

MEDITATIONS UPON DURATIONS

by

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**A thesis submitted in partial fulfillment
of the requirements for the degree**

of

Master of Architecture

in

Architecture

**Montana State University
Bozeman, Montana**

November 2007

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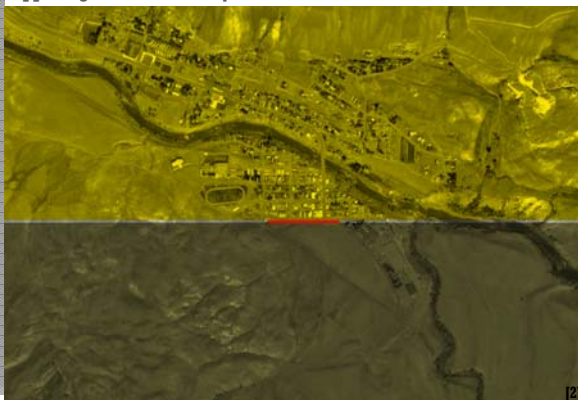
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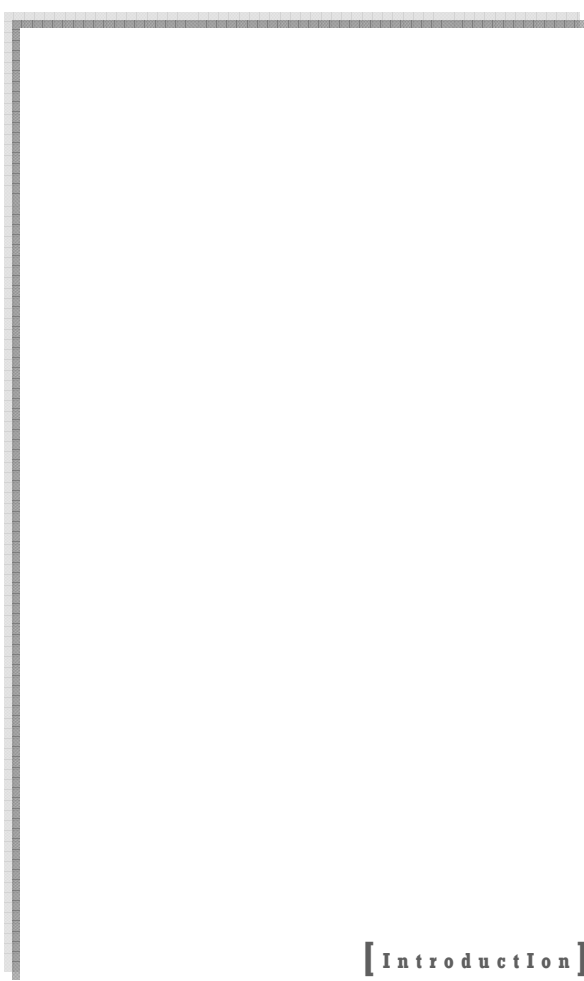
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The content of this thesis confirms my belief that architecture is able to create remarkable effects upon human emotion. It is my opinion that human emotion becomes apparent when two opposing states of reality are intensified within time and space. Today in the Western Culture we live upon two opposing states of time. One is mechanized and ridged, and the other is sequential and durational. The first seeks to break things down into parts and understand them as they relate to a human scale. The other seeks to find the potential in what exist in the in-between and around. Together each of them function. But, are simultaneously different in how they are perceived. The dichotomy and diversity of these two opposing states is where things become intensified within our environment. Through the understanding of this relationship I propose to develop ideas which intensify the two, rather then seeking to find a definitive convergence. This thesis will actively discuss the nature of our condition within the construct of mechanical time vs. durational time. This approach is meant to be an intense experience, one that seeks to find the harshness of the two realities. Upon the ending of this thesis, this harshness will be tested upon a site that connects the visitors to the two opposing states of reality.





[Introduction]

It is within the premise of this thesis to explore the potential of time and things. Within our natural environment time exist within duration. Everything has its own duration, the earth constantly travels around the sun, the wind pushes the clouds over the mountains, and the rivers flow from the mountain lakes to the great ocean. Thus, the world is a balance of traces that co-exist together as things but only as they relate to each other. But, in dichotomy humans break these durations down to abstractions. The calendar is marked in twelve months, fifty two weeks, and 876,581,277 hours. This abstraction brings our existence towards order. "If time is an arrow, that arrow points towards order. The future is pattern, organization, union, intensification, the past randomness, confusion, disintegration, dissipation."² Thus, we break these natural durations down into parts and objectify them within a technology. We abstract to bring these natural durational patterns to a human scale of understanding. Thus, we quantify time down to down to parts and pieces rather than seeking the potential that exist in the in-between and around.

Architecture is able to accentuate rather than reduce these natural durations. In Architecture we represent, sterilize, deconstruct, and manipulate things in order to create an experience. It is in the premise of this thesis to connect individuals between the things that are being represented and the connections it has to our human condition and natural durations. Thus architecture is an intensifier, it inhabits land and its only purpose is to engage individuals with our immediate environments. Within this exploratory process, time and things will be explored to find the potential of what exist within the environment rather than a abstracted definitive end.

[human condItIon



~~DURATION~~]



[3]

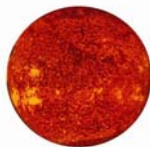
“In this world, there are two times. There is mechanical time and there is body time. The first is as rigid and metallic as a massive pendulum of iron that swings back and forth. The second squirms and wriggles like a bluefish in a bay. The first is unyielding, predetermined. The second makes up its mind as it goes along.”³

[meditation one]



August, 6th 2007

In mechanical time we break the duration down from years to months, months to days, days to hours, hours to minutes, and minutes to seconds. We create strategies to synchronize each moment in time with a technology. For example, every cell phone is synchronized to have the exact time. If you cross a time zone it automatically changes the time difference. These new technologies synchronize our existence to bring the passage of life towards order. According to Alan Lightman, "If time is an arrow, that arrow points toward order. The future is pattern, organization, union, intensification; the past randomness, confusion, disintegration, dissipation."⁴ People that live within mechanical time "rise at seven o' clock in the morning. They eat lunch at noon and their supper at six. They arrive at their appointments on time, precisely by the clock. They make love between eight and ten at night. They work forty hours a week, read the Sunday paper on Sunday, play chess on Tuesday nights. When their stomach growls, they look at their watch to see if it is time to eat."⁵ Everything is structured around the time of day and the routine of their daily activities.



[4]



[5]

Mechanical time is seen everywhere in a wide assortment of scales. They range from the building with a clock tower to the miniature wrist watch sold at your favorite convenience store. They are on every major appliance in your house, stuck by your bed, put in every car, fixed on every computer screen. It follows people down the street, putting a burden at every street corner. It pushes people forward to move faster in their car, running stop lights, honking at anybody that isn't moving fast enough and the only consideration is to be on time.



[11]



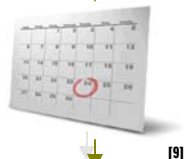
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[7]



[8]



[9]



[10]

In mechanical time; time is equal to money. "Financial considerations alone dictate that each brokerage house, each manufacturing plant, each grocer's shop constantly travels as rapidly as possible, to achieve advantage over their competitors. Such buildings are fitted with giant engines of propulsion and are never at rest. Their motors and crankshafts roar far more loudly than the equipment and people inside them."⁶ Each technology that we create exists to make us faster or more efficient. We create cars year after year that have bigger engines and use less gas. We create computers with bigger hard drives and more ram to move projects through the office faster. We create internet connectors that have a higher bandwidth to download and upload faster. In this world "a person comes out of their front door at sunrise, they hit the ground running, catches up with their office building, hurries up and down flights of stairs, works at a desk propelled in circles, gallops home at the end of the day. No one sits under a tree with a book, no one gazes at the ripples on a pond, and no one lies in the thick grass in the country. No one is still."⁷

"Why this fixation on speed? Because in this world time passes more slowly for people in motion. Thus everyone travels at high velocity, to gain time."⁸



[12]

**Intimate with our immediate
landscape through our senses**

5 m p h

**Horizon view from windshield.
Protected from natural elements.**

60 m p h

**Dreamscape view from window seat.
Completely protected from natural
elements.**

300 m p h

**No sensual experience. Quantifiable
outcome connecting to nature.**

instantaneous



[13]



[14]



[15]



[16]

[13]



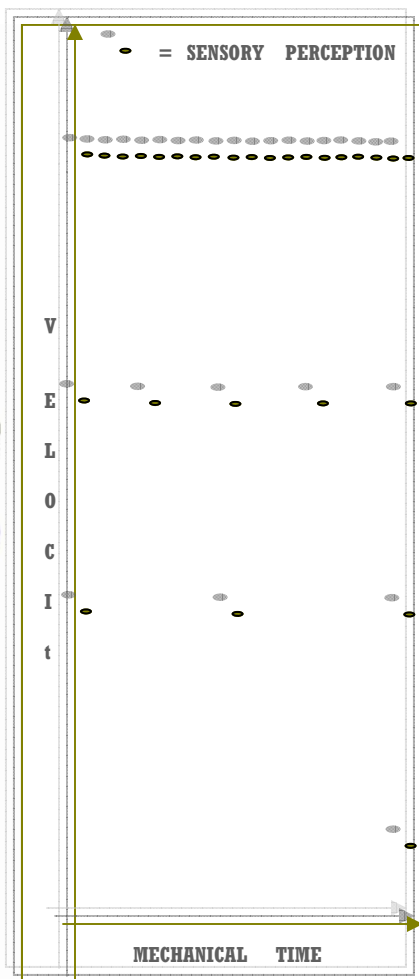
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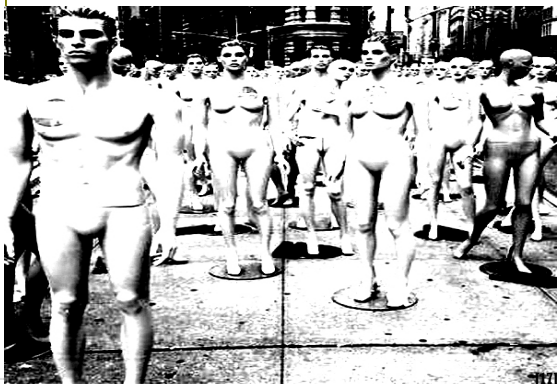
[15]



[16]



If a body lives solely in mechanical time it is seen as a work of science. They see themselves being calculable down to parts. For example, the brain is not seen as a thinking creation, but a gob of squirting chemicals. "I" consist of a cerebral cortex, the hippocampus, the amygdale, the cerebellum and the infinitesimal entities displayed as invisible chemical transactions taking place by the billions every second."⁹ People that live solely within this world know that their body is not a thing of wild magic, but a collection of tissues, chemicals, and nerve impulses. "Thoughts are no more than electrical surges in the brain. Sexual arousal is no more than a flow of chemicals to certain nerve endings. Sadness no more than a bit of acid transfixed in the cerebellum. In short, the body is a machine, subject to the same laws of electricity and mechanics as an electron or clock."¹⁰ If people lived exclusively within this world every individual would be seen to arise out of mere matter. In this mechanical world "the body must be addressed in the language of physics. If the body speaks, it is the speaking only of so many levers and forces. The body is a thing to be ordered, not obeyed."¹¹ These people try to quantify time, to parse time, to dissect time. "Their bodies stand frozen on street corners, cold, hard, and heavy."¹²





[meditation two]

August 7th, 2007

"In a world where time cannot be measured, there are no clocks, no calendars, and no definite appointments. Events are triggered by other events, not by time."¹³ One wakes up when the sun crosses over the Bridgers and shines down through the basement window. A lady walks past a flower garden feels the warmth in her heart and the smile that gazes upon her face. She meets a man, they drink coffee, they fall in love.

A man walking. Can only hear the faint noise of a guitar. He moves closer, feeling the beat rupture through his bones as if it is coming through the concrete. The warm smell and taste disappear from the gutter. His face starts to jiggle from the beat, he looks down, out of his surprise, he is dancing. The guitar player stunned, he plays harder, faster. The man conceived, moving and jolting, his heart is racing. The players fingers start to bleed, he can't stop. The man walks home. They never talk. The man buys a guitar.

“Suppose that time is not a quantity but a quality”¹⁴ like the luminescence of the night when the moon cresses the mountains and the stars light up like candles. “Time exists but it cannot be measured.”¹⁵

In a world where time is a quality, events are measured by the color of the sky, the tone of the bird singing outside one’s window, the feeling of happiness or fear when someone enters the room. “The birth of a baby, the patent of an invention, the meetings of two people are not fixed points in time, held down by hours and minutes. Instead, events glide through the space of the imagination, materialized by a book, a desire. Likewise, the time between two events is long or short, depending on the background of contrasting events, the intensity of illumination, the degree of light and shadow, the view of the participants.”¹⁶

In this world people live their lives through the feelings that our environment bestows upon us. Evening comes when the sun sets in the west and creates a pinkish color in the sky. Fall comes when the leaves on the trees change color from green to yellow or orange. People get up when they are not tired, they eat when they are hungry, and they work when they need the money. People that live in this world “laugh at the thought of mechanical time. They know that time moves in fits and starts. They know that time struggles forward with a weight on its back when they are rushing an injured child to the hospital or bearing the gaze of a neighbor wronged. They know too that time darts across the field of vision when they are eating well with friends or receiving praise or lying in the arms of a secret lover.”¹⁷

"In this world, scientists are helpless. Their predictions become postdictions. Their equations become justifications, their logic, illogic. Scientist turn reckless and mutter like gamblers who cannot stop betting. Scientists are buffoons, not because they are rational but because the cosmos are irrational."¹⁸

"In this world, artists are joyous. Unpredictability is the life of their paintings, their music, and their novels. They delight in events not forecasted, happenings without explanation, retrospective."¹⁹

[meditation three]



August, 8th, 2007

What if time were a sense?
“Like sight or like taste, a
sequence of episodes may be
quick or may be slow, dim or
intense, salty or sweet, casual
or without cause, orderly or
random, depending on the prior
history of the viewer.
Philosophers sit in cafes and
argue whether time really exists
outside human perception. Who
can say if an event happens
fast or slow, causally or without
cause, in the past or the future?
Who can say that events
happen at all?”²⁰

[18]

TEACHING GUIDE

DRUGS:

Insights and Illusions



[meditation four]



August 8th, 2007

Imagine for a moment that we exist without memory. Each passing day is a new day and we only exist within the present. When it is time to return home at the end of the day, each person consults his/her address book to learn where he/she lives. The butcher, who has made some unattractive cuts in his one day of butchery, discovers that his home is 209 North 3rd. The stockbroker, who has no memory of the market has produced some excellent investments, reads that he now lives at 311 West Main.

“Arriving home, each man finds a woman and children waiting at the door, introduces himself, helps with the evening meal, reads stories to his children. Likewise, each woman returning from her job meets a husband, children, sofas, lamps, wallpaper, china patterns. Late at night, the wife and husband do not linger at the table to discuss the day’s activities, their children’s school, and the bank account. Instead, they smile at one another, feel the warming blood, the ache between the legs as when they met the first time fifteen years ago. They find their bedroom, stumble past family photographs they do not recognize, and pass the night in lust. For, it is only habit and memory that dulls the physical passion. Without memory, each night is the first night, each morning is the first morning, each kiss and touches are the first.”²¹



[19]



[meditation five]

August 10th, 2007

Within this world, our personal existence is marked by memory. The duration of time is perceived by the past, present, and future. These “three representations of time, are nothing but the present time in a triple dimension.”²² Meaning that our past builds upon the present and the present gives us glimpses into the future. Each individual has their own past, which perceives the present differently, and looks upon the future with different ambitions. This makes the duration of time irreducible to measurement within a mechanical devise. These snapshots for every individual create a “book of life”²³ which is filled with their own history. “By reading its pages daily, they can relearn the identity of their parents, whether they were born high or born low,” whether they were born in the spring or in the fall, whether they accomplished their goals, whether they created a good life for their children. “Without a book of life, a person is a single snapshot, a two dimensional image, a ghost.”²⁴

TEACHING GUIDE

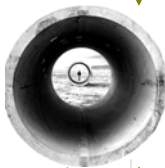
DRUGS:

Insights and Illusions



past

[20]



present

[21]



[meditation six]



 **August 8th, 2007**

To sense time one has to look at sequences of events that happen within space. A man walking back to his shop on Main Street, having taken his noon meal. This is the picture that he sees: two men talking in a foreign language, waving their arms wildly, galloping past him with a brisk walk. A scientist runs across the street, turning his head this way and that to avoid getting hit by a car; he is late for an afternoon meeting. A ball is flung by a small child, it fly's through the air like a bullet, it is a blur that is barley visible. A man standing outside of the window at 211 West Main catches the ball as it is lunged through the door.



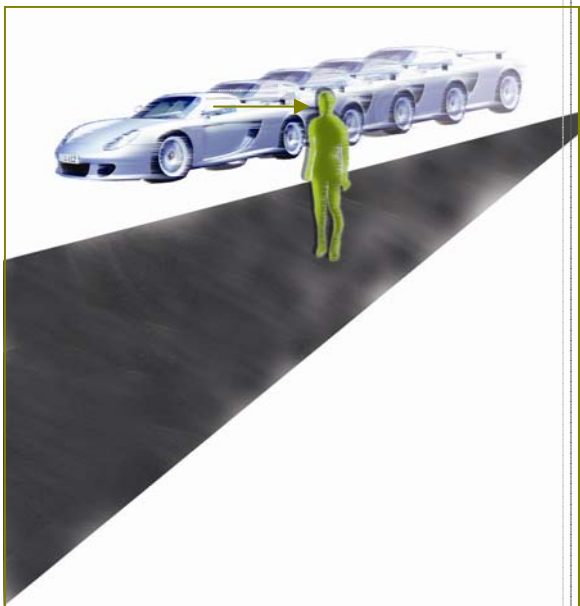
On the other side of the street, a barista witnesses the same scene. She notes that the two men leisurely stroll up the street, stop and talk for a moment, and then walk on. She see's a man walk into 211 West Main sits down for lunch at his favorite spot and catches a ball thrown by a child.



To yet a third person standing on top of an office building on Main sees the event without any movement at all. Two men talking, a man, a child, and a ball all captured like a painting in the bright summer light.



In a world where time is a sense, sequences of events are perceived differently though the eyes of each individual. Perceiving time one can only realize or observe what is relative to their past, present, future, motion, and position. "When two people pass on the street, each perceives the other in motion, just as a man in a train perceives the trees to fly by his window. Consequently, when two pass on the street, each sees the other's time flow more slowly. Each sees the other gaining time. This reciprocity is maddening. More maddening still, the faster one travels past a neighbor, the faster the neighbor appears to be traveling."²⁵



When a person is viewed from moving car the person seems to be moving just as fast as the car is moving. All movement is relative to ones own movement.

UnIversal movement



galaxy movement



Earth rotation



Seasonal tilt



[car] linear movement



[23]

BodIly movement



[24]

[meditation six]



August 10th, 2007

In our modern lives we live simultaneously in both mechanical time and the durational time. Taking in the night air along the Yellowstone river, one sees evidence of both worlds coming together. A rafter gauges his position upon the water by counting the seconds drifted in the water's current. One three meters. Two six meters. Three nine meters. A couple stands upon the bridge and gazes at the sunset while they finish their cocktail from dinner. They gaze at each other as if it were the first time they have ever met. The bell at town square rings nine times. In ideal response, lights on Main Street flash on as if it were the perfect mechanized response for the bell singing in the night. A couple lying on the Yellowstone river miraculously wakes up from the distant sound of the bell, stunned that it has become dark.

Inside this world our bodies are subjected to both mechanical time and the duration of time within every passing moment. The seasons in Montana change and adapt every year, but we still call October 21st the first day of Fall. Clouds overhead come together, move apart, come together again with the pace of successive exhales and inhales. We look upon our wrist watch and see what time the afternoon showers are going to start. We simultaneously live in between these two different worlds and are not able to fully comprehend either one of them.

"Where the two times meet, desperation. Where the two times go their separate ways, contentment."²⁶ For, miraculously, a barista, a scientist, and a woman standing on top of a building can make a world in either time, but not in both times. Each time is true, but the truths are not the same.

In our human condition we are not able to fully comprehend the vast connections of our natural elements. Thus, creating mechanical devices lets us bring the connections to a human scale. For example, we created a calendar to mark a twenty four hour solar cycle. A solar cycle runs upon its own duration but the space is to endless for any one human to understand. These abstractions of time break the duration down to a human scale of existence.

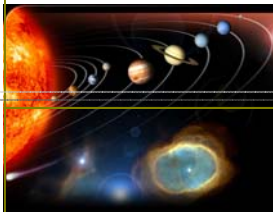
Analog quartz watch. “The heart of the watch is the integrated circuit, made up of a large number of electronic components grouped together on a base of only a **few square millimeters**.

The source of energy consists of a miniature battery which lasts several years. The time is divided by a quartz oscillator which is made to vibrate by the energy supplied by the battery. Quartz watches are extremely accurate thanks to their high frequency of vibrations. Their annual variation is only about one minute per year, equivalent to less than a second a day.”²⁷

Sun distance from Earth

<u>Right Ascension</u>	<u>Declination</u>	<u>Distance [AU]</u>
9h 59m 25s	+12D. 17.0'	1.012
		=
		93 million miles

The solar system is of an order so amazing that it is difficult to realize. Models are not even able to show the vast distances of each planet relative to the next. The planets are therefore non-reductive nor non-representable to any sort of scale. Thus, we abstract these entities down to a human scale for us to comprehend time and space.



[25]



[26]

[human condItIon



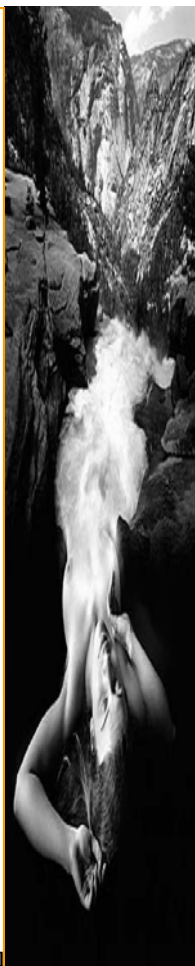
THINGS]

“Depth is still new, and it insists on being sought, not once in a lifetime but all through life. It cannot be merely a question of an unmysterious interval, as seen from an airplane, between these trees nearby and those farther away. Nor is it a matter of the way things are conjured away, one by another, as we see happen so vividly in a perspective drawing. These two views are very explicit and raise no problems. The enigma, though, lies in their bond, in what is between them.”²⁸

The world is a balance of traces that coexist together as things but only as they refer or relate to each other. "They are therefore signs. In that, like signs, their being always lies elsewhere because the sign is always a sign of something else. No entity has a unique being apart from the web of relations and forces in which it is situated. The thing itself always escapes... what we continually call a thing, has its sense of meaning in a whole web of references."²⁹ This irreducible connection between things is what brings richness to the environment in which we live. One cannot just study one entity because one is inherently studying everything. For example, a tree is not just a tree, but grows upon the soil, the water, and the wind. Its growth patterns depend upon how good the soil is, how much water it takes on every year, and how fast the wind blows. This does not only give richness to the tree that has been created, but allows humans to have a great perspective upon their immediate environments.



“A network ... is the only organization capable of unprejudiced growth, or unguided learning ... all other typologies limit what can happen. A network is all edges and therefore open ended any way you come at it. Indeed the network is the least structured organization that can be said to have any structure at all. It is capable of infinite arrangements, and of growing in direction without altering the basic shape of the thing, which is really no outward shape at all.”³⁰



Maurice Merleau Ponty describes that our perception of things occurs between the dichotomy of immanence and transcendence. Each thing has an immanent quality to our perception because it can't be foreign to us through our senses, but also has a transcendent quality because we will never understand the true essence of the object. **"Perceiving is to render oneself present to something through the body. All the while the thing keeps its place within the horizon of the world, and the structurization consist of putting each detail in the perceptual horizons which belong to it."**³¹ He explains, perception can never be analyzed because the whole of the experience comes prior to the parts. "As a result we cannot apply the classical distinction of form and matter to perception, nor can we conceive the perceiving subject as a consciousness which interprets, deciphers, or orders a sensible matter according to an ideal law which it possess. We experience a perception and its horizon in action rather than by posting them or explicitly knowing them."³² For Merleau, perception is real. It is given in infinite sums of perspectival views where the object portrays itself, but not all at once. "The perceived thing is not an ideal unity in the possession of the intellect, like a geometrical notion, for example; it is rather a totality open to a horizon of an indefinite number of perspectival views which blend with one another according to a given style, which defines the object in question."³³ Perception happens within action; therefore the experience of an object is changing in respect to the individual's movement. As a result, perception can never be explained because the thing brings forth a transcendence quality through the action of different individuals.

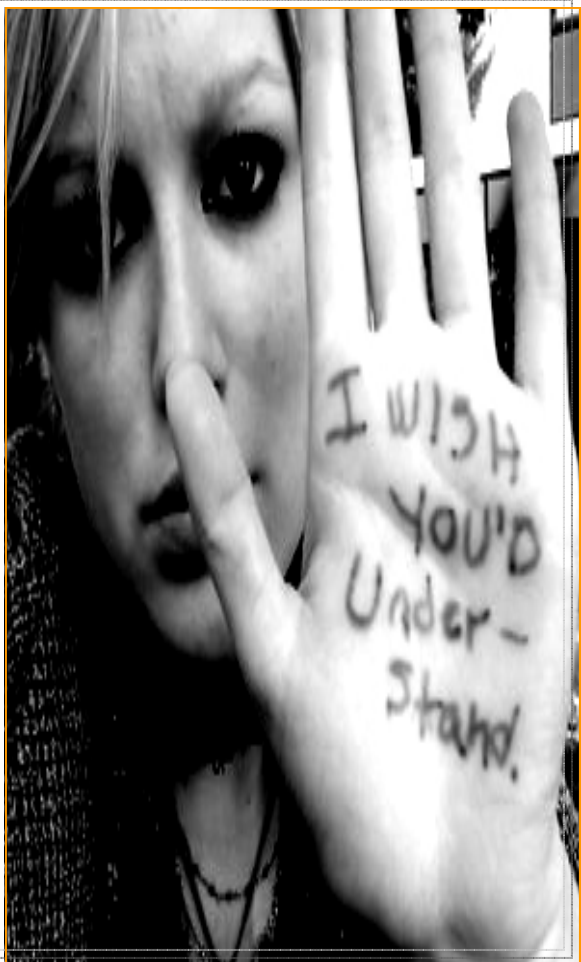


[29]

“The taste of the apple ... lies in the contact of the fruit with the palette, not in the fruit itself; in a similar way ... poetry lies in the meaning of the poem and reader, not in the lines of symbols printed on the page of the book. What is essential is the aesthetic act, the thrill, the almost physical emotion that comes with each reading.”

[Jorge Luis Borges

Perception of a thing for Heidegger is present when the “thingly nature of the thing”³⁴ is revealed to an individual from the body. The “thingly nature of the thing”³⁵ is a concept of Heidegger's where the thing will never reveal itself as an image, but is only realized through the connection between our body and the perceived thing. “Things are not simply in themselves, nor do they exist out there independently from us. Their being, is always constituted by showing themselves to us, and by our way of access to them.”³⁶ Objects become decomposable and representable from the thing, making the thing into an image. An image is when one views a thing and objectifies it down to its particulars. This thought is similar to Merleau Ponty because viewing objects as particulars exemplifies that only intellects can know the true essence of the objects. “The concept of the thing is prior to that of an object. Things are artworks, equipment, or entities of nature [trees, rocks, rivers, and planets]. Artwork can be seen as an object because it can be bought and sold or it can be hung up in an arbitrary spot in a gallery, or can be digitally reproduced on a computer screen. Equipment such as a cup or hammer can also be objectified through its properties, measurements, or attach a utility value. Nature also can be objectified through exploiting it for fuel, or an energy source, or depicted in a geographic information system.”³⁷ For Heidegger, “to objectify is to render everything the same, as made up of atoms, as measurable, as energy, as locatable in space on a coordinate grid, as representable, as information.”³⁸ To study the thing is not to search for the inherent qualities that are in them, but to distinguish from what they are not. He explains that the engagement between an individual and a thing is through the body and especially the hand. The hand that is connected to the body never tries to objectify, but only engages itself upon a thing. He explains, the hand that grasps all thing applies the connection of an individual to the “thingly nature of the thing.” This allows the individual to feel the true essence of the thing.



“When the work is going well the hands feel warm. When there is a collapse they are cold, as if the chills run right through my bones. I have to work with my bare hands. My hands have the sensitivity to create.”³⁹



[31]



[32]

Connections that exist within our natural elements is too vast for any human to comprehend. Thus, humans break the connections down into single entities. For example, a river is broken apart into water, rocks, algae, moss, trees, bugs, and fish. Therefore, we are able to study each entity and how they are affected within their environment. But, the co-dependent relationship between every organism is what gives the river its integrity. In-between the mountain lakes and the ocean there is a network of things that push and pull to create balance within an eco-system. This undulating river is a dynamic play of motion and flow. The flow and motion has no determinate goal but rather circles through a fabric that creates balance. We need to re-adjust our understanding of the immediate environments.

**Not break things down into parts,
but rather find the potential that
lies in the in-between and around.**



[archItecture

THINGS DUATION]

Architecture brings time and things to a human scale. Architecture inhabits land and is succumbed to all natural cycles. Architecture today is able to interact and be intensified by these natural cycles. The spirit, power, and integrity of architecture resides within the connections it makes with its surroundings. This will give a firm perspective on how we start to perceive our natural elements. Architecture within its inventive stage or within its use should not blind our perception of nature but heighten our awareness of what already exists. This should not be confused with the idea that architecture needs to glorify the sunsets, and create structures that are warm, and inviting [although that is a nice experience]. Architecture needs to be experienced through the harshness that exists within our eco-system. This is what makes architecture real, and it ultimately creates meaning to what we design. Coop Himmelblau's quote seems appropriate,

"We are fed up with seeing Palladio and other historical masks, because we do not want to exclude everything that makes us un easy. We want architecture that has more to offer. Architecture that bleeds, exhausts, that turns, and even breaks, as far as I am concerned. Architecture that glows, that stabs, that tears and rips when stretched. Architecture must be precipitous, fiery, smooth, hard, angular, brutal, round, tender, colorful, obscene, randy, dreamy, distancing, wet, dry, and heart stopping. Dead or alive. If it is cold, then cold as a block of ice. If it is hot, then hot as a tongue of flame. Architecture must burn."⁴⁰

“We are a product made of what has been chosen for us to see, bred for existence within an artificial environment.” [Arthur Sellers]

Nature is the creator of all things, when man [women] creates; he [she] creates from nature. Everything that we engage upon comes from natural elements. In the architectural profession things are represented, sterilized, deconstructed, and manipulated to create a beautiful meaningful experience. The meaningful experience comes from the intensification of our natural elements. Therefore architects must come in contact with these elements to understand their potential. Heidegger's hand theory is a great example. The hand not only tries to find the potential that exist within things, but also starts to understand the harshness of our natural environment. This contact, gives us a sense of value to the things that we manipulate. This relationship between man and things exemplifies man with nature, rather than man against nature.



[33]

It is my opinion that architecture is irreducible to the object, space, material, immediate environment, and its regional environment. Thus, architecture is an intensifier, it inhabits land, and its purpose is to engage ones perception. Also, architecture is not uniformly open nor is it uniformly closed, both in process and design. Our lives do not stop at a house, or the office, or urban square, we coexist with structures and our movements create a dynamic flow through the environment. We should not change our lives in order to function within architecture, but architecture has to react to our movements, feelings, moods, and emotions, so we want to live within it.

“Why should architecture exclude everything that is disquieting? That which is disquieting is our environment, it is our experience, and it is through that hardness that architecture becomes real. The present day concern for singular objects can be replaced by concern for relationships; shelters will no longer be static objects, but dynamic frameworks.”⁴¹

[condition studies



~~THINGS~~ DURATION]

[ANDY GOLDSWORTHY



THINGS — DURATION]

“Whenever possible, I make a work every day. Each work joins the next in a line that defines the passage of my life, marking and accounting for my time and creating a momentum which gives me a strong sense of anticipation for the future. Each piece is individual, but I also see the line combined as a single work.

Time and change are connected to place. Real change is best understood by staying in one place. When I travel, I see difference rather than change. I resent traveling south in early spring in case I am away from home when I see my first tree coming into leaf. If this happens, I see the leaves, but not the growth or change. I feel similarly about the frost or ice or snow, and the first warm day after winter. I thrive on the disruption forced by seasonal changes a hard freeze, heavy snow, a sudden thaw, leaf fall, strong winds which can change dramatically any working patterns that have become established in a particular season.

Not that seasons can be easily separated from one another. The smell of autumn can often be detected well before the season fully arrives, just as emerging growth can be seen in winter. For some plants, such as mosses, winter is their summer. The rocky, tidal area of the beach where I worked as a student was lush with green seaweed in winter, yet brown and dormant in summer.”⁴²

Time written by Andy Goldsworthy, is a series of studies that consider the duration of time through a particular place. The book is a collection of installations that deal with the relativity of time and place. Each installation reflects upon its own particular place and measurement of time to intensify the existing landscape. For example, the duration shot shown to your right. The stone wood and red stones grounded together in water to make the red cloud. At the same time a patch of sweet chestnut leaves floats along beside the red cloud. Each piece interacts with the water in its own duration, but simultaneously is perceived within a single view. This installation measures the flow of the water with two different variables, which engage upon each other in different degrees of duration. Each project deals with its own measurement of time, some only last a few moments and some last several days. Each of them make present that time and change happens within our natural elements.

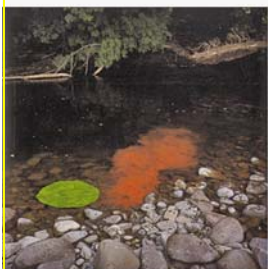
“I was always interested in seeing work change and decay, but usually as a spectator. Lately the challenge has been not simply to wait for things to decay, but to make change an integral part of a work’s purpose so that, if anything, it becomes stronger and more complete as it falls apart and disappears. I need to make works that anticipate, but do not attempt to predict or control, the future. In order to understand time, I must work with the past, present, and future.”⁴³



[34]



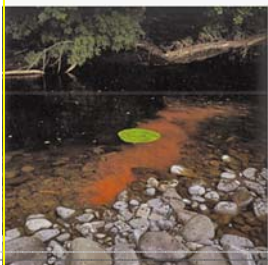
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[38]



[39]



[40]



[41]



[42]



[43]



[44]



[45]



[46]



[47]

[Nancy Holtz]



THINGS — DURATION

“In Nancy Holt’s Sun Tunnels, the Great Basin landscape is framed within circles and we remember the shape of our planet, the shape of our eyes, our mouth in song and in prayer. These tunnels breathe as the ellipses expand and contract with the fickle light.

Smooth walls trick me into headstands, cartwheels, and somersaults. The sun hides and I want to say something—anything. The tunnels give import to my voice. It echoes. I laugh and chide and flirt with the gods until I find myself flat on my back with spots of sunlight covering my body—and I burst into tears, knowing it is only a matter of time until I am burned like paper beneath a magnifying glass. By morning, I will be left, frozen on the salt flats—forgotten forever were it not for my bones—bones that become whistles for the wind to blow through.”⁴⁴



We pull up, its five o’ clock, almost dusk. We are restless from the drive, in the faint distance we see the concrete tubes. We stumble to get our coats and leisurely strolled down the path, hearing every footstep hit the ground. We get there, the sun is floating through the concrete tube and it hits our face. All of sudden Tripp is running through one, yelling, hearing his echo in the background as he runs through the second. Cole and Pete climb up to the top of one and do poses for all of us to see. We laughed, they looked ridiculous. Lori pulls on Pete’s leg as he sticks it through one of the holes. Jaric grabs a shoe that had been left by other visitors and throws it at Tim. A war started. One throws and runs, the other chases. Matt documents our visit from the distant background. Jaric, Pete, Tim, Cole, Tripp, and I have a competition to see who can run up the tubes the farthest. None of us succeed. It as if something took hold of us. Something that really couldn’t be explained. We became kids again, no worries, no pain, just the fact that we were there was enough.

“Sun Tunnels marks the yearly extreme positions of the sun on the horizon—the tunnels being aligned with the angles of the rising and the setting of the sun on the days of the solstices around Jun 21 and December 21. On those days the sun is centered through the tunnels, and is nearly centered for about ten days before and after the solstices.

The four concrete tunnels are laid out on the desert in an open X configuration eighty-six feet long on the diagonal. Each tunnel is eighteen feet long, and has outside diameter of nine and a half feet and an inside diameter of eight feet, with a wall thickness of seven and a quarter inches.

Cut through the wall in the upper half of each tunnel are holes of four different sizes—seven, eight, nine, and ten inches in diameter. Each tunnel has a different configuration of holes corresponding to stars in four different constellations—Draco, Perseus, Columba, and Capricorn. The sizes of the holes vary relative to the magnitude of the stars to which they correspond. During the day, the sun shines through the holes, casting a changing pattern of pointed ellipses and circles of light on the bottom half of each tunnel. On nights when the moon is more than a quarter full, moonlight shines through the holes, casting its own paler pattern. The shapes and positions of the light cast differ from hour to hour, day to day, and season to season, relative to the positions of the sun and moon in the sky.

Each tunnel weighs twenty-two tons and rests on a buried concrete foundation. Due to the density, shape, and thickness of the concrete, the temperature is fifteen to twenty degrees cooler inside the tunnels in the heat of the day. There is also a considerable echo in the tunnels.”⁴⁵

This installation is appropriate for this thesis because of the marking of large scale duration patterns within a human scale experience.

**[location] NW Utah, 40 miles N of Wendover,
Five miles S of Lucin**

Get to Route 30 from either Interstate 84 [from Snowville, UT] or Route 223 [from Oasis, Nevada]. Proceed on Route 30 to the Lucin cutoff [42 miles from Oasis, 83 miles from Snowville]. Go South on the dirt road four miles to Lucin. Continue South from Lucin two and one half miles, then bear left, going East. One should be able to see the Sun Tunnels. Go another two miles, bear right, and go one and one half mile to Sun Tunnels.



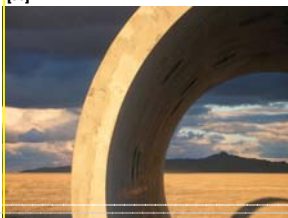
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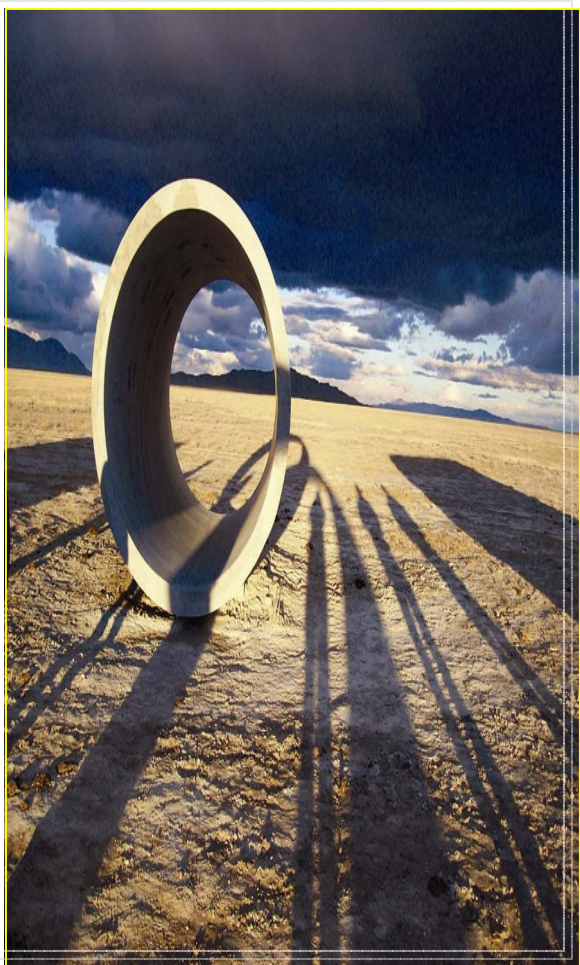
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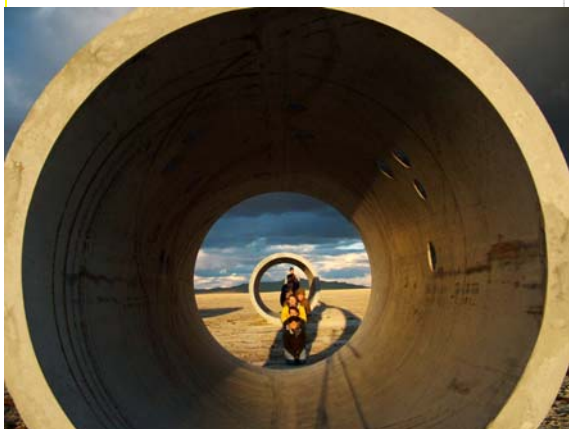
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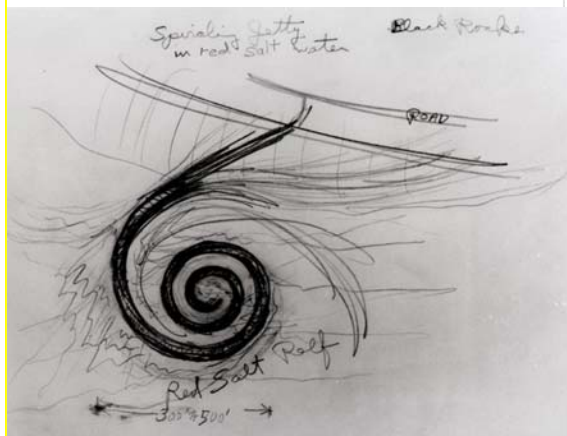


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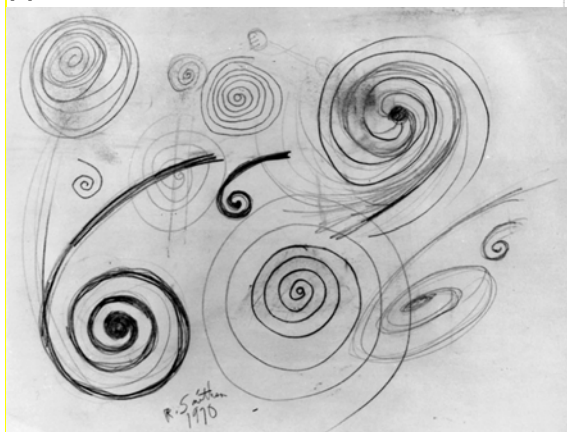
[Robert Smithson]



THINGS — DURATION



[58]



[59]

We get out, it is noon. We can taste the salt that is saturated in the air. The cool breeze comes off of the lake shore and cuts through our bones. The ground luscious with water, we leave marks in the sand as each foot step hits the ground. The landscape barren and rugged, nothing seemed to live. Pillars stand in the distance, something used to exist here. We walk around the bend, we see a rock formation jutting out to the center. Some walk through the prickly sage brush to get an aerial view. Some go directly to it, skipping from rock to rock, raising to get to the center. One can feel each individual rock, different from the next, but each seemed to be placed in that exact spot. One intimate with each rock, finally reaches the center and views the endless landscape that has been bestowed upon them. The black stone reveals the vibrant red sand beneath. We take off our shoes, one toe and then the next, each footstep it gets a little colder. We put on our shoes, hike to the top, gaze out upon this barren landscape with awe that something like this exists.



[60]

Spiral Jetty

Rozel Point, Great Salt Lake, Utah

April, 1970

**mud, precipitated salt crystals,
rocks, water coil 1500 feet long 15 feet wide**

“For nearly three decades Robert Smithson’s “Spiral Jetty” lay underwater in the Great Salk Lake. Since 1999, As drough has lowered the water level, this famous American earth sculpture has slowly re-emerged. Now it is completely exposed; the rocks encrusted with white salt crystals are surrounded by shallow pink water in what looks like a vast snow field.

In 1970, when Smithson built the “Jetty,” which is considered his masterpiece, the giant black coil contrasted starkly with the dark pink water of the lake. But, time and nature have left their marks.”⁴⁶

Spiral Jetty, [although not intentional] marks the elevation of the water that exist in the Great Salt Lake. This sculpture was buried underneath water for just shy of thirty years. Couldn’t be experienced beside walking out in neck deep water and feeling the stones with ones hands. Now it can be experienced by many, who ever is willing to drive in the rough desert terrain and walk a half mile to the site. This sculpture is being argued over from 2,000 miles away because of the damage the natural environment has had on the Jetty. Many believe that it should be restored, but the majority have ruled that the weathering is what gives the Jetty its dramatic experience.



[61]



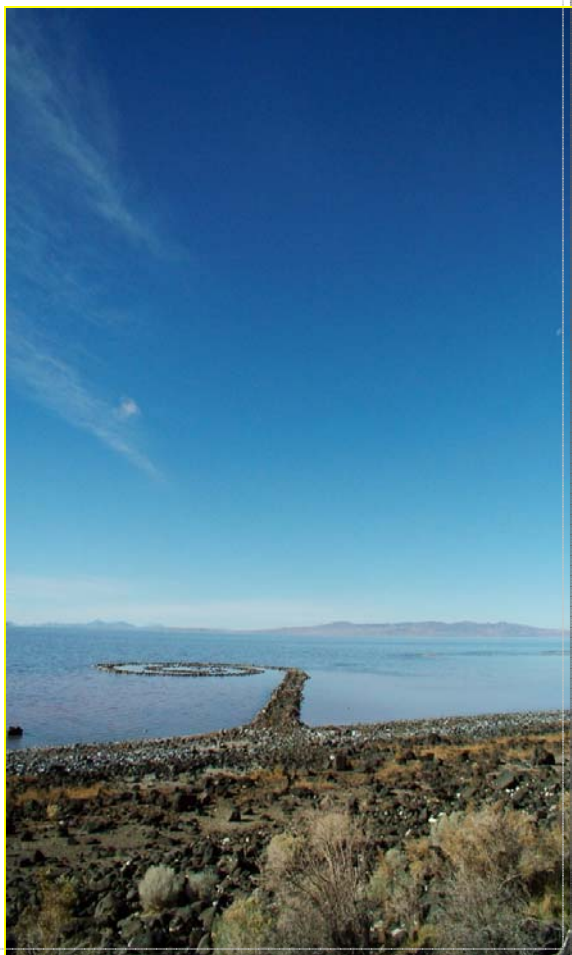
[62]



[63]



[64]



Context

[seam]

The **seam** converges the connection that exist between Gardiner, Montana + Yellowstone National Park.



[66]

Latitude : **45 degrees 31 minutes North**

Longitude : 110 degrees 5 minutes West

Elevation : 5315 feet

Time Zone : Mountain Standard Time

Population : 851

Zip-code : 59030

High \ Low temperatures : 85.9 degrees \ 14 degrees

Days of sunshine per Year : 300 Days

Prevailing wind : Southwest winds average 10 m.p.h.

[0 minutes to Yellowstone National Park]

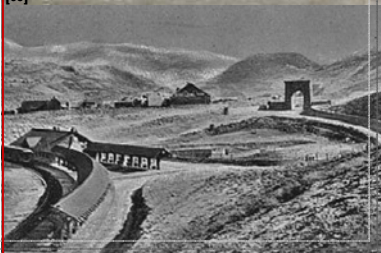
Gardiner is situated in Southwest Montana, at the North entrance to Yellowstone National Park. Gardiner was the first gateway community of Yellowstone park, located at the junction of the Yellowstone and Gardiner River. Due to the relatively easy access to the Yellowstone river, it was a favorite route for the fur-trappers and the early expeditions into the park. James McCartney, who built the first hotel in Mammoth in 1871, founded the town in 1880 and became the first established entrance to the park. By June of 1883 the town boasted to a population of 200 people. The infrastructure consisted of mostly tents, log shacks, twenty one saloons, six restaurants, five general stores, two hardware stores and several brothels. In 1902 the railroad was extended into Gardiner, and had the first train visit on June 20th, 1902. At the end of 1902 the construction to the railroad depot was started, and was finished on January of 1903. The railroad brought extensive changes; the population grew to just shy of a 1000 people, the historical Roosevelt arch was built in 1903, and Theodore Roosevelt dedicated as the first entrance to the park. In 1926 highway 89 was extended into Gardiner on the east side of the Yellowstone river. A concrete bridge was built over the Yellowstone River at its present site in 1929, tying the two sides of the town together, which encouraged more growth to the North side of town. A fire swept through the town in 1935 burning down most of the structures that existed. Scheduled passenger rail service to Gardiner ended in 1948, although they still gave tourist train rides until 1955. In 1954 the depot was demolished because of a political dispute. Since then the traditional entrance to Yellowstone by train has ceased to exist.



Today, the town continues to thrive, mostly by passerby's who are floating, hunting, or tourist to Yellowstone. The hunting and floating populations thrive specifically upon the water depth and the migrating elk population. Floating the Yellowstone starts on May first and ends on September 15th. Hunting starts on the third Sunday in October and ends the weekend of Thanksgiving. The tourist to Yellowstone have continued to drop especially in the winter considering the no snowmobile policies through the North entrance. The North entrance is still a popular place for tourist to pass by and exist as the only entrance open all year round.



[68]



[69]



[70]

Yellowstone National Park

"Long before any recorded human history in Yellowstone, a massive volcanic eruption spewed an immense volume of ash that covered all of the western United States, much of the Midwest, northern Mexico and some areas of the eastern Pacific. The eruption dwarfed that of Mt. St. Helens in 1980 and left a caldera 30 miles wide by 45 miles long."⁴⁷

"On March 01, 1872 President Ulysses Grant signed into existence the world's first national park, Yellowstone National Park. The 2.2 million acres of wilderness was **set apart as a public park or pleasuring ground for the benefit and enjoyment of the people.**"⁴⁸ The first few years of the park the only people that visited were the few fortunate who could actually afford to make the trip out west and the ones that were brave enough to battle the harshness of the great outdoors. As the park gained in popularity the first hotel was built in 1883 in Mammoth Hot Springs. The hotel lost money from the beginning because of the shortage in visitors and was demolished a few years afterwards. In 1903 Old Faithful Inn was built directly adjacent to the Old Faithful geyser. The Old Faithful Inn started the turning point of viewing the park as a recreational playground. Just after the Old Faithful Inn was built, the Lake Hotel was constructed upon Yellowstone Lake. These two main living areas took the harshness of our environment away and gave people a nice place to luxuriate in the wild. Tourists from all over the United States started to visit more frequently and became a favorite spot for family vacations. In 1916 President Woodrow Wilson signed into existence a government policy to allow the automobile into the national parks which changed the experience of the park forever. Two years after the signing of the bill 5000 automobiles entered the park during the summer season. The Grand Loop Road was permanently established as the thoroughfare through Yellowstone Park in 1922. When the automobile was introduced to the park it gave way to a large population of poachers.

Given that it was a national park the U.S. army provided facilities for troops to patrol for poachers [the scattered cabins in the foothills]. The cabins today are used for small backcountry patrols and law enforcement within the park. As time went on, more and more visitors start to arrive, which introduced a larger infrastructure within the park. Around Mammoth Hot Springs, Old Faithful Inn, and the Lake Hotel there was a building frenzy to accommodate the needs of the visitors.

In the 1970's Yellowstone begin to turn from viewing it as a recreational playground to a ecological treasure which needed to be preserved for the future visitors. **“The awareness of the fragile nature of the Park's resources and a growing awareness of the connectedness of the greater Yellowstone ecosystem began in the previous two decades, but the 1970's witness the implementation of more steps to restore ecological balance in the Park and protect the Park from the ill effects of human interaction, while at the same time not discouraging human visitation.”⁴⁹**

Some steps taken to restore.

[1974] _ “Fishing is prohibited from Fishing Bridge in order to protect the spawning of the native cutthroat trout.”⁵⁰

[1976] _ “Yellowstone is designated as a Biosphere Reserve, in recognition of its ecological value.”⁵¹

[1978] _ “Yellowstone is designated as a World Heritage Site, in recognition of its ecological value.”⁵²

[1988] _ “The worst fire season in Yellowstone history takes place. The fires burn some 1.4 million acres in the Yellowstone ecosystem between June and October.”⁵³ The U.S. government only allowed fire fighters to contain the fire within the park and were not able to extinguish the fire. Early winter storms finally extinguish the fire.

[1989] _ “As Yellowstone’s fire policies continued to come under immense criticism, the Park is already displaying signs of recovering from the fires as wildflowers arise in profusion from the blackened ground.”⁵⁴

Today Yellowstone National Park is viewed as a major destination spot for tourist through out the world. Over three million people per year come to visit this extraordinary eco-system. The vast majority of the visitors come during the summer months when the weather is accommodating. Most people that visit the Park only stay for 2-3 days. Given the vast area of the park people are only able to experience ten percent of the area. Yellowstone National Park has been explored from end to end, but is still viewed as a wild and majestic eco-system. Most visitors will never feel the wildness because they are perceiving most of the natural surroundings from their car.

[wild Yellowstone]



[80]



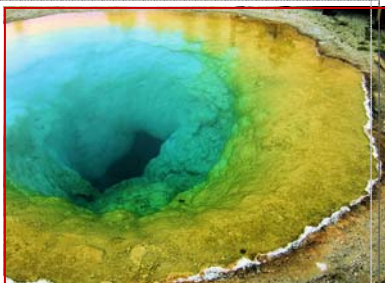
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[82]



[83]



[84]



[85]



[86]



[87]

Site theory

THE [seam]

The seam was chosen for the tension it embodies between what exist as a city of the trammeled and the illusion that is created of the untrammeled. The seam sits upon the latitude line of 45 degrees, 31 minutes North. This seam not only determines the position of the site, but also defines a very strict boundary between Gardiner, Montana and Yellowstone national park. This seam as it exist today, is only marked by this imaginary line that one could only see on a map. One cannot tell if they are entering the untrammeled or they are still in the trammeled.



The seam is chosen to intensify the dichotomy between our human condition of mechanical time and the duration of time. The seam marks the distinction of what exists as a pure natural environment and what exists as a mechanical environment. Gardiner spliced into a grid, networked to run efficiently, plots of land broken into equal partials to accommodate the needs of each individual. The occupants move upon mechanical time, work eight to five, have hour lunches, go to school for thirty nine weeks, take a week break for thanksgiving, eat dinner at six and go to bed at nine. Yellowstone stuck in time, marked only by the duration that exists. The weather dramatically changing from fall to winter to spring to summer. The giant volcano inhaling and exhaling while the sun crosses the mountains. The elk migrating when the first snowfall comes while simultaneously the bear hibernates within their cave. These actions marked by connections between signs that exist within a network of elements.

These two act in duality, perceived in dichotomy, and converge within our human condition upon the **seam**.

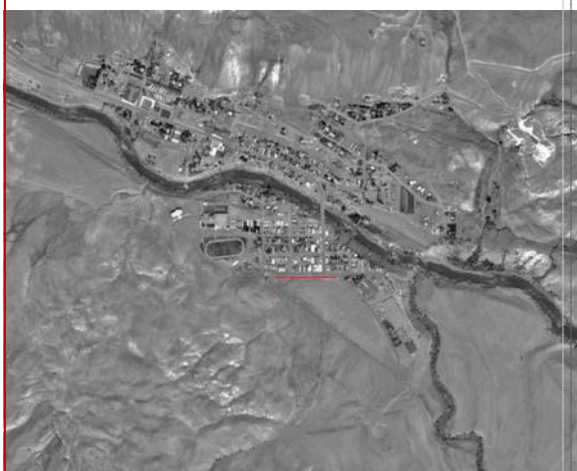
As an exploratory project within the potential of this thesis, I purpose a naturalistic observatory. The proposal is derived upon the idea that we live within two separate worlds. One that is very strict and regimented, and one that flows within a sequential duration. Given the content of this thesis, the architecture will not be abstracted nor will the theory be applied. It is more important for the occupants to intimately understand the two opposing states of time within a given space. This proposal is manifested upon the idea of a seam or threshold that propels people from a static mechanized environment to a smooth intensified naturalistic understanding.



[89]

Documentation of TENSION

[-seam]



[90]



[91]



[92]

Notice in the aerial view that Gardiner shown in yellow is strict and regimented within a grid and Yellowstone which is shown in green exist as a field of empty space.



[93]

Notice in the aerial view where 2nd street converges into Park street and directly takes a ninety degree turn. Although, when you enter the park one takes a swooping left turn through the arch. This dramatic experience exist to portray the shift between the mechanical city to the durational landscape.



[94]



[95]



[96]

Today there exists two entries at the North Entrance of Yellowstone National Park. One is experiential [Roosevelt Arch], and one works upon economics for the park [pay booth]. As part of my program I plan to move the second entrance of the park to the seam of exposure. This will make the threshold of the park once again through the Roosevelt Arch.



[97]

**Formally closing
the door to the
service entrance to
the park. [for the
public]**

**The act of movement,
rectifying the arch as the
entrance by moving
people to the right.**

**Intensify the arch as the
threshold for Yellowstone**



[99]



[100]



[101]

What defines the boundary to Yellowstone



[102]

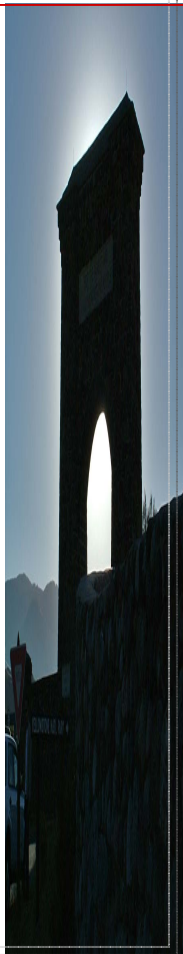


[103]



[104]

The Roosevelt Arch is the most influential structure upon this site. It marks the threshold to the entrance of Yellowstone Park.



[105]



[106]

Storage building for the park.



[107]

Old cabins, now used as office space for the entrance.



[108]

Out door picnic area where the old depot used to be.





[109]

View driving on second street before the intersection.



[110]

Dramatic view of Yellowstone from the **seam**.

Hard Program of the SEAM

Vehicular Circulation = 1500 S.F.

This attribute is very important in considering time. Yellowstone Park has created movement at every entrance with toll booths where one would either pay money or flash a card. These exist to move as many individuals through the entrance as possible. There is a large convergence of traffic at this intersection of 2nd and Park. This site is for the visitors of Yellowstone Park making it a public entity. Vehicular transport must have a strong experience to rectify the difference between duration and mechanical time.

Parking Area = 1500 S.F.

The parking area will serve the seam for the public. It will also exist to block the service entrance to the park.

Services = 250 S.F.

There will be two vehicular entrances points. This will provide the occupants with the drive up window and intensify the Roosevelt Arch as the official threshold to the park.

Restrooms = 30 S.F.

IBC Building Code justifies that there needs to be 1 unisex bathroom per 4 occupants. I will be providing one male bathroom and one female bathroom.

Circulation = 2000 S.F.

The circulation space is a indoor outdoor space. This space will provide the occupants with the understanding of the dichotomy, converging, and duality of what exist between the duration and mechanical time.

Total = 5280 S.F.

Code Analysis

Applicable codes : IBC 2006, IEBC 2006 intl. existing building code, IEC 2006 intl. electric code, IFC 2006 intl. fire code.

- 1] Use Groups:** A-3 [circulation/seam]- B [pay booths]
- 2] Occupancy Load** circulation/seam—40, business pay booths 6.

Construction Requirements

Construction type: type III (602.3/2303.2)

Maximum Allowable Height: 3 stories
(table 503 A-3)

Maximum Allowable Floor Area: 14,000 S.F.
(table 503 A-3)

Fire Resistive Rating (table 601)

Structural Frame: Type III A=1

Bearing Walls

Exterior = 2

Interior = 1

Non Bearing

Exterior = 1

Interior = 0

Floor Construction = 1

Roof Construction = 1

Accessibility

ADA Compliances

Path of travel 4.3, 4.3, 4.5, 4.7

Minimum 36" for path of travel

Ramps: 4.8

Slope of ramp must not exceed 1:12

Ramps longer than 6 feet will need railing on both
Sides

Provide 60" landing per 30' of ramp

Entrances: 4.13, 4.14

At least one entrance will not have stairs
Entrance doors shall open at least 32 inches
18" clear on pull side of the door

Access to goods and services 4.2, 4.4, 4.5, 4.30
Aisles at least 32" wide
5 foot turnaround clearance for wheelchairs

Vertical Circulation 4.3

Provide ramps or elevators which access all levels

Restrooms

Provide at least one unisex facility
Doorway to be 32" minimum
36" clear for path of travel in front of fixtures
5" radius turnaround space provided in at least one
Area

Egress Requirements

Doors swing in direction of travel (1008)
2 exits required with a distance no greater than 1/2
of the diagonal of the space (1015.2.1)

(1007.8.2)

Exit access and travel distance not to exceed 200'
Assembly of 300 shall be provided with at least one
main exit

(1025.2)

Stairs riser shall be a maximum of 7" or 4"
minimum. Stair treads to be 11" min. (1009.3)

Means of egress shall be illuminated at all times the
building space served by the means of egress is
occupied



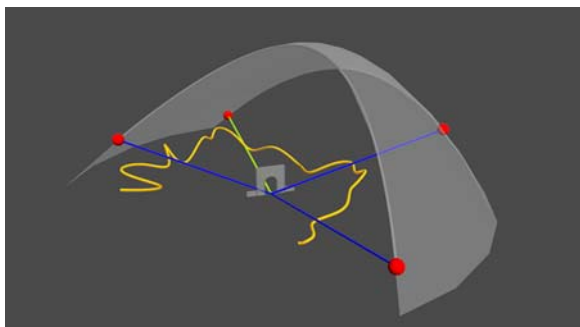
[dudes]



[sage brushers]

Sage brushers: are visitors to the park that occupy the natural conditions. [camping, hiking, biking]

Dudes: are visitors to the park that occupy the human condition spots. [Old Faithful Inn, Yellowstone lake lodge]



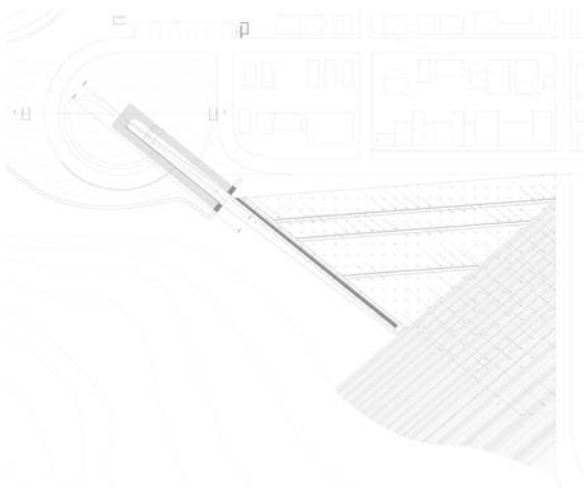
sun diagram [arch placement]

 Sun [solstices]

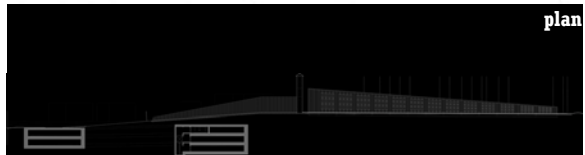
 local horizon
line

 solstice sun rays

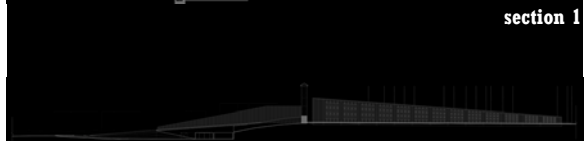
 Dec. 21st
Sun shines
Through Arch



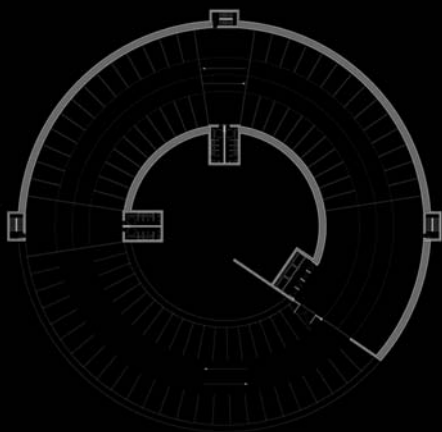
plan



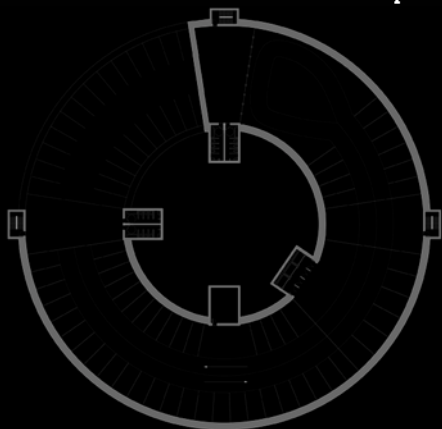
section 1



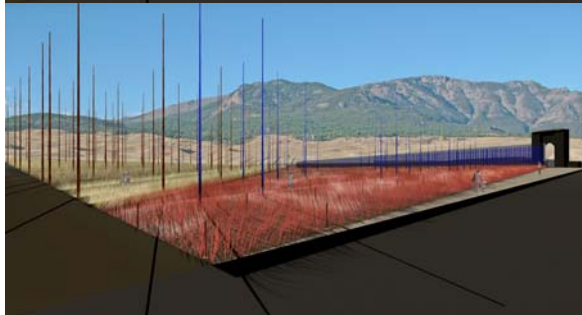
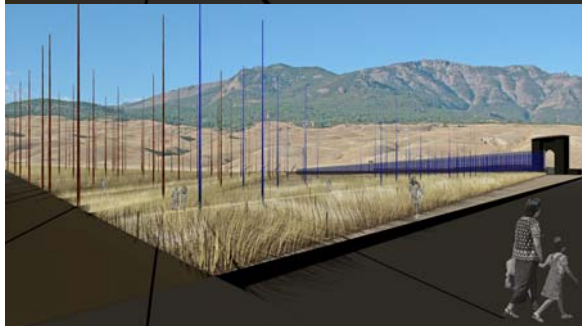
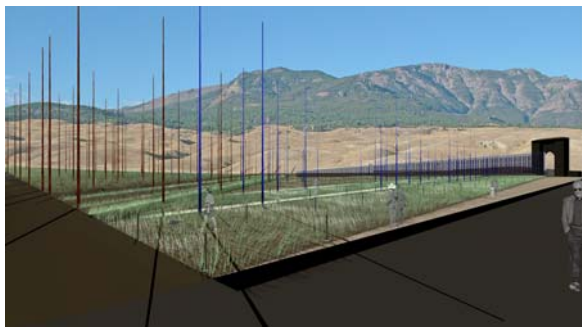
section 2

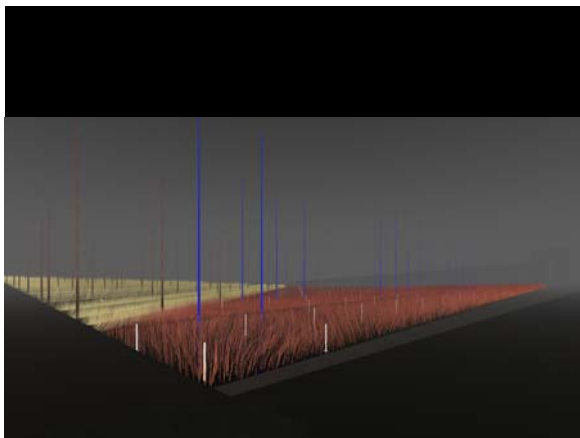


first floor parking

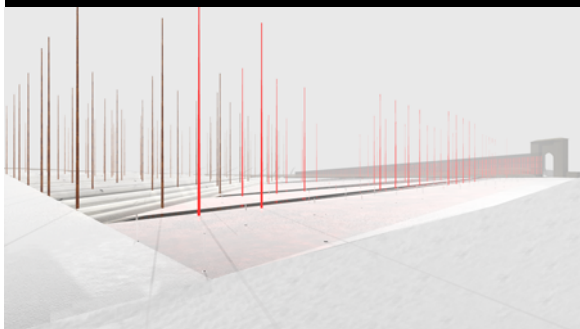


Second floor parking





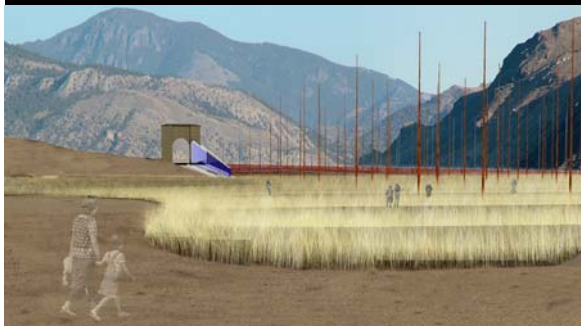
night rendering



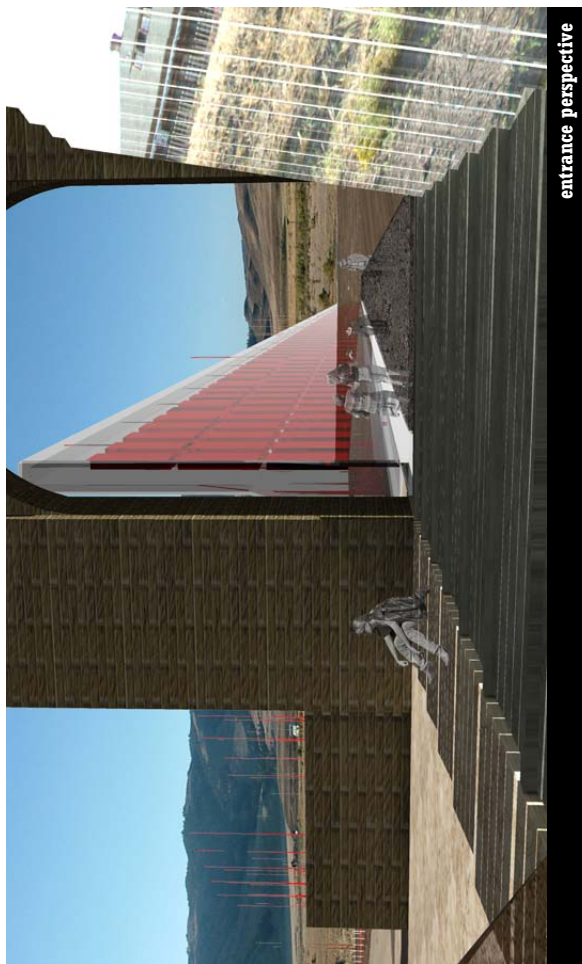
winter rendering



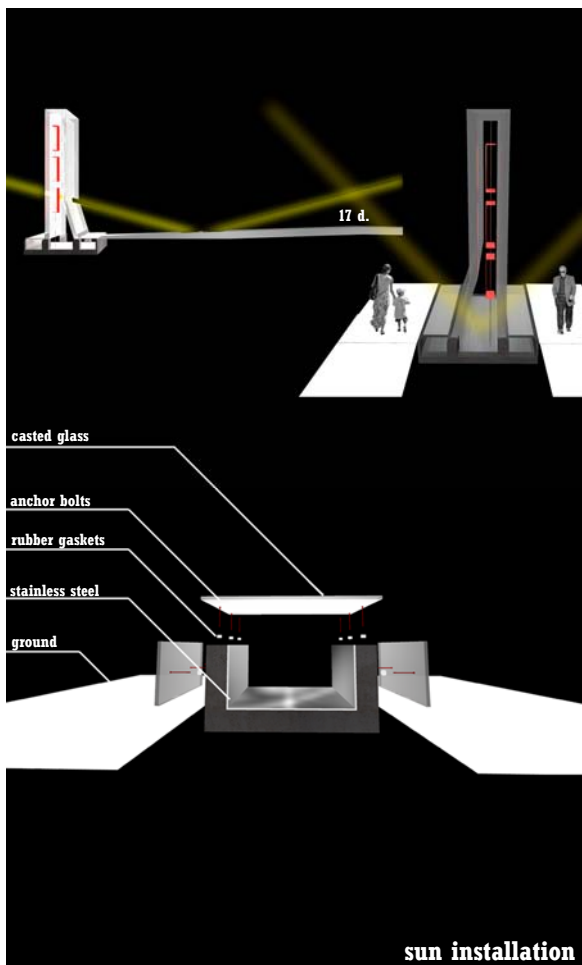
entrance perspective

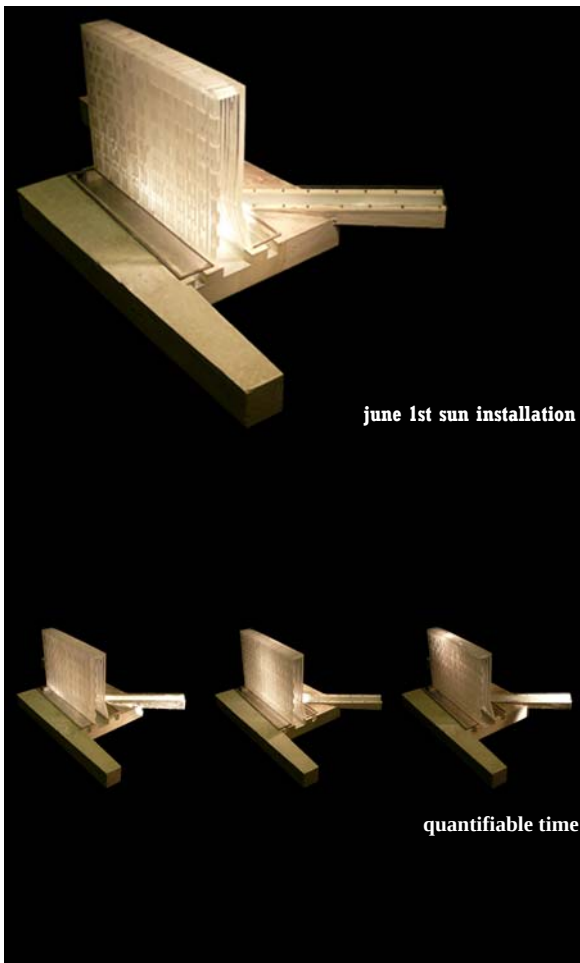


exit perspective



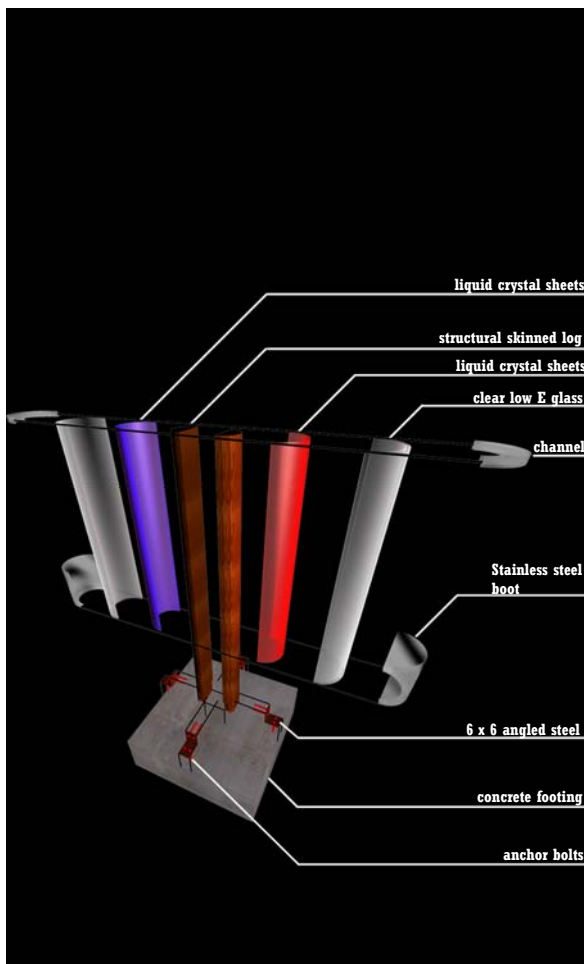
entrance perspective





jun 1st sun installation

quantifiable time



Works Sited

[foot notes]

- [1] Danielewski, Mark Z. House of Leaves. Pantheon Books, New York, New York, 2007. pg. xix.
- [2] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 51
- [3] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 18
- [4] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 51
- [5] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 19
- [6] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 70
- [7] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 70
- [8] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 70
- [9] Hofstadter, Douglas. I am a Strange Loop. Basic Books, New York, New York, 2007. pg. 203.
- [10] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 20
- [11] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 20
- [12] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 20
- [13] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 19
- [14] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 95
- [15] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 95
- [16] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 96
- [17] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 19
- [18] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 31
- [19] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 31
- [20] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 51
- [21] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 63
- [22] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 62
- [23] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 63
- [24] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 64

- [25] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 71
- [26] Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993. pg. 71
- [27] Federation of Swiss Watch Factory: <http://www.fhs.ch/en/work.php>
- [28] Ponty, Maurice Merleau. The Primacy of Perception. Northwestern University Press. 1964. pg. 179
- [29] Mugerauer, Robert. Derrida and Beyond. Buildings and Reality: Architecture in the Age of Information. Vol. 4 A publication of the center for American Architecture and Design. New York, New York, 1998. pg. 67
- [30] Kelly, Kevin. Out of Control: The Rise of Neo-Biological Civilization. Cambridge, Massachusetts, Perseus Books, 1992. pg.22
- [31] Ponty, Maurice, Merleau. The Primacy of Perception. North Western University Press, United States of America, 1964. pg. 42.
- [32] Ponty, Maurice, Merleau. The Primacy of Perception. North Western University Press, United States of America, 1964. pg. 12.
- [33] Ponty, Maurice, Merleau. The Primacy of Perception. North Western University Press, United States of America, 1964. pg. 16.
- [34] Coyne, Richard. Designing Information Technology in the Postmodern Age. The MIT Press, Cambridge Massachusetts, 1995. pg. 174.
- [35] Coyne, Richard. Designing Information Technology in the Postmodern Age. The MIT Press, Cambridge Massachusetts, 1995. pg. 174.
- [36] Coyne, Richard. Designing Information Technology in the Postmodern Age. The MIT Press, Cambridge Massachusetts, 1995. pg. 66.
- [37] Coyne, Richard. Designing Information Technology in the Postmodern Age. The MIT Press, Cambridge Massachusetts, 1995. pg. 175.
- [38] Coyne, Richard. Designing Information Technology in the Postmodern Age. The MIT Press, Cambridge Massachusetts, 1995. pg. 175.
- [39] Goldsworthy, Andy. Time. Cameron Books, Moffat, Scotland, 2000. pg. 110
- [40] Coop Himmelblau, [editor, Peter Noever]. Architecture Is Now. Rizzoli International, New York, New York, 1983. pg. 106.
- [41] Coop Himmelblau, [editor, Peter Noever]. Architecture Is Now. Rizzoli International, New York, New York, 1983. pg. 01.
- [42] Goldsworthy, Andy. Time. Cameron Books, Moffat, Scotland, 2000. pg. 07
- [43] Goldsworthy, Andy. Time. Cameron Books, Moffat, Scotland, 2000. pg. 07
- [44] Williams, Tempest, Williams. Refuge: An Unnatural History of Family and Place. Vintage Books, New York, New York, 1991. pg. 269.
- [45] The Artist: http://the-artists.org/artist/Nancy_Holt.html
- [46] Sanford, Melissa. Jan. 13, 2004: <http://www.robertsmithson.com/essays/sanford.htm>
- [47] Yellowstone Net: <http://www.yellowstone.net/history.htm>
- [48] Yellowstone Net: <http://www.yellowstone.net/history.htm>
- [49] Yellowstone Net: <http://www.yellowstone.net/history.htm>
- [50] Yellowstone Net: <http://www.yellowstone.net/history.htm>
- [51] Yellowstone Net: <http://www.yellowstone.net/history.htm>
- [52] Yellowstone Net: <http://www.yellowstone.net/history.htm>
- [53] Yellowstone Net: <http://www.yellowstone.net/history.htm>
- [54] Yellowstone Net: <http://www.yellowstone.net/history.htm>

[figure credits]

- [1] Salvador Dali, Painting: <http://dali.urvas.lt/forviewing/pic15.jpg>
- [2] Google Earth Image, manipulated by author.
- [3] Salvador Dali Painting: <http://www.tauworkshop.com/DaliWatch.JPG>
- [4] Sun Image: <http://stardate.org/images/gallery/sun5.jpg>
- [5] Calendar Image: http://www1.istockphoto.com/file_thumbview_approve/1179636/2/istockphoto_1179636_3d_calendar.jpg
- [6] Sun / Moon Image: <http://shveik.com/images/moonsunNorthPole.jpg>
- [7] Human Shadow Image: http://upload.wikimedia.org/wikipedia/commons/thumb/d/d6/Human_shadow.jpg/180px-Human_shadow.jpg
- [8] Bell Image: http://freepages.military.rootsweb.com/~cacunithistories/Site%20Graphics/Maryland_Bell.jpg
- [9] Calendar Image: http://www1.istockphoto.com/file_thumbview_approve/1179636/2/istockphoto_1179636_3d_calendar.jpg
- [10] Gehry Watch Image: http://images.amazon.com/images/P/B00064BH9S.01-A4LKQKJ91IUZ_AA280_SCLZZZZZZZ_.jpg
- [11] Eyephone Image: <http://www.slipperybrick.com/wp-content/uploads/2007/01/cisco-sueing-apple-iphone.jpg>
- [12] Picture taken by Cole Robertson: manipulated by author
- [13] Figure Walking: Created by author in Photoshop
- [14] Jeep Image: <http://www.willys-mb.co.uk/images/world-war-2-jeep-s.jpg>
- [15] Airplane Image: <http://www.engineering.uiowa.edu/~dip/examples/images/airplane.gif>
- [16] Mac Computer Image: <http://www.intelliadmin.com/images/MacBook20060808.jpg>
- [17] Manikin Picture: <http://www.abelarzlomorell.nte/recentwork/motionstudymanikinstull.jpg>
- [18] Drugs Insight and Illusions: http://www.ovid.org/library/books/images/drugs_insights_illustions.jpg
- [19] Rene Magritte Painting: http://library.thinkquest.org/J002045F/magritte_son_of_man.JPG
- [20] Drugs Insight and Illusions: http://www.ovid.org/library/books/images/drugs_insights_illustions.jpg
- [21] Photo taken by Matt Throssel: Manipulated by author
- [22] Created in Photoshop by Author
- [23] Jeep Image: <http://www.willys-mb.co.uk/images/world-war-2-jeep-s.jpg>
- [24] Human Motion Image: <http://www.cra.org/Activities/craw/dmp/awards/2005/Tanzil/images/snap2.bmp>
- [25] Galaxy Image: <http://www.agu.org/sections/planets/photoj.jpg>
- [26] Watch Image: <http://www.edgetechcorp.com/Repository/ProductImages/0/USB-Watch-Drive-Steel-Dress.gif>
- [27] Jerry Uelsmann
- [28] Jerry Uelsmann
- [29] Blanket over Human Image: http://incondit.com/words/blanket_body_11.jpg
- [30] I wish you'd understand: <http://emersive.net/images/2005/michaelangelo.jpg>

- [31] Andy Goldsworthy: Goldsworthy, Andy. Time. Cameron Books, Moffat, Scotland, 2000. pg. 110
- [32] Andy Goldsworthy: Goldsworthy, Andy. Time. Cameron Books, Moffat, Scotland, 2000. pg. 07
- [33] Footprints: <http://images.jupiterimages.com/common/detail/43/35/23313543.jpg>
- [34] Andy Goldsworthy: Goldsworthy, Andy. Time. Cameron Books, Moffat, Scotland, 2000. pg. 110
- [35] IBID
- [36] IBID
- [37] IBID
- [38] IBID
- [39] IBID
- [40] Andy Goldsworthy: Goldsworthy, Andy. Time. Cameron Books, Moffat, Scotland, 2000. pg. 211
- [41] IBID
- [42] IBID
- [43] IBID
- [44] IBID
- [45] IBID
- [46] IBID
- [47] IBID
- [48] IBID
- [49] Photo taken by Matt Throssel
- [50] IBID
- [51] IBID
- [52] IBID
- [53] IBID
- [54] IBID
- [55] IBID
- [56] IBID
- [57] IBID
- [58] IBID
- [59] Sketches of Spiral Jetty: <http://www.spiraljetty.org/>
- [60] IBID
- [61] Photo taken by Matt Throssel
- [62] IBID
- [63] IBID
- [64] IBID
- [65] IBID
- [66] IBID
- [67] Google Earth Image: manipulated by author
- [68] Historic Photo Gardiner, MT: http://www.naturalhistorymag.com/editors_pick/images/1976_10_14.jpg
- [69] Historic Photo Gardiner, MT: <http://www.geocities.com/geysrbob/Gateways-Gardiner.html>
- [70] Historic Photo Gardiner, MT: <http://www.geocities.com/geysrbob/Gateways-Gardiner.html>

- [71] **Historic Photo Gardiner, Montana:** <http://www.geocities.com/geysrbob/Gateways-Gardiner.html>
- [72] **Buffalo:** <http://www2.umn.edu/comm/w04/imgs/yellowstone.jpg>
- [73] **Lava:** <http://www.guyharrisonphoto.com/Media/0300yellow5.jpg>
- [74] **Changing Trees:** http://www.florafanafotography.com/images/294_Flowing-Aspens-Final.jpg
- [75] **Wolf:** http://www.runnerduck.com/travelogue/db_coyote.jpg
- [76] **Lava Pool:** <http://gardenwebs.net/Morning.Glory.jpg>
- [77] **Bear:** http://www.judysphotos.com/albums/Yellowstone-in-Winter/IMG_6242_Grizzly_Bear.highlight.jpg
- [78] **Geyser:** http://newsimg.bbc.co.uk/media/images/40906000/jpg/_40906735_geyser_usgs_203.jpg
- [79] **Google Earth Image:** manipulated by author
- [80] **IBID**
- [81] **IBID**
- [82] **IBID**
- [83] **IBID**
- [84] **IBID**
- [85] **IBID**
- [86] **Photo taken by author**
- [87] **IBID**
- [88] **IBID**
- [89] **IBID**
- [90] **IBID**
- [91] **IBID**
- [92] **IBID**
- [93] **IBID**
- [94] **IBID**
- [95] **IBID**
- [96] **IBID**
- [97] **IBID**
- [98] **IBID**
- [99] **IBID**

[Selected Bibliography]

Coop Himmelblau, [editor, Peter Noever]. Architecture Is Now. Rizzoli International, New York, New York, 1983.

Coyne, Richard. Designing Information Technology in the Postmodern Age. The MIT Press, Cambridge Massachusetts, 1995.

Danielewski, Mark Z. House of Leaves. Pantheon Books, New York, New York, 2007.

Goldsworthy, Andy. Time. Cameron Books, Moffat, Scotland, 2000.

Hofstadter, Douglas. I am a Strange Loop. Basic Books, New York, New York, 2007.

Kelly, Kevin. Out of Control: The Rise of Neo-Biological Civilization. Cambridge, Massachusetts, Perseus Books, 1952.

Lightman, Alan. Einstein's Dreams. Vintage Books, New York, New York, 1993.

Merleau-Ponty, Maurice. The Primacy of Perception. Northwestern University Press. 1964.

Mugerauer, Robert. Derrida and Beyond. Buildings and Reality: Architecture in the Age of Information. Vol. 4 A publication of the center for American Architecture and Design. New York, New York, 1998.

Williams, Tempest, Williams. Refuge: An Unnatural History of Family and Place. Vintage Books, New York, New York, 1991.

[Web Bibliography]

Federation of Swiss Watch Factory: <http://www.fhs.ch/en/work.php>

The Artist: http://the-artists.org/artist/Nancy_Holt.html

Sanford, Melissa. Jan. 13, 2004: <http://www.robertsmithson.com/essays/sanford.htm>

Yellowstone Net: <http://www.yellowstone.net/history.htm>