Your Cadence

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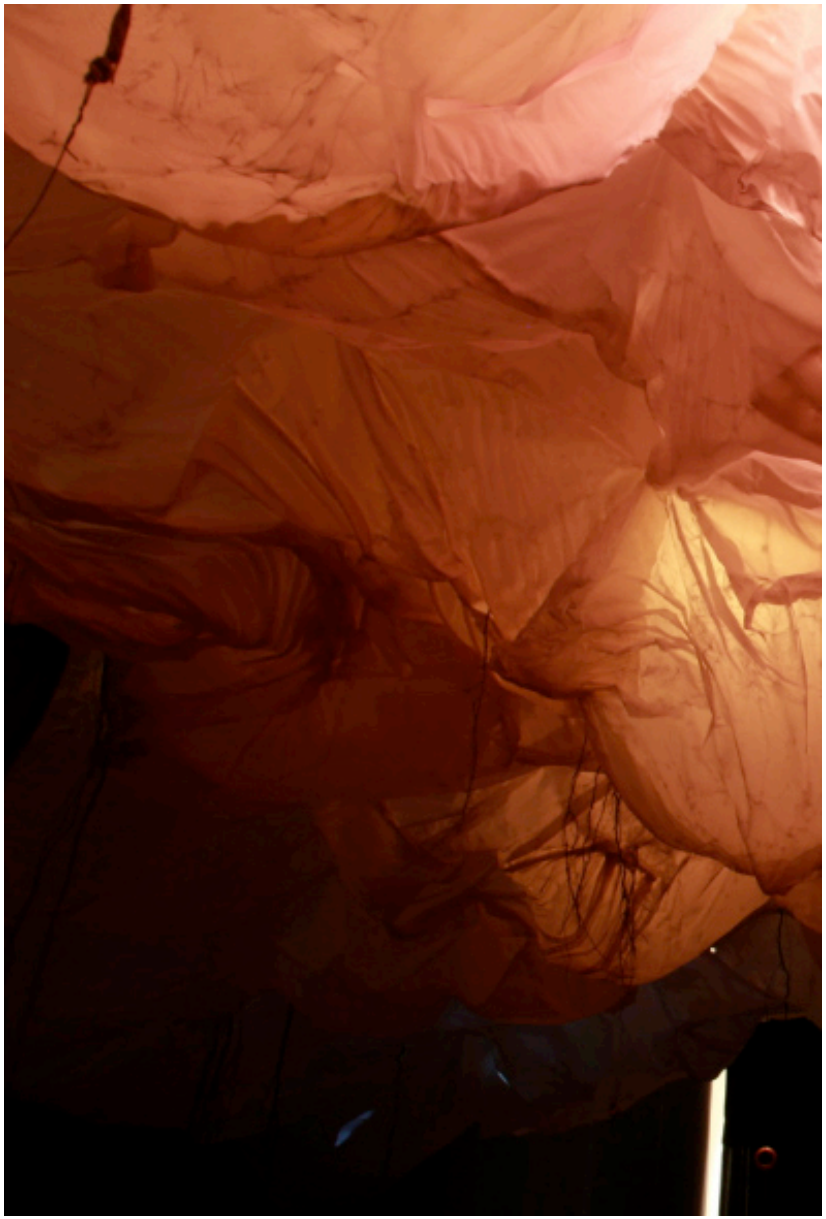

Fig. 1 A view of the installation.

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Nancy Collin McRae
MFA Thesis Dissertation
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2012

B. A. French Literature, Miami University of Ohio

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Thank you.

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Keywords: installation, art, music, animation, embodied knowledge, mirror, body, graphic score, river, flood, water, perception, space

Everything flows and nothing abides;
everything gives way and nothing stays fixed.

You cannot step twice into the same river,
for other waters and yet others go ever flowing on.

-Heraclitus

Fig. 2 ~ Still from animation in *Your Cadence,* 2012.

Fig. 3, A view of the installation, *Your Cadence*.

Abstract

My thesis show *Your Cadence* was intended to create an experience for the viewer, challenging the normal ways of viewing an exhibition. Using the tools of stop-motion animation, sculpture, sound, and a simple mirror, I created an installation that plays off of our human perception of space. The gallery is home to an undulating otherworldly landscape that exists on the ceiling, designed to be viewed by looking down into a hand-held mirror. This creates the sensation that one is walking on this unusual ceiling. Embedded in this landscape are contained oases that present windows into animated worlds and bodies of water.

This gently unsettling and surreal environment is intended to create a site of curiosity, exploration, and heightened awareness of the workings of one's own body; to study the ways that information is transferred across perceived time and space; to meditate on the futility and humanity of our striving to conceive of things we can't fully comprehend.

Contents

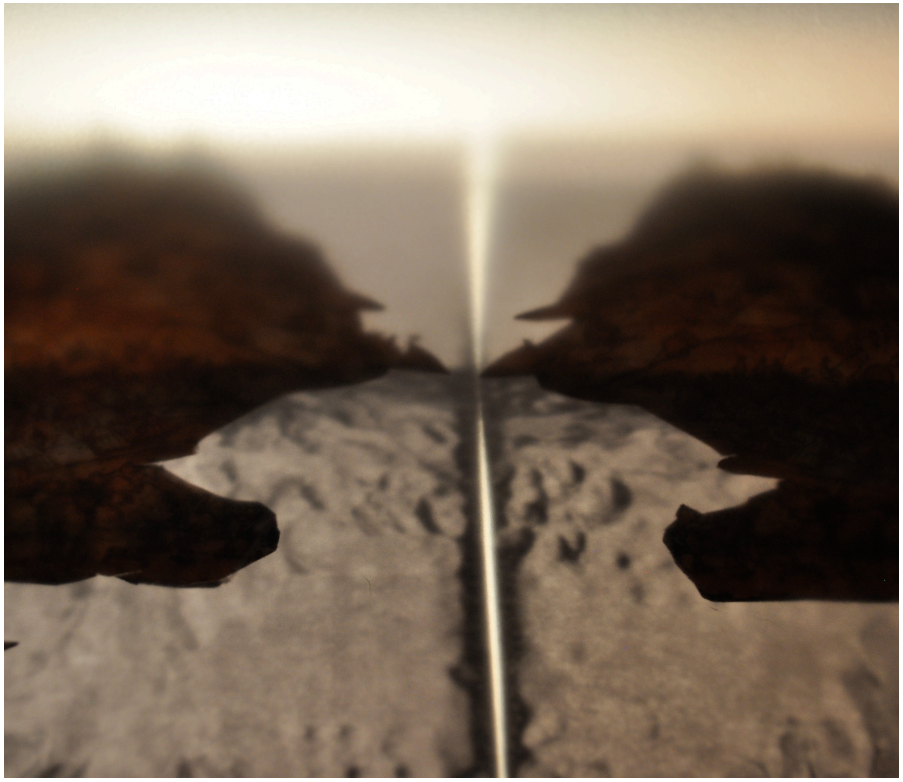


Fig. 4 . A Still from the animated portion of *Your Cadence.*

Introduction.

Upon entering the show held at the Work: Ann Arbor Gallery in Ann Arbor, Michigan, the viewer saw that the familiar wall text on the wall that announces the title of the show and the artist's name was printed backward, in its mirror image. I hoped this would encourage the visitor to move past any innate shyness, and to pick up one of the twenty mirrors laid out on the windowsill to their immediate right. In this text, the viewer is directed to walk through a black curtain, and, if they were indeed following the suggestion of looking through the mirror, they now felt as if they were walking along a narrow white walkway that actually was attached to the ceiling four feet above his or her head.

The entire ceiling was converted into an undulating landscape made of fabric that had been dipped in hot, melted wax, shaped for each individual spot, and hand-sewn together after the panel had cooled and hardened. Screens were embedded in locations within the installation. One offered a vision of a flowing river, and one showed various views out a window;

Fig. 5. Wall Vinyl, as it existed on the left, and mirrored on the right.

sometimes out onto an ocean, sometimes a harbor, or a view full of animated rain. Provided with an open space and a means for its visual exploration, viewers can then direct their own experience. Viewers almost always slowed down, and many people reported being flooded with sensations of awe and playfulness.

The motivation to create this work came from several personal experiences. I had the personal

experience of being re-ordered by nature. Almost twenty years ago, the river that flowed through my grandparents' backyard flooded and almost reached the house. It had been a false alarm, but we became aware of a possibility of flooding someday. In 2008, we were not as lucky. At one thirty in the morning, my grandmother and uncle were woken up by police officers and told they had half an hour to leave. An hour later, the water entered into her house, displacing them.

Fig. 6. An image of my grandmother's house, flooded.

The house was destroyed. This flood disrupted and disordered our family, and we temporarily lived in a three-generation household because they moved in with us in Illinois. This ended up being an incredibly positive aspect of the disaster. I watched my family come together to rebuild a home, but something had changed. I saw fear and vulnerability where I hadn't before. We had conversations that we hadn't had previously, about change, both in our families, and in the world. The very borders around us were being rearranged.

Fig. 7.My mother, aunt, and grandmother next to the flooded street.

The questions that followed in my mind were about individual and collective perception of space; physical *and* emotional space inherent in daily life and especially during times of stress. In the weeks after the

flood, I was struck by a list I had read in a book about Maps. The list was cheerily and matter-of-factly written by authors James Akerman and Robert Karrow, Jr. to chronicle different purposes a map may serve. To me these also serve as poignant metaphorical questions:

⇒ *Where am I and how do I get where I want to be?*
⇒ *What does the world look like, and what is my place in it?*
⇒ *What does my part of the world look like,*
and how do I belong there?
⇒ *What happened here, what will happen here, and how*
are these events important to me?
⇒ *How can maps help me comprehend things*
that I cannot even see?[1]

[1] Akerman, James, and Karrow Jr., Robert W. *Maps: Finding Our Place in the World. 2007.*

Mirrored World

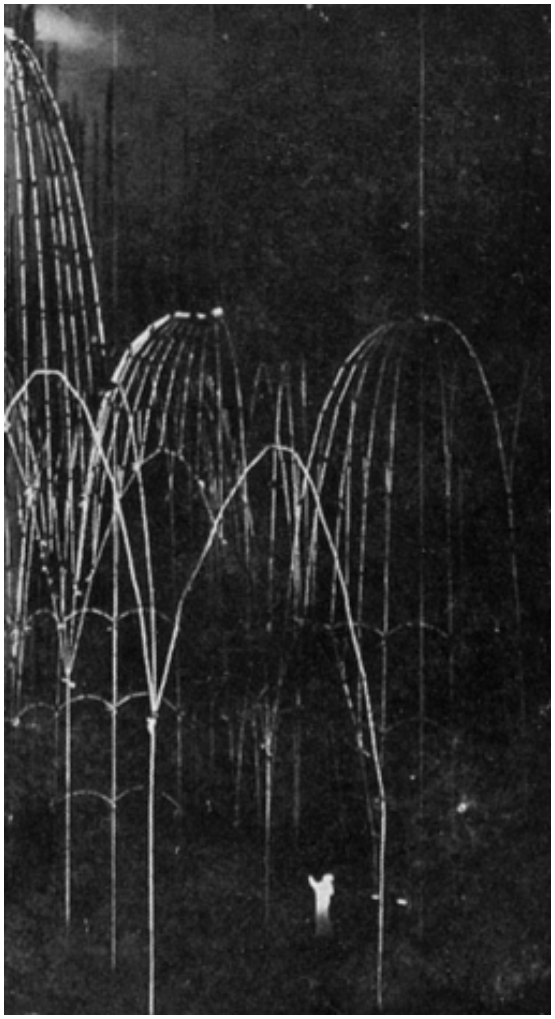


Fig. 8. Detail of Upside-down photograph of the first stereostatic model by Anton Gaudi, date unknown.

Over the three years in the University of Michigan Art and Design Masters Program, I made work about grappling with invisible forces. I believe this flood to be at the root of my interest in this. The force of the event took away the false sense of safety that I had in my life, living within the boundaries of a sanitized cluster of people. I viscerally felt for myself that there are larger systems at work; unpredictable systems. After a disaster, people simultaneously must rebuild their lives while trying to piece together what caused this to happen.

There are several concrete ways and systems that people use to organize and understand intangible entities. The ones I have studied and used as a creative jumping off-point include verbal and written language, cartography, and musical notational systems. In the past three years, I have experimented with these systems, and have inquired into their basic structures through juxtapositions between them. The recent experience of having my family reshuffled directly relates to the approach I took for my thesis project. In this show, I wanted in part to work directly with questions of understanding large amounts of space, so I decided to employ the use of physical space in my work. What follows is a brief history of how I first started to play with spatiality, and how perception of space became a tool in my artistic practice. This paper then explains my study of mirrored text in Islamic Calligraphy that I studied in Istanbul, Turkey in 2010 and how this visual layout connects to the visual experience of the flood, and my questions about space. It will then examine other influences to the project, and the synthesis of these parts into the show, *Your Cadence.*

My Home

I grew up in an old, strange house in central Illinois. The man who built it had seen a house in Northern France that he loved so much, he obtained the floor plans and recreated it *exactly* in America's Midwest. The house is large and labyrinthian on the inside, with clumsy, crooked bricks and stucco painted white on the outside. Dark brown shingles covered most of the roof, except for green copper panes covering the sunroom. The builder's best friend lived next door, and they situated their houses to be facing one another, and not the street. The first thing people notice when they approach the house is the castle-like turret. This tall

cylinder housed a spiral staircase, twenty feet in height, that led from the first floor up to the second. This staircase was the site of many childhood dramas. It inspired dramatic teenage entrances when our dates were waiting for High School dances. Ten years earlier, my brother held my cat over the railing of the staircase, threatening to drop her. As screaming and crying failed to stop him, all my sister and I could do was to gather every soft thing in the house and pile it all up below. (She survived the fall but the event seemed to worsen her nervous condition.[2]) The very height of the room invited antics such as this. This bright, tall room was also the most visible example of the varying spaces within our house.

Somehow, with the combination of play and observation at which kids are so adept, my sister and I discovered one day that if we held a little mirror flat in front of our faces, reflective side up (just under the nose is best) while walking around, we felt as if we were walking on the ceiling. Moving slowly, giggling, we explored the novel and inverted house. The four deep skylights in the family room became bright, deep pools to jump over. The music room's broad, low ceiling became a clean, unfurnished floor with embedded lights that we delicately stepped around, bumping into unseen couches. Edging toward the spiral staircase slowly and dramatically revealed a cliff! Looking over the edge we saw a strange pointed pit 20 feet down, with floating inverted portraits of us lining the walls. It was our house, but we were experiencing the space in a completely new way.

Another staircase in our house, which stretched from our shared room to the kitchen, was deceptively narrow and steep and took two tight twists. This resulted in many falls from visiting friends, one of whom flung a cup of hot chocolate so violently as the result of a fall that we spotted a surviving splash on the ceiling last winter, fifteen years later. My mother still calls it the Great Chocolate Murder. Our bedroom was originally intended to be servant's quarters, and these stairs went from our bedroom straight down to the kitchen for easy access, but seemed to be built to occupy as little space as possible. The ceiling was lumpy and compressed, much like the strange stairs underneath. Mirror in hand, I remember starting the descent of these stairs, seeing

[2] My brother is a very kind person who, as a child, took impulsivity and an interest in physics way too far.

the awkward ceiling under my feet. I slipped, and remember looking into the mirror all the way down. My eyes and body expected the slide of the ceiling, and of course simultaneously felt the THUD-THUD-THUD-THUD of the reality all the way down.

The parallel between the likeness of the house in the mirror and that of the one we knew created an uncanny experience. Alongside the mirrored house, I started to experiment with the reflection of my own body. I remember holding my right hand above the mirror and noticing how a left hand appeared next to it. I learned later that the term 'chirality,' a term used in chemistry to describe a type of molecule not superimposable on its mirror image, comes from the Greek word for 'hand.'[3] Chirality addresses an active chemical compounds' 'handedness' (left or right).[4] The parallel between the likeness of the house in the mirror, (as well as my own body), and that of the one we knew, created a puzzling and novel occurrence that planted a seed of curiosity.

Calligraphy

While I temporarily forgot about mirror-walking as I grew up, I continued to be subconsciously interested in symmetry and mirroring. While studying Islamic Calligraphy in Istanbul in 2010, I was most drawn to the perfectly mirrored examples of text. In the Ulu Cami Mosque in Bursa, the walls were covered with powerful, large mirrored calligraphy, called *musenna* in Turkish (and *muthanna* in Arabic).[5] Seeing this mirrored text brought up many questions about the perception of the *form* of the words. While I was intensely curious about the mirrored symbols, their meaning eluded me since I did not know Arabic. Even beyond the meaning of the words, I was curious about how meaning of the form changes when it is mirrored. This curiosity came after my arrival and basic studies. I was there for three months to learn Islamic calligraphy, and was gaining a basic knowledge of the Arabic alphabet from my teacher, a well-known and celebrated calligrapher Savaş Çevik. He was teaching me the very basics of the alphabet.

[3] Nic, M., Jirat, J., Kosata, B., "Chirality" *IUPAC Compendium of Chemical Terminology*, 2006.

[4] "Chirality" *Dictionary.com*, *April 3, 2012.*

[5] Private email correspondence with Dr. Irvin Schick, 2010.

In the 1920's, revolutionary President Mustafa Kemal Ataturk initiated many sweeping reforms as he created the Republic of Turkey. One cultural change was linguistic. He replaced the Perso-Arabic script with the Latin alphabet, with some slight changes to support the Turkish language.[6] The city is still permeated with buildings, monuments, bridges, gravestones, fountains and plaques with the old Arabic script, and the practice of fine Islamic Calligraphy continues with teachers such as Savaş. My novice level of connecting form to phonetic sound enabled me to have the most feeble of epiphanies upon seeing the mirrored text in Bursa. It was a common epiphany for those studying a new alphabet; the turning point when a new system suddenly 'clicks' and makes sense. The forms were no longer unrecognizable patterns, but familiar letters that I could sound out. I could see the letter *vav* in its natural form, as well as the exact same letter, mirrored in position and gesture.

In his book, "The Spell of the Sensuous," David Abram writes about the dual meaning of the word 'spell.' "The old English word 'spell' meant simply to recite a story or tale- it has since taken on a double meaning; it now means to arrange, in proper order, the written letters to constitute the name of a thing, as well as signifying a magic formula or charm. Yet these meanings are not nearly as distinct as they come to seem today- for to assemble the letters that make up the name of a thing, in the correct order, was precisely to effect a magic, to establish a new kind of influence over that entity, to summon it forth." [7]

Mirrored spaces were already evocative to me; but to see mirrored text, especially in such a sacred space, was especially tantalizing. I could sound out the letters now, but found myself attempting to say them backward on the mirrored side. Maybe this was because of my interest in translation of form to sound. I'll speak more about this later in the paper, in terms of graphic musical scores. My interest in translation between visual form and sound stems from my interest in alternative musical notation. This requires an openness to interpretation of a visual system in an alternative way.

[6] Yalin Nafi. *The Turkish Language Reform: a unique case of language planning in the world,* Bilim dergisi 2002 Vo. 3 page 9.

[7] Abram, David. The Spell of the Sensuous: Perception and Language in a More-Than-Human World.' 1996, p. 133.

Mirroring text served to ignite my curiosity and interest in how graphic symbols are arranged in space, and what new meanings can be created by such an arrangement.

When I asked about the meaning behind the mirrored text, my teacher told me that its purpose was simply to be beautiful. Another contact in Istanbul, a professor of religion, suggested that maybe it was to imply the perfect symmetry of God, but, also to be beautiful. He confided in me that he wasn't sure.

Fig. 9 and 10. Examples of Musenna Calligraphy in the Ulu Cami Mosque in Bursa, Turkey.

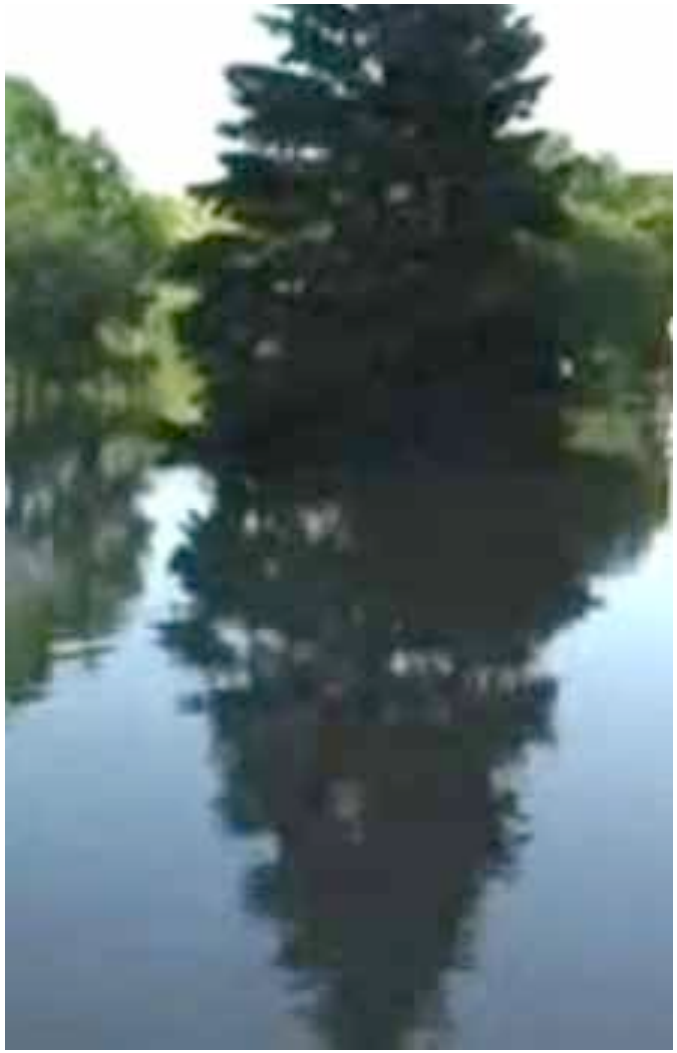
Fig. 11. Still from animation in *Your Cadence*.

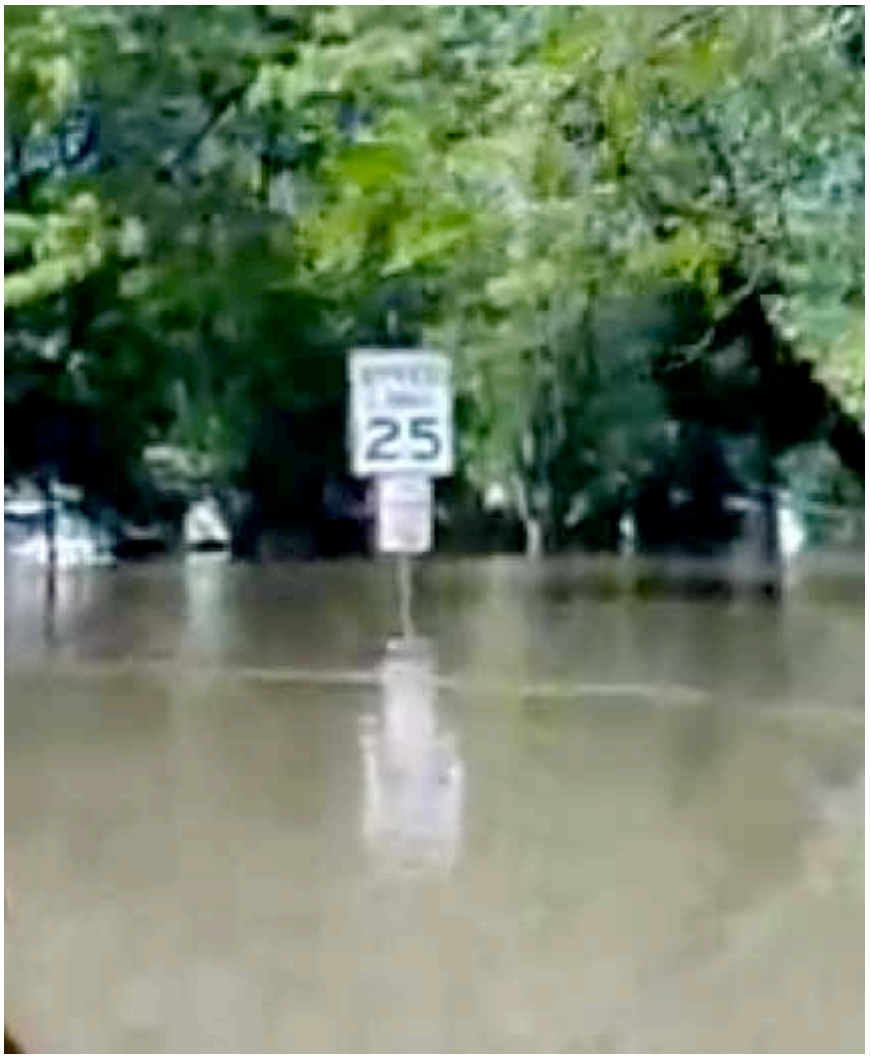
Fig. 12. Still from animation *Flow*.

In making the visual imagery in the animated portion of my installation (which I will describe in more detail later on), I borrowed this tool of taking a referential set of symbols, then mirroring it. This tool allows for a greater level of abstraction and surrealism that strengthens the images. The visual language in my animations offers oblique views of a landscape showing a waterway between two peninsulas of land (Fig. 11). On closer examination, the lands are perfectly symmetrical. This was meant to enhance the sense of a surreal landscape. While we normally associate symmetry with living things, and our own bodies, water would never carve through *land* in this symmetrical way.

Figure. 12 shows a still from another animation from my third year that also employs the use of mirroring as a visual tool. I took stills from a study on the flow of liquid gas and air, physically printed out two copies of each still, and laid each pair out on a light-box to create this symmetrical abstraction. The original source material (which, again, I will discuss in more detail later on in the paper, in a chapter entitled, *Flow*) was created in a laboratory that studies how air and liquid gasoline interact, in order to find a more efficient fuel for airplanes. The slow-motion footage is itself an abstraction, as it slows down the action to capture the nuances of the interaction. I chose to make the process symmetrical to abstract this information further, as well as to create a meditation on the form and flow of water. Looking back at footage of the flooding from 2008, I noticed the sense of surrealism from seeing objects mirrored in an unusual way, due to the surface of the rising water.

Figures 13 (above), 14, 15 (next page). Still from image of 2008 Flood in Iowa.

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Gaudi and Me

While planning the design of the landscape, I intentially sought out ways for viewers to feel spatial difference through the mirror. I needed the structure to be lightweight but still occupy a large amount of space. I looked to Spanish architect Anton Gaudi's hanging models, one of which I saw in person in 2007, for inspiration. Fig. 16 shows a mountainous object, the model of the cathedral La Sacreda Famiglia. It is made of a network of strings and bags. Gaudi designed models for his cathedrals upside-down, using strings and small bags of bullets to mimic weight. Before hanging the strings, he drew the floor plan of the cathedral on a board that he suspended upside down. A string would hang from each pressure point, such as a wall or column. It was exciting to learn that this is an architecturally-sound construction method. Tension and compression can be substituted for one another in order to predict the behavior of gravity and proportion. This represented a surprising act of symmetry and balance in nature that I hadn't expected.

I created a simple construction inspired by Gaudi's model. Strings were hung in a simple oval shape from the ceiling, with metal nuts intermittently placed to weight down the strings. I was pleasantly surprised when I accidentally pulled the lowest string of

Fig. 16. Hanging model of *La Sacreda Famiglia* by Anton Gaudi.

the structure and it started undulating evenly, beating like a heart. I included this action in the final installation, allowing an extension of the bottom knot to grow out of the fabric that would eventually cover it. This extension would eventually have a small silver ring

on the end of it, which visitors were invited to gently pull. Since the structures, which I nicknamed 'heartbeats,' were mostly

Fig. 17. Large "Heartbeat" structure in construction phase. The diagonal bar across the structure is holding a single piano string, waiting to be struck.

covered, they at first appeared to be yet another mountain in the landscape. When viewers pulled the silver handle, the structure underneath the 'heartbeat' was revealed through the motion of shadows. Additionally, I added a musical element here, stretching piano strings along a board, and fixing it so a swinging nut lightly strikes the string at its outermost point after being activated by a viewer. This was meant to encourage people to play with the gravity of the object, which of course is flipped in the upside-down world. The motivation was to add curious objects to encourage play in the space. As a musician, I also wanted the installation to respond sonically as well as visually to the visitor's touch. In one of five structures, the fabric cover was left slightly open so the viewers could peek at the skeleton inside.

Oases of Water.

In addition to these musical mountains, other important elements of the landscape almost exclusively suggested or referenced water in some way. There was an ambient sound throughout the gallery. This bubbling, pervasive sound was a conglomeration of layers of sound I recorded over the past three years. The constant flow of the Huron river provides a background bubbling sound. One can also hear rich, deep plops from my apartment in the Philippines from the summer of 2011. It was the rainy season, and my cheaply constructed ceiling allowed a steady stream of water to drop on my floor. The last layered sound in relating to water was from Istanbul. I took the sound of two boys playing in the Bosphorus, and slowed it down ten times.

In addition to sound, there were two visual oases embedded in the space that displayed moving imagery of water.

Embedded Animations.

In past work, I made animations intended to be shown in a self-sufficient frame, either projected on a surface or shown on a screen. The rectangular frame was supposed to disappear and act as a window through which the viewer projects his or her attention. In *Your Cadence*, I attempted to use the animation in a different context. The screens were integrated into the landscape, meant to be part of a whole, to help create a meditative, animate landscape to be observed in an embodied way by the viewer.

Both screens show views of water. The first screen is filled with a looping video suggesting moving water and objects floating through it. This animation can't be seen upon entrance to the space, and only appears after the rise and fall of the first crest in the sculpture, inspired by the dramatic drop off I saw in my house as a child, as I approached the spiral staircase. The level of the ceiling in my installation was low enough that, when viewed through the mirror, the viewer's optical input indicated that the landscape is hitting his or her body somewhere in the midsection. This created a visceral experience for the viewer.

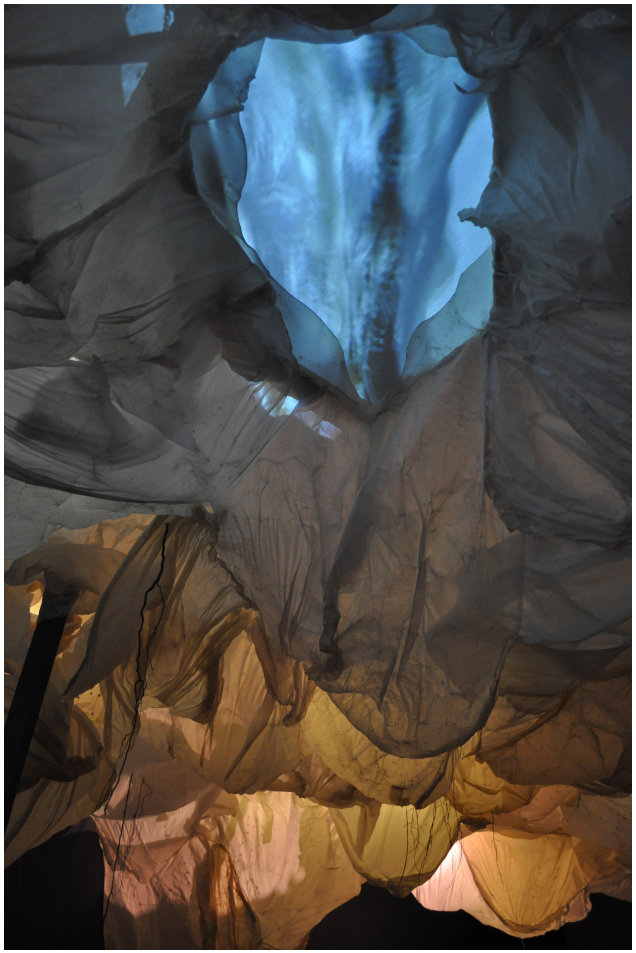

Fig. 18. Image of the first screen in *Your Cadence.*

Fluid Dynamics.

The imagery used in the first stream of the installation comes from a fluid dynamics researcher who generously agreed to let me use the imagery from his studies. For his PhD dissertation, Daniel Duke is studying how to create environmentally-friendly fuel. These images show how varying amounts and speeds of air affect the fuel.:

> "I've been studying the air-water flow for my thesis, because we're really interested in the science of how sprays occur -- when you mix air and a liquid (water or gasoline or whatever) to make little drops. Those kind of liquid and gas mixing processes happen inside jet engines and car engines, and the size of the drops and how quickly they form has a huge impact on the environmental effects of the engine. To generalise, big drops cause dirty exhaust that makes smog and cancer inducing particles in the air, smaller ones can make a very clean plane or car engine with super mileage. The problem is that in fact we know little about how this complicated (and beautiful!) process works. Nature is complicated! Figuring this stuff out is going to be a crucial part of our response to climate change and cleaning the air in our cities, as part of new EPA rules. Even though the USA

can go to electric hybrid cars and wind turbines to do it, poorer areas (China, India) will depend on fossil fuels for a long time, and we will keep using it for airplanes too."

Fig. 19. Still from video, Annular Sheet Instability and Atomisation, Daniel Duke.

I also researched fluid dynamics when creating an animation in my second year, parts of which ended up on the second screen in my thesis installation. To create the imagery in this installation, I used imagery from original, historical maps at the University of Michigan map library. Placing these images on a light-box, I used motion and layering of material to refract light and create the illusion of an ambient environment. I used stop-motion to depict a bird-like character moving across the waterways from one map to the next. The borders between the maps were stitched together by an unseen force. I created this animation from an interest in the ways that water was notated in different cultures. I also wanted to draw attention to water as a common denominator between bodies, cultures, and different lands.

In this animation, a character navigates from one body of water to the next. To animate this, I cut wave patterns to move behind this character, which could be perceived as a boat, or a bird. While the visual frame pans across a map, most of the movement is in the moving character and the wake behind it.

In researching the movement of water for this purpose, I worked with Civil Engineer Aline Cotel as an outside advisor. Aline introduced me to e-fluids.com, which has a host of visual fluid dynamic examples.This research was helpful to learn more about what

information we can glean from the movements of the fluids, whether it's the composition of minerals in the water, the force and direction of different jets, or potential effects the movement of water can have when it eventually runs into objects or land formations. [8]

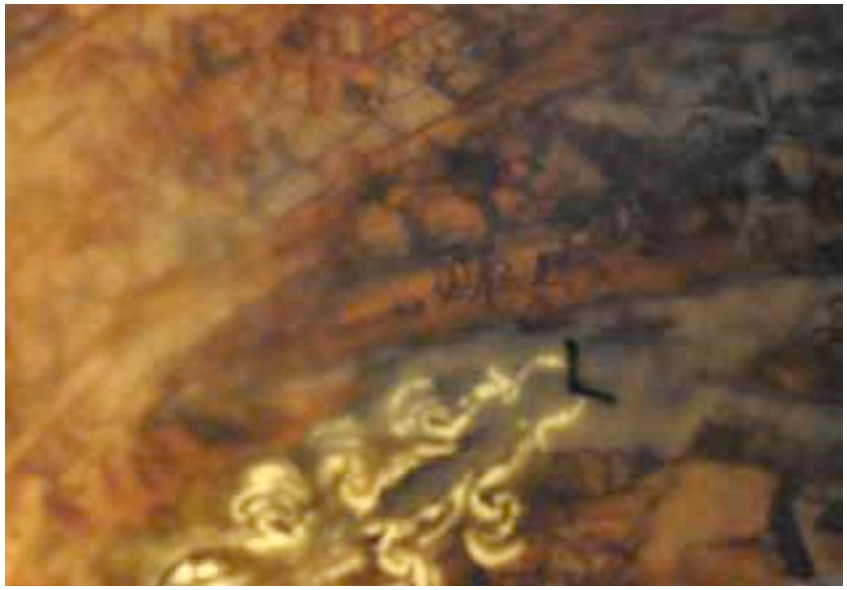

Fig. 20. Detail of wake in animation *Stitch.*

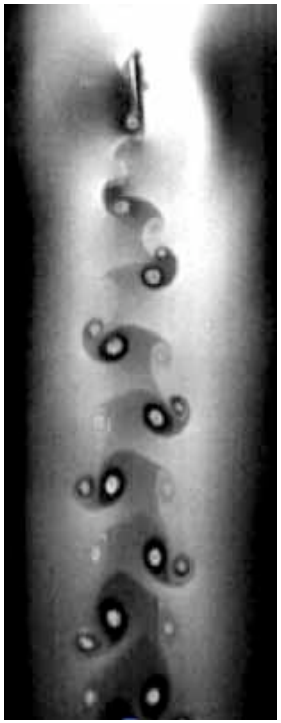

Fig. 21. Still from *Vortex Ballet*, a study by Teis Schnipper, Anders Anderson and Thomas Bohr. efluids.com.

Interestingly, I discovered that under the right circumstances, air and water have almost identical patterns of movement. This explains why some architects use water tanks and dye to test the effects of gusts of wind on models of buildings. This was the first 'twin' pair of natural phenomena that surprised me in

[8] Personal interview with Civil Engineer Aline Cotel, April, 2009.

my research at the University of Michigan. This was followed by the 'twinning' of compression and tension that allowed Gaudi to build architectural models upside-down.

Fig. 22. Detail of animation *Balance*.

How can I comprehend things I cannot even see?

Fig. 23. Map of Vienna by Niklas Meldemann, 1529.

Mapping Direction

The installation *Your Cadence* creates a mirrored world that draws attention to the body's notion of 'up' and 'down.' Several cartographic practices influenced my thinking in the process of building this landscape.

The history of cartography reveals the development and changes of our collective graphic representation of space. The example from the left depicts Vienna, Austria during the late 1520's.[9] In this snapshot, the artist attempts to depict a world that was newly agreed upon to be round, not flat. The spatial complexity of representing a three-dimensional world in a two-dimensional space is well documented in art history, mostly from the vantage point of the ground. However, normal cartography represents the ground from the oblique view from the sky, a viewpoint that at the time could only be imagined. This particularly jumbled depiction shows impossible placements of people, buildings, and elements of the landscape. For example, the figures on the top left of Figure 23 exist

[9] Rundansicht der stadt Wien zur zeit der Turkenbelagerung, 1529, Niklas Meldemann, Nürnberg, 1530.

just above a cathedral that juts down in the completely opposite direction, creating a floating sensation.

A 12th Century Persian map of the world created by the well known cartographer Muhammed al-Idrisi reflects an alternative to traditional Western notions of 'up' or the idea of the 'top' of the map. In contrast to current maps of the world, this depiction shows Northern Africa along the top of the map, and Spain jutting up to the right from a lower landmass. [10]

Fig. 24. 12th Century Persian Worldview Map by Muhammad al-Idrisi, titled, *Sūrat al-ard lil-Sharīf al-Idrīsī al-mutawaffa sanat*. Northern Africa is at the top, with modern Europe underneath.

Graphic Scores

In the fall of 2009, I made a stop-motion animation called *Following the Huron River*. In order to create it, I made one static painting of the Huron River, using information I gleaned from several maps of the river. I abstracted the form of the river, using brighter Cadmium red paints in some areas, lighter ochres and

[10] From an interview with University of Michigan Map Librarian Timothy Utter, November, 2010.

pinks in others, all set against a deep indigo background. I collected information about the river, such as depth across the basin, speed of water, and the health of the river. I used this information as source material for my artistic rendering of this body of water. The resulting "map" of the river became my guiding "score." I read deeper areas as lower tones, and fast-moving water as fast-moving notes. This was my first animation, and my first graphic score.[11] The system involved many personal, sometimes arbitrary decisions. It was my first attempt at using spatial information as a guide for musical improvisation.

Fig. 25, Still from the animation *Following the Huron,* 2009.

When the Kenyan-born artist and collagist, Wangeschi Mutu, visited my studio in my second year, we had a conversation that changed my thinking about community, exclusion, and symbolism. She read the piece as an exclusive representation, one that excluded people in the Southern Hemisphere from relating to it. She felt that directionality can contain all of the forceful histories of colonialism, asserting a westernized standard onto non-western peoples. In my attempt to create a portrait of a specific place, I hadn't considered the implications of my assumptions. As I researched this idea further, I discovered that even one's language contains in it certain spatial expectations, even in describing concepts that one would think of as universal, such as time. I discovered examples of languages in which one's default organization of space and time is different from what I have experienced with English.

[11] A graphic score is a visual or graphic document that was intended to be interpreted as a musical score. The rules of interpretation vary greatly between composers.

Fig. 26. Still from animation *Following the Huron River*.

For example, speakers of the Aymara language, spoken in the Chilean Andes, spatially consider the past to be spatially in front of them, and the future behind them. Author George Lakoff explains:

> *The metaphor (that) the past is in front is grounded by the experience of being able to see the results of what you have just done in front of you. Thus 'past time' in Aymara is* mayra pacha*, where* mayra *is 'eye,' 'sight,' or 'front' and* pacha *is 'time.' Future time is* q'ipa pacha*, where* q'ipa *is 'back,' 'behind.' For example...* uka ancha mayra pachan pasiwa*, which literally translates as* 'that several eye (front) time happened' means 'that happened a long time ago.'[12]

[12] Lakoff, George, and Johnson, Mark. *Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought.* Basic Books, Perseus Books Group, New York, NY. 1999. p. 141-9.

Such studies of alternate conceptions of direction vs. body inspired my thinking about my thesis installation. When looking down into the mirror, gravity appears to pull objects *up*.

Fig. 27, A view of a mirror underneath *Your Cadence.*

This was challenged most directly when viewers wanted to pull down on the stems that activated the musical and kinetic element of the installation; the silver ring floated upward in the mirror, but a viewer had to find it by reaching in a direction different from where her eyes told her it was.

Fig. 28. View in *Your Cadence. Photo Credit: Brad Smith, 2012.*

While these cartographic and linguistic examples illustrate cultural expectations of direction, they hint at questions about perception of space, time, and direction on an *individual* level, from the point of view of one person within a culture. I continued to explore the notions of up, down…in another graphic score for the musical performance titled, "Sink." The score was made from a map of sunken ships along the bottom of Lake Erie. To play this piece, the score is laid flat on a table. Four musicians sit around it, and each bracket point should face each musician.

The blue to white gradient of forms indicates a graphic representation of the topography on the bottom of the lake, the darkest areas representing the deepest parts. Three musicians are meant to sonify, in whatever way they see fit, the topography of the map. One musician is asked to musically indicate the ships, which are the white dots circled by grey. The intention was to create a way to interpret physical space in a methodical, search-party-like way. Each musician starts in their own respective top-left corner square, then moves together, in a pre-determined beat, to the next square to the right. This interpretation creates a symbolic musical search party.

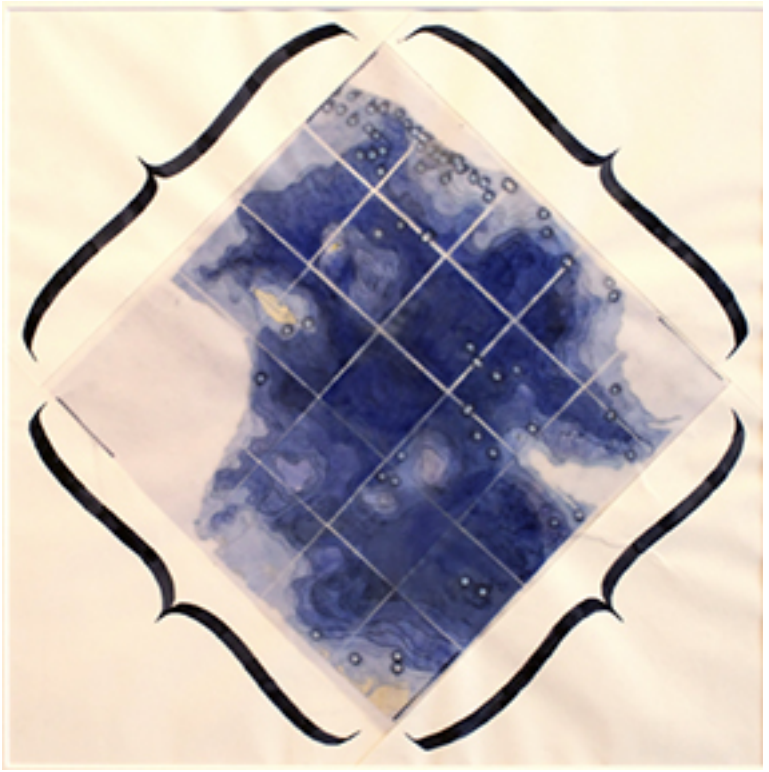

Fig. 29. Collin McRae. *Sink*, a Graphic Score, 2011.

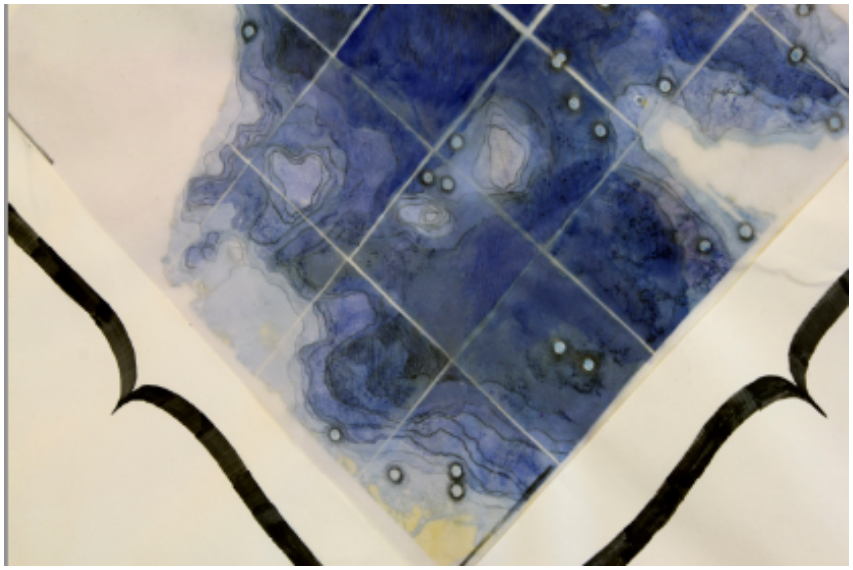

Fig. 30. Detail of *Sink*.

Similar to *Sink*, the installation *Your Cadence* is about attempting to understand concepts that are either too large or too abstract to easily fathom. By inserting the body into the work, I attempt to create a space where other types of intelligences can awaken. On one level, creating a site of play and an opportunity to re-orient the body were satisfactory and worthwhile endeavors for me. On another level, this work emerged from a meditation on 'fathoming' itself. Is it impossible to ever really understand things that are so much bigger or more ethereal than us? Even though it's possibly futile, human beings keep trying. Maps are not always correct, search parties don't always find their goal, and language is very imperfect. But the ways in which we try to connect, and try to notate space and ideas, reveals much about our own humanity, and the ways in which our minds and communities function.

An illustration of this can be found in a notational example. Author Dennis Wood, in his book, 'The Power of Maps,' examines the varying notation of maps and their implications on the perceptions of a proto-mapmaking society, such as the Mixtec of pre-Hispanic Mexico. Wood chronicles how early maps showed a symbol of a hill, a standard symbol that could stand for any hill, next to its name. This symbol was what Wood calls 'a pictoral place sign'; a generic symbol for a particular geographic element. The use of a pictoral place sign reflected language more than actual perception of the hill, as the image didn't vary with the particular size or shape of a hill. Over time, if two communities were competing for ownership over land, more sophisticated and detailed techniques were developed to carefully describe different portions of the

land. Each individual topographic entity would be described more individually.[13]

I read about this example during my time studying in the Map Library in the fall of 2010. This led me to question the histories behind the systems that surround us. Cartography and the notational systems within it are, to me, an example of a communal attempt to navigate that which can be fathomed, and that which cannot. What other histories are hiding in our notational systems? And how do these then further our ways of thinking about the land? What histories and biases may be inherent in our very ways of looking?

Fig. 31. Image in *Your Cadence. Photo Credit: Brad Smith, 2012.*

A Shared Embodiment

I was surprised to discover how people enjoyed navigating my installation together. Repeatedly, visitors would exclaim to one another, point to various aspects of the show, or look into one another's mirrors. It reminded me of the added fun in exploring my house in my sister's presence. I'm not even sure we would have discovered the phenomenon without one another's play and feedback.

When designing this installation, I intended for the viewer to have control of her or his own experience.

[13] Wood, Dennis. *The Power of Maps*. p. 151.

Disorientation, while at first uncomfortable, was abated by the ability to walk at whatever pace was comfortable, or to tilt the mirror however one was inclined. The slightest tilt sent the horizon in staggeringly different angles, creating feelings that one may slide right down over the landscape and into the wall, bumping over the mountains on the way down.

Seth Hunter's artwork was integral to my thinking about individualized control over an artistic viewing experience. Hunter is an artist currently working at the MIT Lab. I first came across his work when I was researching the Art Institute of Chicago. His piece, entitled *Metadome*, was his thesis project for his Master's degree at SAIC. I first read a description of this piece that illustrated the simple and poetic work, video documentation of which can be seen at Hunter's website, perspectum.com.[14] Using interactive technology, Hunter created an environment where a visitor must be perfectly still for the piece to take action.[15] The viewer enters a dome to find a darkened space. The piece was installed at the International Art fair in Chicago's Merchandise Mart. Visitors transition from a bustling, busy space to a quiet, dark, meditative one. Inside there are five seats which can sense the presence and weight of a person, as well as the movements this person is making. Hunter created a program that projects clusters of dots above each person, which reference stars in a night sky. The whole system reacts to how much a person moves, and the star clusters most noticeably start to move *when the viewer sits still*. Stillness is what finally allows the stars to float toward one another and form a singularity. The accompanying sound similarly responds, moving from a cacophony of noise to a single, pure note when the viewer is finally physically still.

Fig. 32. Still from Seth Hunter's documentation of *Metadome* on perspectum.com

[14] http://perspectum.com/metadome/index.htm

Fig. 33. Still from Seth Hunter's documentation of *Metadome*.

Fig. 34. Still from Seth Hunter's documentation of *Metadome*.

The work of Janet Cardiff also touches on an important issue in my work: the embodiment of the viewer. She is well-known for taking viewers on walks without actually being there. She lends her presence through media; a viewer checks out a video camera and plays a pre-recorded tour, starting from the very spot the viewer is when they rent out the camera. The camera appears to show a live view, but it's not. It's pre-recorded. Cardiff then takes artistic license to place footsteps in the audio that fool the viewer. She may lead you to a door that is locked in your reality, but that she is able to enter without you. She guides people to private spaces into which they wouldn't ordinarily be allowed. Her treatment of perception, technology, embodiment, and issues of access intrigued me.

Fig. 35. Janet Cardiff, *Ghost Machine,* 2005.

Point of View

This work awakened an interest in me to create a show that required the viewer's participation to complete the piece. To fully experience the work, viewers would need to enter a space, and interact with it using her body, nervous system and curiosity. Merleau-Ponty described how we are all subjective entities existing in the world, and can only sense it from our own individualized experience. In interacting with it, we hold our perceptions in a circle around ourselves. We have no choice; we must exist from our own selves, and our own particular viewpoint. [16]I was also influenced by artists who need the viewer to stand in particular point of view, or for a particular lens to be used for the work to be appreciated.

The artist Mentalgassi created pieces wherein faces are only complete when seen from one angle. Figures 34 and 35 show works of his that were done for Amnesty International. The strips of face come together when the viewer stands in one specific perspective. The face is Troy Davis, a man many feel was wrongly executed. The artists' use of anamorphosis itself is part of the message with this piece, questioning how this could have happened, how people can have such different symbolic viewpoints on an issue.

Fig. 36 & 37. Images of work by Mentalgassi.

[16] 'Phenomenology of Perception.' Merleau Ponty, Maurice. Routledge & Kegen Paul, 1958.

Recently William Kentridge has worked with this perspective-bending tool as well. The animations look curved and distorted, but are corrected when viewed through a mirrored cylinder. In Figure 38, a distorted airplane becomes compact and true in the reflection.

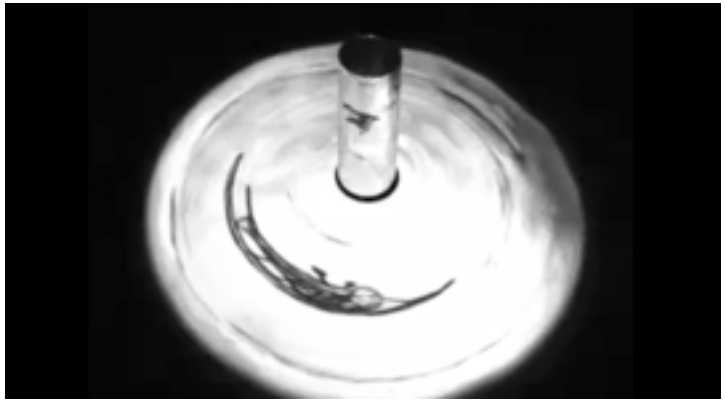

Fig. 38. Still from Kentridge's 'What Will Come,' 2007.

Fig. 39. Image in installation *Your Cadence.*

These influences have been invaluable in opening my mind to different physical phenomena that can activate, confuse, or illuminate aspects of human perception. In *Your Cadence,* the viewer has control and the ability to move around and see the show from any perspective. I gave them a tool that creates a familiar way of taking a bite-sized view of the world: the rectangle. By handing the viewer a 10" x 20" mirror, I purposefully referenced the map, the movie screen, the television, the window, the doorway, the iPad. Creating an enclosed frame around space, even if the space is

moving, as in my installation, makes an object that one's mind can rest upon. The human mind naturally seeks stability (or stable situations) and is proven to be more comfortable if space can be organized and contained. In Richard Zakia's book, *Perception and Imaging*, he explains it this way:

"We tend to organize our world so that we can cope with it. We search for stability, meaning, balance, security, and so on. We feel more comfortable when what we are looking at can be comprehended or experienced. If too much information is presented at one time, we either filter out some of it or simplify it by grouping or 'chunking' it. If there is insufficient information, we add to it to form closure and maintain meaning. We strive to reduce tension and stress to obtain stability and equilibrium." [17]

[17] Zakia, Richard. Perception and Imaging. Boston: Focal Press, 2002, p. 63-64.

Conclusion

My grandmother's story was my own personal touching off point to the complicated human relationship to water, both past and current. While I see water in my work as a metaphor for a physical common denominator between us, I also understand firsthand its destructive power. Water both nurtures life and breaks it down again.

The quote by Heraclitus in the introduction of this paper brings our attention to another metaphorical observation about a river, that we cannot ever step in the same river twice. All aspects of *Your Cadence* had some kind of reference to water, attempting to draw our attention to various aspects of our tenuous relationship to it. One image shows three men precariously balanced in a human-pyramid-type pose, floating on the surface of the ocean. The ocean gradually bends up and around the figures, threatening them, creating tension, and suggesting supernatural powers. I used this image of survival, balance and steadfastness as a metaphor for how people cope with natural disasters related to the dearth or abundance of water. Inherent in this image is a cheer for survivors to keep living.

Fig. 40-43. Stills from animation *Balance* for *Your Cadence*

Throughout my work, I have attempted to play with notions of order and geography. Some pieces endeavor to impose order upon ways of viewing land or water, while others endeavor to disrupt order and expectations. Whether in an organized graphic score or a large installation, these attempts are both futile and hopeful. While we can't fully comprehend vast and intangible notions and places, we continue to try. In the process, we continue to learn about one another and the world. Even though humans have built institutions to study the flow of liquid and the properties of water to an incredible level of detail, nobody could stop the tsunami from striking Japan's coasts in 2009, or prevent floods or droughts. Creating a space of communal meditation is my own optimistic gesture toward healing.

Fig. 44. Image of installation.

Fig. 45 & 46. Viewing the installation looking down into a mirror placed on the ground. Video Credit: Peter Leix.

Fig. 47. A viewer looks at a back-projected screen through the mirror.

Fig. 48. The view through the mirror, where the image is righted.

Fig's. 49 & 50. Viewers explore the space.

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Fig. 24. Muhammad al-Idrisi, titled, Sūrat al-ard lil-Sharīf al-Idrīsī al-mutawaffa sanat

Fig's. 28 & 30. Photo credit to Brad Smith.

Fig. 32-34. Stills from Seth Hunter's documentation of *Metadome* on perspectum.com

Fig. 35. Janet Cardiff, *Ghost Machine,* 2005. http://www.cardiffmiller.com/artworks/walks/index.html

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Figs. 44-50, Stills from video, Credit to Peter Leix.