking's Writing: Stephen Hawking is a world-renowned physicist who works with quantum gravity and black holes.

His books, *A Brief History of Time* and *The Universe in a Nut Shell* have been influential to my work. I used much of Hawking's dialogue in the same way I did with Leonard Susskind's writing, however one of the sculptures in the exhibition titled, *The Forbidden Fruit* (fig 6), was inspired by a drawing from Hawking's book *The Universe in a Nutshell*. I have looked to the writings of Susskind and Hawking for guidance in my understanding of the universe and how it works.

I have also been greatly influenced by the nonfiction writer Malcolm Gladwell. His books *Blink*, *The Tipping Point*, *Outliers*, and *What the Dog Saw*, have affected my thinking process greatly. His work has changed the way that I approach and respond to problems and how I look for solutions. Gladwell's ideas and concepts are not visually referenced within my thesis exhibition. However, his writing and interests have had some effect on how I work. Gladwell has an interesting way of researching and understanding problems. Whether that problem is one as dangerous and life threatening as epidemics or it is something more benign like training a dog, he has an interesting approach to talking and thinking about things. His greatest influence on me would be my attempt to emulate his approach to thinking and problem solving. Gladwell almost always find some small-unexpected bit of information that ties a whole story together. This reflects my attempts to link my personal experiences with quantum physics.

Through the sculptures that comprise my thesis exhibition, I am attempting to communicate and connect these historical and scientific

influences. Further explanation of how the sculptures within the exhibition speak to the ideas and concepts of my historical and scientific influences is provided in greater detail in Chapter Three.

Chapter Three

Discussion of the Thesis Works

This section will discuss the conceptual and formal aspects of some of the sculptures in my thesis exhibition. The stories and ideas behind many of the works are stories based in my own personal experiences and interests. It is almost impossible for the viewer to look at the sculpture and understand the stories behind the works based solely on the visual information provided. However the viewer will better understand the work by reading my stories. I have attempted to guide the viewers understanding of the work through the titles of the pieces. My intent is for the titles of the sculptures to direct the viewer's interpretation of the sculpture.



The Forbidden Fruit, 2010 (fig 6)

Forbidden Fruit

This work is 3 feet x 2 feet x 2 feet and fabricated from stainless steel, mild steel and marble. The sculpture consists of an eight-sided cone which transitions into a hemisphere. A white marble ball sits at the point of the cone and a black marble ball sits at the apex of the hemisphere. The work is visually similar to the form of a snow cone.

This work derives from Stephen Hawking's description of the shape of space-time as pear shaped. Hawkins' description of our past-history-light-cone illustrates a shape much like a cone that initially flares out and then folds back on itself at the point of the big bang. The light that actually forms the light cone is bent by the gravitational pull of the big bang, which is a singularity, (a singularity is a point in space in which the gravitational field has become infinite) creating a pear shape.

I find the scientific idea that the history of our universe can be seen as the shape of a fruit to be ironic. Not only is the universe a fruit shape but also, it is not in the shape of an apple, which the fruit of the tree of knowledge is commonly depicted as. I found an interesting connection between eating the fruit of the tree of knowledge in the book of genesis and the scientific research into space, time, and the creation of the universe.

The artwork's intent is to ask the questions, "Is science the tree of knowledge?" and "Is looking deeper and deeper into who we are and where we came from a bad thing?" I do not intend to change anybody's spiritual beliefs. I am merely pointing out something I find quite humorous, which is that there are "fruits" on both sides of the argument.

I Don't Think It Will Affect the Quail

I Don't Think It Will Affect the Quail (fig 7) stands 12 feet x 6 feet x 6 feet. The sculpture, fabricated from mild steel, consists of a large sphere surrounded by three larger rings. Radiating from the sphere are steel rods that

create an outward expanding visual sense of movement to the piece. The sculpture, a visual representation of a super nova, is a metaphor for one of my father's stories.



I Don't Think It Will Affect the Quail, 2010 (fig 7)

On November 22, 1963 my father was on an afternoon quail hunt. At one o'clock the news broke through the music on the car radio to announce that President Kennedy had been shot and pronounced dead. My father then muttered the 8 words that he wishes to this day he could snatch from the air "I don't think it will affect the quail".

My sculpture of the

supernova acts as a metaphor for the assassination of President John F. Kennedy. My father was a mere 300 miles from Dallas; he almost immediately felt the initial shock of the exploding star. Similar to the shock waves of a supernova, the news of Kennedy's death swept the earth. As the news of Kennedy's death spread it devastated the emotions of millions of people throughout our nation and the world.

The death of a star (Supernova) is one of the most brilliant and powerful events that occur in our universe. Their explosive powers send radiation, sub-atomic particles, and matter hurling through space at one-tenth the speed of light, reeking havoc on all nearby celestial objects and systems. Kennedy's assassination was similar in character to the exploding star.



Bits, 2009 (fig 8)

Bits

Standing 13' x 8' x 10' and fabricated from mild-sheet steel *Bits* (fig 8) consists a series of curved I-Beams. This sculpture is derived from a concept developed by elementary particle physicist, Leonard Susskind.

In Leonard Susskind's book, *The Black Hole War: An Argument with Stephen Hawking to Make the*

World Safe for Quantum Mechanics, Susskind addresses the idea of whether or not information is lost forever once it falls into a black hole. Susskind believes that information is not lost and that, at some point, the information will be released back to the cosmos. This was the basis for the argument between Susskind and Hawking.

Through research into thermal dynamics Susskind found that a black hole has a temperature of about one ten-millionth of a degree above absolute zero. Therefore, he reasons a black hole can evaporate. Information trapped by a black hole may be captured for trillions of years but will eventually be released through evaporation.

To me, such an idea possesses a range of metaphorical and formal content. *Bits* is a microscopic view of the tiny bits of information or strings (the main object of study in string theory) evaporating from a black hole. I have chosen the I-beam shape to denote the string and act as a metaphor for structure. Strings are the substance that makes up our reality based on string theory. The curved I-beams rise as if they are bubbles rising from a boiling pot of water creating an upward motion.

This work uses the idea of information evaporation from a black hole as a metaphor for rebirth or transcendence. The metaphor may also take a spiritual turn if one chooses. We live, we die, and we change form and become part of the greater whole of the universe.

World Lines

World Lines (fig 9) stands 13 feet x 10 feet x 5 feet and is fabricated from mild steel. This artwork is based on the physics concept of World Lines. A World Line is a path that travels through four dimensions, all three dimensions of space and the dimension of time. My research into world lines came from a problem that Einstein called the Twin Paradox.



World Lines, 2009 (fig 9)

The Twin Paradox works like this. There are twin siblings who are 20 years of age. One of the twins, we will call him Pete, decides to take a trip to a planet 25 light years away to see an art exhibit and the other twin, The other twin we will call her Sally, stays at home because she has a thesis defense the next week.

Pete wants to get to the art exhibit as fast as he can so he travels at 99.99 percent of the speed

of light. It takes Pete a total of 50 years to travel to the planet and back.

When Pete returns home Sally is now married and has had a career and is now retiring to the Bahamas at the young age of 70 years old. However Pete is now only 21 years old. Why is this?

According to Einstein, the closer you travel to the speed of light time begins to slow down; therefore, Pete would be younger. What is happening is that Pete and Sally are traveling their own world lines.

The one aspect of the Twin Paradox that is over looked is that Pete chooses to travel to the art show. I thought that this was an interesting metaphor for individuality and our ability to alter our life course at any moment.

The sculpture *World Lines* is intended to act as a metaphor for individuality. We are all traveling on our own world lines having different experiences and affecting others. We ultimately have the power to control our destiny by choice. We may not achieve all of our goals whatever they may be. However, we can begin to alter our world lines to move towards what we desire. We are not the animals that use and calculate space-time but we currently are the only ones that can consciously change it. Like our fingerprints everyone's world line is different and our world lines become a record of who we are and where we came from.

Brace For impact

Brace for impact (fig 10) stands 14 feet x 6 feet x 6 feet and is fabricated from mild steel and stainless steel. The sculpture is composed of rolled plates of steel and steel rings. The sculpture visually references the form of a comet. The title of this sculpture is a quote from Captain Chesley B. Sullenberger.

This artwork refers to research into the Hale-Bopp comet that passes within visual range of the earth every 2,533 years. Its most recent passage was in 1997 and it is estimated that the previous passage was in 2215 BC. For a person to have the opportunity to see Hale-Bopp they would have to be fairly lucky.

This got me thinking about the experiences that are extremely unique,



Brace for Impact, 2010 (fig 10)

perhaps, once in a lifetime. The sculpture "Brace for Impact" is a monument to such once in a lifetime events. The title of the work comes from the recent event in which Captain Chesley B. Sullenberger crash-landed a plane of 150 passengers and five crewmembers into the Hudson River. Due to his quick thinking and safety training he saved all 155 aboard the plane. Between 2007 and 2008 there were 10.8 million flights that took off and there were only 28 accidents. So the chances of a person being killed in a plan crash are extremely low. That is why they call it the safest way to travel. However, what is even more remarkable is being on a plane that lands softly in the Hudson River with

no casualties and one of the most experienced pilots in the country at it's helm. Now that is true luck. The survivors of flight 1549 are probably luckier than the

millions of people who were able to see the Hale–Bopp comet, because they get to live to tell about it.

Infant Expansion

This wall sculpture is 4 feet x 2 feet and fabricated from stainless steel, steel, marble, and wood. The sculpture, *Infant Expansion* (fig 11) is based on microwave images of the universe. Scientists are able to take images of the radiation left over from the Big Bang and put together a baby picture of the universe. These baby pictures resemble an MRI or CAT scan. I was intrigued by the image and that it was being referred to as a baby picture. This urged me to think of how we develop as children and how our brains grow and develop.

Infant Expansion, 2009 (fig 11)



Our brain only grows to a certain physical size however; we are still able to put information into it. From the day we are born our knowledge is growing and

expanding. In a matter of months we are able to walk and then we begin to talk. We are able understand cause and effect; by acting a certain way we can achieve a specific result. Much like our universe our brains are expanding with

information. The information that we soak up and attempt to understand also creates what we perceive as our physical world.

Perhaps what I found to be most interesting in my musing of the expanding universe and our expanding brains is that much of the knowledge we gain is experiential. However, the universe is not so different. The universe does lack an observer, however it too has experiences and those experiences whether they are collisions or chemical reactions create information. Information has no size. Information can tell us the way every thing works from beginning to end. However it can still fit in our brains

Convergent Divergent (The Wobble)

Convergent Divergent (The Wobble) (fig 12) stands 7 feet x 6 feet x 4 feet. The sculpture is fabricated from stainless steel and mild steel. The sculpture consists of two conical shapes joined at their tips. The sculpture sits upon a disc shaped base at an angle close to 45 degrees. The manner in which the sculpture sits on its base is visually similar to that of a child's toy top.

Convergent Divergent (The Wobble) derived from an issue I was having with critiquing artwork. During the critique of art I was interested in the types of comments students were making. It became apparent that the students would talk about the artwork in two ways. The first way to talk about the work is to discuss what the art is saying or what it is visually referencing. When discussing the work in this manner the viewer is attempting to focus in on the intent of the artwork. I perceive these types of critiques as convergent. The

viewer is looking for a specific point and narrowing down the visual information within the artwork to attain some type of understanding.

The second way is to talk about ways to improve the work and how one could



The Wobble, 2009 (fig 12)

make the artwork communicate its intent more effectively. However, to have productive comments the viewer must know the intent of the artist. I see these types of critiques as very divergent. The viewer is looking at many different ways the artwork could be improved to better communicate the artist intent.

While thinking about

the way in which the critiques were going I found that there was an interesting connection between the thinking involved with how I critique artwork and the thinking involved with how I make artwork. As I am working on my own artwork I am constantly wobbling back and forth between these two different ways of making.



Atomic Clock, 2010 (fig 13)

Atomic Clock

Atomic Clock (fig 13) stands 6 feet x 6 feet x 12 feet and is fabricated from mild steel. This sculpture is formally based on a pulsar star. A pulsar star is one of the most powerful objects in the universe. Pulsars are rotating neutron stars. A pulsar star has particle jets that shoot out from its magnetic poles. The pulse is a result of the magnetic north and the true north of the star being misaligned. Due to their rotation the stars appear to pulse similar to a lighthouse. This is commonly called the lighthouse effect.

I became interested in the pulsars because of their brute power. The particle jets destroy any planets or stars within their sweeping paths. However,

some pulsar's pulses are so precise that they can double as an atomic clock. An atomic clock is the most accurate timepiece known. Some atomic clocks may only be a 1 second uncertainty every 30 million years. I found an Ironic connection between this killer star and the delicate machine.

I often think of clocks as very delicate. They have small intricate parts that are difficult to manufacture and assemble. To build an accurate clock it takes a lot of precision and exactitude. I seldom think of a clock as a very brutal thing.

The fact the some pulsars are as accurate as an atomic clock interests me because they are incredibly dense brutal objects. Just a spoon full of a pulsar star would weigh billions of tons here on earth. Despite the fact that the gravity of the star would crush you, if you got near to it you would have to deal with radio active particles shooting out from its jets near the speed of light.

The pulsar is acting as the atomic clock of the universe. It is a brutal and powerful object doing the most delicate task. Counting down the time until time is no more. My sculpture *Atomic Clock* is a monument to the notion that we only have so much time. Every thing in the universe has a beginning and an end including the universe its self.

Beethoven's Ear

Beethoven's Ear, (fig 14) stands 5 feet x 5 feet x 4 feet. This sculpture is fabricated from steel, wood, and aluminum pop rivets. *Beethoven's Ear* began as an exploration of the deformation of space-time by the intense gravity of a

singularity or black hole. Einstein's theory of relativity describes gravity as a curvature of the space-time continuum. The more compact or dense the matter in an object or star the larger the curve in the space time continuum. Physicists often describe the effect of gravity on the space-time continuum by placing a bowling ball in the middle of a trampoline. The bowling ball creates a dent in the fabric of the trampoline.



Beethoven's Ear, 2009 (fig 14)

Now, imagine you have an object the size of a pea, but the pea-sized object weighed 2 tons. If you were to place a 2-ton pea in the middle of the trampoline the trampoline would stretch and make a long distended dent on the fabric of the trampoline. Now that you have placed your 2-ton pea on the trampoline you can now take your bowling ball and try to roll it across the trampoline.

The ball will begin to roll towards the other side but it will begin to curve towards the hole made by the 2-ton pea until it eventually swirls and fall down into the hole. Black holes work like this and anything that comes too close to them is pulled in. The gravitational pull of a black hole is so immense that light cannot escape. The theoretical form

made from the effects of a black hole on space-time is very similar to that of an ear horn, which is an early hearing aid device.

Beethoven went deaf in his later years as a composer and often used a variety of ear horns. Although he lost his hearing he continued to compose. In 1824 he composed his most notable work the Ninth Symphony while completely deaf. The Sculpture “Beethoven’s Ear” is a monument to his ability to absorb and understand the emotion in music.

Glorious Black

Based on the shape and form of a galaxy, *Glorious Black* (fig 15) serves as a visual metaphor for the familial influences of my late stepmother, Gloria Black. Galaxies are large collections of gravitationally bound elements such as planets, stars, solar systems, dust, and gasses. Commonly, galaxies form and swirl around one point. That point is most usually a black hole. The strong gravitational pull of the black hole holds everything together and keeps elements from whirling out in to space.

Glorious Black serves as a metaphor for my stepmother, who was a wonderful and loving woman and the matriarch of the family. Gloria was the organizer and I often sought her advice. The sculpture, *Glorious Black*, illustrates Gloria’s power and hold on all of the family members around her. She was the gravitational source that held the family together. Strong forces are often the givers of life and the creators of possibilities.



Glorious Black, 2010 (fig 15)

Chapter Four

Conclusions

When I began my journey in the MFA program here at Georgia Southern University I was unsure of my artistic direction. Much of my early work was based on the formal patterns of rhythm and repetition. I was attempting to make visually dynamic and interesting objects however I was not aware or able to talk or write about the work in a very meaningful way. Through my graduate program I have learned to understand how my art speaks and communicate its intent better both visually and through writing and speaking.

3+1 Dimensions is the first body of work in which I have addressed elements of my personal life. I have had some profound experiences in the last year from getting married to the death of my stepmother as well as my mother battling two different types of cancer. Although these experiences had a great impact on my life I did not initially set out to make art about these personal experiences. I also did not consciously turn to my art as some type of cathartic or therapeutic treatment for the emotions that I experienced in the past two years. However through the critique of my work I realized that some of the objects and forms I was interested in did in fact address some of my emotions in some way. I realized that attempting to separate my life experiences and my artwork is a fool's errand. It seems obvious now, but the profound experiential moments of our lives are often the mode through which we relate to others

about who we are. Many of the art works in this exhibition represent my attempt to understand these moments of heartbreak, joy, and humor.

Where I go from here is perhaps the toughest question. I am looking forward to being part of academia and teaching others. I greatly enjoy the academic atmosphere and intellectual discussion with my peers and colleagues. Teaching allows one to continue learning and expanding their network of resources. Academia allows us to work together to advocate for the advancement of art in our communities.

I do however; have a strong need to work in the studio. The process of making has become more and more stimulating to me and I am looking forward to expanding the processes and materials I am using. I am currently working towards creating a series of performance and installation works which deal with transcendent moments experienced in sport and spiritual and religious ritual. This concept derived from my studio work and my interest in the visceral nature of creating art. I would like to bring these "Sweet Spots in Time" into the gallery.

3+1 Dimensions is my largest and most effective body of work. It speaks to my interests and experiences. The series consists of visually interesting work that is rich in metaphor. I do recognize the fact that many, if not all of the implied metaphors are not directly understandable. However, I feel that they are open enough for the viewers to relate in some way.

Appendix A

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Susskind, Leonard. *The Black Hole War: My Battle with Stephen Hawking to Make the World Safe for Quantum Mechanics*. New York, New York: Back Bay Books. 2008

Hawking, Stephen. *A Brief History of Time*. Bantam Dell Publishing Group. 1988

Hawking, Stephen. *The Universe in a Nutshell*. Bantam Spectra. 2001

Arthur I. Miller, *Einstein and Picasso Space, Time, and the Beauty that Causes Havoc*. Basic Books. 2001

John Jerome in his book "The Sweet Spot in Time: The Search for Athletic Perfection". Breakaway Books. 1980

Malcolm Gladwell. *Blink*. Little Brown and Company. 2005

Malcolm Gladwell. *The Tipping Point*. Little Brown and Company. 2002

Malcolm Gladwell. *Outliers*. . Little Brown and Company. 2009

Malcolm Gladwell. *What the Dog Saw*. Little Brown and Company. 2009

Donald Kuspit. *Albert Paley*. Rizzoli International Publications. 2006

Appendix B

Curriculum Vitae

Education

MFA	2010	Sculpture	Georgia Southern University Statesboro, GA
BA	2007	Studio Art	University of Northern Iowa Cedar Falls, IA
AA	2001	Graphic Design	Colby Community College Colby, KS

Professional Experience

2009	Graduate Teaching Assistant, Georgia Southern University, Statesboro, Georgia, (Instructor of Record) Sculpture 1
2009	Graduate Teaching Assistant, Georgia Southern University, Statesboro, Georgia, (Instructor of Record) 3-D design
2009–spring	Graduate Teaching Assistant, Georgia Southern University, Statesboro, Georgia, (Assisting Professor Moulton) Sculpture 1
2007–2009	Sculpture Studio Technician, Georgia Southern University, Statesboro, Georgia (<i>Maintained 3,500 square foot studio equipped with full wood shop with</i>

band saws, table saw, drill presses, compound miter saw, disc and belt sanders. Responsible for repair and maintenance of a fully equipped metal fabrication shop which consisted of two 255 Millermatic MIG welders, Miller TIG Welder, Scotchmen Iron worker, 7 oxygen acetylene welding units, and a large forge. Duties included operation and maintenance of large foundry capable of pouring 200lbs bronze crucibles.)

Awards and Honors

- 2009 Best in Show, *9th Annual Florida Outdoor Sculpture Competition*, Winter Haven, FL.
- 2008 Honorable Mention, *National Outdoor Sculpture Competition and Exhibition*, North Charleston, SC
- 2007 Presidents Choice Award, *Washburn University 12th Annual Outdoor Sculpture Exhibition*, Topeka, KS,

Group Exhibitions

- 2010 *MFA Thesis Exhibition*, Georgia Southern University, Statesboro, GA

Passive Tense, Sentient Bean, Savannah, GA

Art in Public Places, Knoxville Outdoor Sculpture Competition, Knoxville, TN,

Juror: Bart Watkins

2009 *Cary Visual Art Outdoor Sculpture Competition*, Cary, NC, Juror: Linda Johnson Dougherty, Chief Curator & Curator of Contemporary Art for the North Carolina Museum of Art in Raleigh

Art in Public Places, Knoxville Outdoor Sculpture Competition, Knoxville, TN, Juror: Wayne Trapp, Sculptor

13th Annual Art Around the Corner Outdoor Sculpture Exhibition, Ames, IA

9th Annual Florida Outdoor Sculpture Competition, Winter Haven, FL, (catalogue) Juror: Robert Lombard, Art Director, Millenia Gallery, Orlando, FL, (Best in Show)

2008 *Georgia Southern University Graduate Student Exhibition*, Center for Arts and Theater, Statesboro, GA

Up Town Columbus Sculpture Walk, Columbus, GA

22nd Rosen Outdoor Sculpture Competition and Exhibition, Boone, NC (catalogue) Juror: Dr. Sarah Clark-Langager, Western Gallery Director at Western Washington University

National Outdoor Sculpture Competition and Exhibition, North Charleston, NC, Juror: Glenn Harper, Editor of Sculpture Magazine, (Honorable Mention)

2007 *Washburn University 12th Annual Outdoor Sculpture Exhibition*, Topeka, KS, (Presidents Choice Award)

Public Commissions

- 2010 Special Olympics Georgia, Macon, GA (Design And fabrication of Ceremonial torch for summer and winter games)
- 2009 Carol A Carter Recital Hall, Georgia Southern University, Statesboro, GA (Design and fabrication of sculpture “Con-Brio”) Commission
- 2008 Keep Bulloch Beautiful, Statesboro, GA (Design and fabrication of “The Axe”) Commission
- 2006 University of Northern Iowa, Cedar Falls, IA (Design and fabrication of “Panther”) Commission

Bibliography

9th Annual Florida Outdoor Sculpture Competition, exhibition catalogue, 2008

13th Annual Art Around the Corner Outdoor Sculpture Exhibition, announcement with image, 2009

Art in Public Places, Knoxville Outdoor Sculpture Competition, announcement with image, 2009

Jennifer Harrington, “This That & The Other”, *Artists Corner* (Artist of the Month), July, 2008

Rosen Outdoor Sculpture Competition and Exhibition, exhibition catalogue, 2008

National Outdoor Sculpture Competition and Exhibition, announcement with
image,
2008

Washburn University 12th Annual Outdoor Sculpture Exhibition, announcement
with
image, 2007

Visiting Artist Lecturers (Lectures and Workshops)

2009 Artist's Talk, Cary Visual Arts Center, Cary, NC

2008 Artist's Talk, Columbus State University, Columbus, GA

Blacksmithing Workshop, Columbus State University, Columbus, GA

Artist's Talk, Turchine Center for the Visual Arts, Boone, NC

Professional Presentations

2009 *Preparing Professors of Art*, Co-Presenter with Dr. Bruce Little, Fall
Conference of Georgia Art Education Organization, Young Harris College, Young
Harris, GA

Professional Service

2009 Georgia Southern University Arts Fest, Volunteer

Collections

Private Collection, Des Moines, IA (Smith Family)

Private Collection, Statesboro, GA (Keep Bulloch Beautiful Organization)

Public Collection, Columbus GA (City of Columbus)

Professional Organizations Membership

College Art Association

National Art Education Association

Georgia Art Education Association

Foundations in Art Theory and Education

Technical Abilities

Welding– MIG, TIG, GAS, Stick

Steel Fabrication and Forging, Stainless Steel, Bronze, Aluminum

Casting– Bronze, Aluminum, Wax, Plaster, plastic

Concrete Construction

Wood Fabrication and Construction