I, Anna Pettinga, hereby submit this original work as part of the requirements for the degree of Master of Architecture in Architecture (Master of).

It is entitled:
A Public Boathouse in Gary, Indiana

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This work and its defense approved by:

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In 1906 the United States Steel Corporation founded the city of Gary, Indiana. They built the city rapidly on the southernmost shores of Lake Michigan. The previously unsettled land along the shore consisted of rivers, swamps, dunes, and lakes. This land was quickly modified and organized for mechanized production. Editorial coverage of the new city ranged from dreams of a new industrial utopia to fears of deeply misplaced optimism in American industry. Planners for the city programmatically segregated housing and industry. The rapid development led to architectural experiments in materials to house the working class. Along the lake, the city’s architecture regurgitated by-products of the steel making process. The waste material extended the shoreline but failed to provide for a population living in the soot of the steel mills with recreational access to Lake Michigan.

Gary’s architecture worked against the landscape. This thesis considers the paradoxical paradigms of Spaceship Earth and wabi-sabi to ask: how should architecture occupy the landscape? Proposed is architecture which occupies its site by acting as a temporal device, evolving with time, and the changing relationship with the landscape it occupies. This emphasis on relationship with the land and the site integrates strategies of landscape urbanists within architectural discourse. No longer conceived as an object on a tabula rasa, architecture is considered a series of relationships with material, culture, and events. Aspiring to function within the larger ecosystem previously dominated in Gary, a public boathouse on the shores of Lake Michigan draws on these relationships in order to advanced landscape-urbanist strategies, to orient architecture towards a population divide from its own resources, and to offer a program through which architecture can occupy the shifting sands.
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I went for a walk over the dunes again this morning
to the sea,
....

I have reached no conclusions, have erected no boundaries,
shutting out and shutting in, separating inside
from outside: I have
drawn no lines:
as

manifold events of sand
change the dune’s shape that will not be the same shape
tomorrow,

so I am willing to go along, to accept
the becoming
thought, to stake off no beginnings or ends, establish

no walls
....

a perception full of wind, flight, curve,
sound:
the possibility of rule as the sum of rulelessness:
the “field” of action
with moving, incalculable center
....

I see narrow orders, limited tightness, but will
not run to that easy victory:
still around the looser, wider forces work:
I will try
to fasten into order enlarging grasps of disorder, widening
scope, but enjoying the freedom that
Scope eludes my grasp, that there is no finality of vision,
that I have perceived nothing completely,
that tomorrow a new walk is a new walk.
Introduction

A document in two parts:

First, the essay serves to frame a site and a response. An unoccupied site on the beach asks the question: how can architecture occupy the landscape? By engaging its attention and energy, plugging into its larger infrastructures and networks, architecture is involved in a site. Considering a perspective that allows architecture to become intertwined with the landscape, there is also a generous reading of that landscape where imperfection, incompleteness, and the unexpected are valuable traits of restlessness. The paraxical paradigms of spaceship earth and wabi-sabi will frame an argument for architecture occupying a site by acting as a temporal device.

Second, the accompanying deck of cards is a visual version of this same essay. It contains precedents from art and architecture, and images to describe content from the essay. Section V contains an index to the cards. Organized by theme, the cards are designed to be re-organized and re-considered by connecting the graphic. Some cards will be called out in this essay in their corresponding color eg: (12) to cue the two parts together. It is the hope of the author that a reader may discover new relationships and create new connections by considering a reorganization.

The essay begins by framing an understanding of the chosen site and concludes with a description of the proposed project.
20,000 years ago what is now Lake Michigan was below a mile high continental glacier. During the Wisconsin glacial period, the Michigan lobe began it’s retreat north, carving out the basin of the lake. As the glacier retreated the earth’s crust began to rebound, reacting to the lifted weight of thick ice. To the north, the crust continues to rebound today at a rate of as much as 46cm every 100 years\(^1\). This number decreases exponentially until it hits Gary, Indiana and the crust rests. The hinge at Gary serves as the site for this architectural thesis.

The retreat of the mile high glacier carved Lake Michigan’s basin causing a rim of dunes to rise around the lake. Today a series of dune formations round the southernmost end of the lake. They sit chronologically from the inland Calumet and Glenwood dunes, stabilized now by forests, to the Tolleston dunes, and the youngest active dune shoreline.2

This restless landscape with tall, wandering, sand dunes would become Gary, Indiana. Just east of Gary, the Indiana Dunes National Lakeshore maintains dune heights of over 100 feet. Mount Baldy sits at 140 feet, and the living dune wanders southeast along the landscape an average of 4 feet each year. Outside the rim of these dunes was swamplands. (54). The combination of wandering sand, restless waters, and murky swamps left the area primarily used as hunting grounds prior to the arrival of Europeans.3

By 1893, the neighboring city of Chicago had made it’s mark on the world. The Worlds Fair: Columbian Exposition held in that year shot the city to the forefront of architecture, the arts, city planning, and invention. Though not the focal point of the fair, Chicago introduced the Ferris wheel to the world. This whimsical invention allowed people to explore new heights along the shores of lake Michigan, gaining perspective on the landscape from a new vantage point.

Just a short drive away, Gary was yet unsettled. Still, the landscape served to further American invention and experimentation. A series of glider experiments in Gary would send people independently into the sky.

Octave Chanute, a retired bridge engineer, conducted his glider experiments off the dunes at what is now Miller Beach in Gary. In 1896, at the time of his experimentation, the dunes rose as high as 70 feet, leading quickly into the waters of Lake Michigan. The tall dunes acted as launching pads, and the lake as a landing pad (47). At Gary, wind conditions are ideal for such experiments. With a goal of human flight, Octave Chanute tested his gliders hoping to further research towards aviation (48). In July of 1986 Chanute’s glider became the first successful airborne craft built heavier than air. The flight occurred just west of the site for this thesis.4 Not only a pioneer of flight, Chanute was also one of the original opensourcers: collecting and compiling gliding experiments from all inventors, to share and publish the knowledge of flight.

---

MR. CHANUTE, UNLIKE MOST INVENTORS WHO WISH TO KEEP FOR THEMSELVES ALONE THE WHOLE GLORY OF THEIR IDEAS, UNDERSTOOD VERY WELL THE NECESSITY OF HELPING ONE ANOTHER IN THIS TREMENDOUS TASK.

The Papers of Wilbur and Orville Wright

Chanute’s book, *Progress in Flying Machines* chronicled the successes and failures of inventors around the world, creating a larger collaborative effort for human flight. Chanute would go on to mentor the Wright brothers through a series of letters and meetings, frequently offering advice. He is considered the grandfather of flight. As he ends his book, his infectious optimism about the future of flight leaves a lasting impression for the site, and the potential within the dunes:

LET US HOPE THAT THE ADVENT OF A SUCCESSFUL FLYING MACHINE, NOW ONLY DIMLY FORESEEN AND NEVERTHELESS THOUGHT TO BE POSSIBLE, WILL BRING NOTHING BUT GOOD INTO THE WORLD; THAT IT SHALL ABRIDGE DISTANCE, MAKE ALL PARTS OF THE GLOBE ACCESSIBLE, BRING MEN INTO CLOSER RELATION WITH EACH OTHER, ADVANCE CIVILIZATION, AND HASTEN THE PROMISED ERA IN WHICH THERE SHALL BE NOTHING BUT PEACE AND GOOD-WILL AMONG ALL MEN.

Octave Chanute

Ten years after Chanute’s infamous flights, The United States Steel Corporation chose the same swampy site for the largest steel mill in America and Gary, Indiana was founded by the corporation in 1906. The company purchased 9000 acres of shoreline property (58). The land was chosen for its location, it’s affordability, and the lack of development up to that point. Gary was a prime spot due to it vicinity to Chicago, the train tracks already running through, and it’s location at the mid-point of the iron ore fields in Minnesota and the corporation’s headquarters in Philadelphia. Ships efficiently carried ore from the iron fields north in Minnesota through lake Michigan to the city, and trains took the finished product for distribution.

BECAUSE US STEEL BUILT GARY AS A COMPANY TOWN, IT POSSESSED UNRESTRICTED POWER TO STRUCTURE THE RELATIONSHIP BETWEEN SOCIAL ACTIVITY AND THE PHYSICAL LANDSCAPE...

Gary, The Most American City

Gary was deemed a grand experiment, built quickly, an


7 Chanute, Octave. 269.

8 Hara, S. Paul. 17
example of the new mechanized process of American manufacturing. The nearby city of Pullman had been an attempt at industrial Utopia, (57) there the large industrial company sought to be a part of all aspects of their worker’s lives to “better its residents and eliminate industrial strife and conflict.” Meanwhile “the creators of Gary sought to clearly define, confine, and restrain the spaces of their city” instead of the strategy at Pullman where the industry was incorporated into the community, Gary fully embraced the separation of those daily parts of their worker’s lives.

...THEIR FUNDAMENTAL EXPECTATION IN PLANNING GARY WAS THAT INDUSTRIAL STRIFE AND SOCIAL CONFLICT WERE INEVITABLE BY-PRODUCTS OF MODERNIZATION.

The dunes and swamplands were rapidly organized to ease construction of the steel mills and the city (63). Until 1906 the Grand Calumet River meandered through the land and often flooded large areas in the swamby region, but an early move by engineers in Gary was to move the river 3/4 mile and confine it to a concrete channel. Simplified and straightened it travels through artificial channels which also prevent it’s flooding. This also served as a separation between the city and the steel mills. Next was the draining of swamps and levelling of terrain- millions of cubic yards of sand were removed. Gary’s steel mills were designed to be

FAST, EFFICIENT, AND SEAMLESS. NO UNNECESSARY MOVEMENT, WASTED ENERGY, OR PAUSE IN PRODUCTION WOULD MAR THE CREATION OF STEEL. 

The steel making process was highly organized, mechanized, and segregated to the shoreline, though the effects on the city were immense. Ore steamers travelled to Gary from the iron range in Minnesota, arriving at the ore dock. The steamers unloaded with unloading machines moving the ore on travelling conveyer bridges to storage yards which held enough supply for the winter months when travel paused for frozen Lake Michigan. Transfer cars and electric gates moved the elevated storage bins to the blast furnaces. The continually operating blast furnace, was cool at the top (new material) and molten iron at the bottom (ore, coke, and limestone). As it heated, the slag floated to the top, this was saved to be used for cheaper metal. Leftover loads of the sludge were used to further fill in lake Michigan, extending the Gary Works property out into the water as much as 700 feet to start. In this way the architecture regurgitated landscape from Minnesota to infill the shoreline, providing more space for further development, and eventually extending the lake Michigan shoreline 500 acres.

The iron was removed through taps at the bottom of the furnace and sent through several mixers. Next, it travelled to Gary’s open-hearth furnace. Burning gases passed over it, burning off impurities and creating the strength of steel.

10 Hara, S. Paul. 45.
11 Hara, S. Paul. 19.
Finally, it was poured into ingot molds and cooled then either sent to a billet mill, where it was made smaller and more manageable or to rail mills and rolled to make steel rails.

FOR SOME, GARY WAS THE ULTIMATE EXAMPLE OF TECHNOLOGICAL ADVANCE AND THE VICTORY OF MAN OVER NATURE. IT WAS A STORY OF HOW SCIENCE COULD LITERALLY TURN SWAMP AND SAND INTO STEEL.

Gary, The Most American City

Marquette beach, the site for this thesis, had not yet been developed, and a family of squatters had successfully lived on the large swath of land long enough to be the landowners. After they passed away, the City of Gary was offered more than could be refused from US Steel for the site to expand its operations. However, the residents of Gary objected, urging city leaders to maintain their small plot for recreation along the waters of Lake Michigan. They successfully convinced the City, and US Steel, that the land was to remain in the ownership of the city, and Marquette Park, the only public waterfront park in Gary, was established in the 1920’s.

At the beach, the architect George W. Maher erected a bathing house to allow swimmers and sailors to rinse off and relax on the beach. At its grand opening in 1921, the city of Gary provided 5,000 bathing suits for people to rent for only 50 cents. Generally, the winds in Gary came from the South, but when they came from the North—STEEL MILL SMOKE ENVELOPED GARY IN A BLANKET OF SOOT. SUSPENDED PARTICLES OF IRON, CEMENT, AND COKE HOVERED OVER THE CITY AND THEN RAINED DOWN ON ITS OCCUPANTS.

Gary, The Most American City

Residents and tourists alike frequented the beach for years, sailing, swimming, and lounging. However, Gary declined with the fall of the steel industry from a mill employing 20,000 to one employing 7,500. Meanwhile, tensions mounted both racially and economically, and the beach became a hot zone for discrimination. The park remained public but the bathhouse was shutdown as the city no longer had the funds to run it safely and successfully. It was heavily vandalized and fell into disrepair for years.

A grass roots group rescued the building from demolition in 1991 to renovate and restore the historic bathhouse. Christened by the group as the “Aquatorium” the former bathhouse was listed on the National register of historic buildings and restored to its current use as a museum for Octave Chanute, the Tuskegee Airmen, and a rentable event space often used for weddings and large group gatherings.

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14 The rail mill was capable of 4,000 tons of 80 pound tails in 24 hours. In 1902 U.S. Steel corporation in produced 2/3 of all American steel.

15 Hara, S. Paul. 42.


19 Hara, S. Paul. 159.

20 The pioneers who spearheaded the integration of the armed forces.
GARY WAS BUILT ON SHIFTY SAND....
AND EVEN NOW, IN SPITE OF THE
MILES OF STREET PAVEMENTS
AND SIDEWALKS, THE SAND IS ALL
ABOUT AND IN BETWEEN AND IS
ALWAYS VASTLY THREATENING. LET
A HOUSEHOLDER BUT STIR WITH
A STICK IN HIS BACK YARD, ON A
WINDY DAY, AND THE TREACHEROUS
SAND BEGINS TO MOVE AND CLOUD
AND WHIRL. AND, CLOSE HEMMING
THE CITY, ARE AREAS OF SAND,
SHIFTING AND BLOWING AND ALWAYS
THREATENING.

Robert Shackleton, The Book of Chicago

The setting at Miller Beach in Marquette Park serves
as the site for an architectural intervention. While much of the
architecture in the city has been used up to the this point for
the production of steel and the mass alteration of the landscape
(60), a further exploration of the site allows for an architecture
engaged with the landscape, working with the systems already
in place.

II

Paradoxical Paradigms

Spaceship Earth, Wabi-Sabi

via Hara, S. Paul. 119.
Two concepts frame an architectural question for this thesis: The first- Spaceship Earth- involves advanced technology, incredible funding, and a shift in perspective as valuable as the scientific information gathered in the mean time. The second- wabi-sabi- encourages a closer look and an acceptance of the real. Together they pose a question for the role architecture may take in its site.

NASA's stated vision echoes that of Octave Chanute:

TO REACH FOR NEW HEIGHTS AND REVEAL THE UNKNOWN SO THAT WHAT WE DO AND LEARN WILL BENEFIT ALL HUMANKIND1.

In 1969 the Apollo 8 Mission successfully orbited the moon with astronauts on board. Running tests to prepare for future missions and an eventual landing on the moon, the result of the mission created a stir that no one could have expected.

FROM ITS FOUNDATION IN 1958, NASA WAS FOCUSED ON THE MOON, NOT ON THE EARTH. Earthrise2

When the astronauts on board Apollo 8 turned their cameras towards Earth, a grand perspective shift shook the nation. The photographs of their mission made it to the front pages of magazines and the astronauts were broadcast to the nation on Christmas Eve (1). A photograph of Earth was all that was needed to change world views and start a movement.

IT IS HARD TO SAY WHICH MADE THE GREATER IMMEDIATE IMPACT: THE REPORTS OF THE FIRST TRAVELLERS TO THE MOON OR THE FIRST PICTURE OF THE EARTH. 

Astronauts describe the sensation as ‘the overview effect’ an indescribable feeling created by seeing the Earth from space. The image of a tiny blue planet Earth was seen for the first time by millions when those on board Apollo 8 shared it with the world. (4)

I’VE OFTEN HEARD PEOPLE SAY, ‘I WONDER WHAT IT WOULD BE LIKE TO BE ON BOARD A SPACESHIP,' AND THE ANSWER IS VERY SIMPLE. WHAT DOES IT FEEL LIKE? THAT’S ALL WE HAVE EVER EXPERIENCE. WE ARE ALL ASTRO-NAUTS. 4

Buckminster Fuller wrote “the Operating Manual for Space-1

1 NASA. NASA. Web. 24 Mar. 2015.
3 Poole, Robert. 31
ship Earth” to explain the pivotal role he felt we play as the operators of earth. His was an understanding of Earth as the vessel for humans, our ship which we live on. In order to operate the ship, a deeper understanding of what it is and the systems by which it operates became necessary. This notion inspired an environmental movement to care for the Earth and to embrace humanity’s role in the care taking of the planet.

**MAN IS UNIQUE AMONG ALL THE LIVING PHENOMENA AS THE MOST ADAPTABLE OMNI-ENVIRONMENT PENETRATING, EXPLORING, AND OPERATING ORGANISM BEING INITIALLY EQUIPPED TO INVENT INTELLECTUALLY AND SELF-DISCIPLINED, DEXTEROUSLY, TO MAKE THE TOOLS WITH WHICH THUS TO EXTEND HIMSELF**

*Buckminster Fuller*

For Fuller, his exploration was an architectural one. Thinking of architecture as a device by which we extend ourselves, functioning within the larger systems of the planet led to his many explorations in the possibilities for architecture which occupies, like we do, the earth.

The second paradigm comes from a mind set much different than America’s exploration of space, but contributes to an understanding of the qualities of Earth which we may be able to draw from. Wabi-sabi is a term that is intentionally difficult to define. Generally it is known to be the beauty of welcoming the imperfect, embracing the impermanent, and accepting the incomplete. According to Leonard Koren, wabi-sabi’s role in Japanese aesthetics is similar to that of perfection and beauty found in Greek ideals in the West.

**SINCE IDEOLOGICAL CLARITY OR TRANSPARENCY IS NOT AN ESSENTIAL ASPECT OF WABI-SABI, TO FULLY EXPLAIN THE CONCEPT MIGHT, IN FACT, DIMINISH IT.**

A recurring theme is that of transience, of accepting the passage of time, and of experience as a learning method. For architecture, this means an embrace of the natural qualities of materials (24). Growth, decay and imperfection are encouraged to coexist with what was intended (30).

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5 Fuller, R. Buckminster. 37
in which the natural world causes what some may consider imperfections are desirable (26,27), and unexpected outcomes are welcome (28).

These perspectives, Spaceship Earth and wabi-sabi, together create an understanding of architecture as a temporal device.

...ARCHITECTURE IS CONSTRUED NOT AS AN OBJECT BUT AS A DE- VISE THAT CAN TRANSFORM AN URBAN LANDSCAPE YET AT THE SAME TIME IS NOT IN COMPLETE CONTROL OF THE RELATIONSHIPS BETWEEN ITS CONSTITUTIVE EL- EMENTS. 7

This view has been furthered by the landscape urbanists, most notably by Stan Allen in his oft cited essay From Object to Field. 8 His writing re-envision architecture and re-contextualizes the viewer. Allen argues for a move from individuals to collectives, for an emphasis on the relationships and structures between things rather than the things themselves. The focus is shifted from objects to relationships, and the unexpected outcomes which may come from interactions.

...THE FIELD CONDITION IMPLIES AN ARCHITECTURE THAT ADMITS CHANGE, ACCIDENT, AND IMPRO-

VISATION. IT IS AN ARCHITEC- TURE NOT INVESTED IN DURABILITY, STABILITY, AND CERTAINTY, BUT AN ARCHITECTURE THAT LEAVES SPACE FOR THE UNCERTAINTY OF THE REAL 9.

Stan Allen

His stance allows for the messiness of the unknown. It is not an end-all solution, a finalized perfected form, but rather the series of relationships that come together to form a whole.

Since coining the term landscape urbanist those who identify as such have placed their emphasis on relationships rather than objects. For them- the importance comes from a necessary understanding of the larger systems at work- cycles of growths and decay inherent in the design of plant scapes, parks, and city greenways. Landscape urbanists urged designers to acknowledge the local conditions and relationships in which they create- working in and with an established field, rather than a tabula rasa.

SPACE, FAR FROM BEING A NEU- TRAL CONTAINER, IS A FIELD IN TENSION WHICH, UNLIKE MOST REPRESENTATIONS OF URBAN SPACE, EXPLICITLY INCLUDES NATURAL PROCESSES 10.

9 Allen, Stan, 102.
10 Waldheim, Charles. 128.
Just as infrastructure creates networks in the landscape, architecture too should consider its place in the complex relationships that extend into the field. Allen’s focus on interconnected relationships brings the conversation away from the overall form and into the field. James Corner describes the act of mapping as analogous to architectural drawing. He describes architecture as a temporal device:

**CREATING AND BUILDING THE WORLD AS MUCH AS MEASURING AND DESCRIBING IT .... DIGGING, FINDING AND EXPOSING ON THE ONE HAND, AND RELATING, CONNECTING, AND STRUCTURING ON THE OTHER.**

With this mindset a conception of architecture as an object is no longer relevant. Architecture as a temporal device considers the relationships and infrastructures it creates. Focusing primarily on material, culture, and the event, the relationships between and within the three elements lead to an architecture more deeply rooted in its site. Architecture in this case can be viewed as

**INSTRUMENTS OF GENERAL OBSERVATIONS**
**MESSENGERS OF URBAN TRANSACTIONS AND COMMUNICATORS OF WIDER PROCESSES...**

The following chapter describes two architectural precedents through the lens of architecture as a temporal device.

---


Two primary architectural precedents demonstrate architecture acting as a temporal device. With each, an emphasis on material, culture, and the event allows for a clearer understanding of architecture’s role. Both projects created architecture which fully engaged with and occupied its site, connecting back to the landscape and its materials, the culture of its society, and the events by which it is experienced, created, recreated, or taken apart.

The first, the Ise Grand Shrine (43), dates back to 4BC. It embraces the perspective shift offered by Spaceship Earth, acting also as a device for education about the landscape. Wabi-sabi qualities are evident throughout.

The second, BLUR (45), by Diller, Scofidio + Renfro in 2002 embraced contemporary technology, impermanence, and the unexpected outcomes of the natural world more fully incorporated into a temporary technological structure.
THE ACCEPTANCE OF THE TEMPORALITY OF THE PHYSICAL MANIFESTATION OF ARCHITECTURE, AS REPRESENTED BY ISE... HAS A CURIOUS CORRESPONDENCE IN WESTERN MODERNISM: THE IDEA THAT NEITHER CONCEPTS NOR FORMS ARE PERMANENT, AND THAT BOTH ARE PERHAPS DISPOSABLE

Ed Ford

Deeply rooted in material, culture, and the event, the Ise Grand Shrine is architecture as a temporal device. It contributes to a deeper understanding of human operation on Earth. The shrine is part of the Shinto religion, built for the housing of deities as well as sacred objects. These shrines are not intended as places of worship, rather as houses for Shinto kami (spirits/phenomena worshipped in the Shinto religion).

Over 100 shrines make up the site in Japan but the most important are the Naikū (inner shrine) and the Gekū (outer shrine). The Naikū houses the goddess of the sun. The Gekū was removed from its original location to where it now stands at Ise in 478 AD. It houses the goddess of material things, the necessities for life: food, clothing, shelter etc.

The shrines have maintained their significance in Japanese culture since 4 B.C. and the founding of the Japanese nation. Various rituals, ceremonies, and festivals are frequented yearly by thousands of participants. Importantly, “the periodical dedication of new shrines means, besides the rebuilding of the main sanctuaries, the provision of new sacred treasures and garments, exact replicas of the old, showing an excellence of craftsmanship equal to that of the various ages in which the originals were made.”

Craftsmanship of the culture is passed down not only through the architecture but also through the artifacts recreated within it.

Every 20 years, the inner and outer shrines, along with the rest at the site (14 affiliated shrines) are completely rebuilt. The ceremony: Shikinen-Sengu, has taken place since the end of the seventh century. Eight years of participatory events culminate in the identically rebuilt shrine site. Okihiki (the Timber Carrying Ceremony), in the ceremony in which

3 Shikinen-Sengu of Jingu: Renewal of the Grand Shrines of Ise at Fixed Intervals of 20 Years. 24.
the timber makes its way from the mountain top down to the shrine. The logs are floated down the river, and subsequently marched through neighboring towns to the shrine site. For the rebuilding of 2013, the Okhiki ceremony took place in 2006-2007. After the wood has made it to the site, carpenters begin preparing it for the rebuilding of the shrine.

The Oshiraishi-Mochi is the Ceremony of Carrying White Pebbles, in which white pebbles are strewn on the ground of the new shrines. Following this, the deity must be removed to inhabit the new shrine. The removal ceremony takes place at night with no light. The deity is removed from the old shrine and ceremoniously moved to the new through a procession typically attended by over 10,000 people. The site at Ise is not unlike Allen Berger’s description of a city-

MARKED BY THE CONTINUOUS ENERGY FLOWS AND TRANSFORMATIONS OF WHICH LANDSCAPES AND BUILDINGS AND OTHER HARD PARTS ARE NOT PERMANENT STRUCTURES BUT TRANSITIONAL MANIFESTATIONS.4

The building is a temporal device. Acting as a cultural artifact, those who participate in the festivities relearn old traditions, maintaining a manner of constructing architecture, and a deep connection to the materials which have traveled to the site by means of a host of volunteers and religious participants (25). The connection to the landscape is strong in Ise, and the architecture of the Shrines allows the people there to gain a deeper understanding and knowledge of the landscape.

In 2002 Diller, Scofidio + Renfro created a Blur building for the Swiss EXPO (29). The building collected water from Lake Neuchatel and dispersed a fine, filtered mist for visitors to experience. Highly technological, the architects created a building which collected local weather data to inform the pressure and intensity of the mist. With Blur, they asked the question

WHAT, HOWEVER, CAN THE CONSTRUCTION OF DE-EMPHASIS MEAN IN ARCHITECTURE? 5

Upon entering the pavilion, visitors were given a coat to record their moves through the space, and to contribute, through sound, to their experience. Each person walking through the pavilion became a part of the project. The archit-

4 Corner, James, 203

tects sought to create two types of sublime: “In addition to the artificially produced natural sublime in the disorienting and scaleless fog mass, the project aims to create a technological sublime: to make palpable the unfathomable speed and reach of the data cloud.”

This technologically and atmospherically ephemeral architecture functioned as a temporal device; connecting visitors with the culture, material, and events of the local landscape. The culture of weather obsession is marked by the users becoming a part of the data collection for the cloud. The material of the building is in every way ephemeral, the solid structure lasted through the expo, while the real material of the architecture was created from the lake itself and by the transformative and reorganizing process of vaporizing it’s water.

The event was twofold- first, the architecture now exists only in photographs and monographs as its time line extended only through the exhibition. Second- the event of the Blur was dependent on current weather conditions, read by the architecture to inform the proper density and expulsion of mist into the air. The project causes us to think about human’s relationship to the landscape, our control or lack of it, and the blurred understanding of the highly technical and completely ephemeral relationship to it all. The architect claims that although weather tracking methods and advancements in technology can, at times,

... WHILE ADVANCED METHODS OF DETECTION AND TRACKING HELP TO WARN AND THUS PROTECT US FROM THE RAVAGES OF AN INDIF-

FERENT, TEMPESTUOUS NATURE, THE WEATHER IS UNSTOPPABLE. IT IS BEYOND OUR CONTROL. AT THE SAME TIME, GLOBAL WEATHER DISTURBANCES, LIKE GLOBAL WARMING, ARE PROOF THAT WEATHER AND CLIMATE ARE NOT IMPERVIOUS TO HUMAN INTERVENTION.

In this, the architects marry two opposing ideas. The uncontrollable nature of the environment, and the responsibility and acceptance of human influence upon it. Blur caused people to rethink their relationship to the landscape, and to further investigate what it means to create and be a human on this planet. The architecture served as a temporal device, deeply rooted in time, connected to each moment of the changing environment, functioning as a sign within the larger ecosystem of which the visitors were also a part.


7 Diller, Elizabeth. “Blur/Babble.” 139.
8 Kosky, Jeffrey L. Arts of Wonder: Enchanting Secularity--Walter De Maria, Diller Scofidio, James Turrell, Andy Goldsworthy. NA: NA, 0. 65. Print.
Proposed is a public boathouse at Miller Beach, in Gary, Indiana on the shores of Lake Michigan. The boathouse acts a temporal device, drawn from the materials of the landscape, the culture of the city, and the events of natural processes and human interaction.

The program is drawn from the culture of the site. Wind conditions ideal for Octave Chanute’s glider experiments have proven ideal for kite surfing and wind driven water activities as well. The Lake Michigan Water Trail Association has developed a program by which one can eventually travel by non-motorized water vehicle, around the great lake. This collaborative framework among three states lays the groundwork for a boathouse at Gary. The public boathouse provides a stopping point along the trail, a place for renting recreational boats, a much needed recreational site for the city.

Following is a brief explanation of the boathouse typologies and lineages to explain the positioning of this particular proposal.
THE TYPOLOGICAL EVOLUTION OF THE BOATHOUSE:
Boats are anchored in position to remain in place.
Boats are tied to a dock to anchor in place.
A roof is provided to shelter the boats.
The boats are placed on a mechanical lift to extract them from
the water for security.
A house for boats, complete with garage door, entry door, a
window, house light, and an outdoor seating area:
boats domesticized. (13)
Here, the typology splits in two evolutionary tracts:

TOWARDS PERMANENCE:
A house for boats and a room for people. Added is a second
story for semi-sheltered room.
The floors are enclosed and above a sealed window keeps the
elements out, while the boat is inside of a closed garage above
the water.
A McMansion Boathouse. (15)

EMBRACING FLUX:
The house moves up off the shore, retreating from the daily
alterations of the shoreline.
The rooms for people are attached to the side of the boatroom
and elevated slightly off the land.
Boathouse on stilts with a long dock extending into the water
Boathouse on stilts, boats hung below. (14)

The public boathouse at Gary falls into the second
category. Moving up the shore further from the liminal space
that is the shoreline, the boathouse is raised off the ground and
boats are hung below. This move allows for the sands to shift
below, and an elongated floor plan for an accessible access to
the dunes and a perspective on the shoreline.
Corten steel and wood make up the primary materials for the building. The wood collected from abandoned architecture in the city brings with it the history and flaws of a city in decay. It is also the first event in the creation of the boathouse, with residents and students encouraged to participate in the collection. The steel is an homage to the city itself, and the weathering effects which will occur are a welcome effect of the material.

Occupants enter the building via a long spiralling corten steel ramp (18). This passage gives perspective first out to the beach, then to the West and US Steel, back to the city, and finally up into the building. The structure of the ramp wraps around and carves into the sand below, anchoring the sand in place. Rest rooms flank the walk onto a raised covered platform. From the roof, water falls at a designated rinsing station through the floor and down to the sand below. The station is provided to remove sand from feet and legs.

Reaching the threshold of the interior, the large pivoting entry door acts as a devise to activate the interior space. One occupant’s entrance into the building affects the interior environment of another. Mechanically linked to a wall of light on the interior, the devise calls attention to exterior conditions and activity of the occupants.

Inside, the single large room is divided by a wall of light. In the first space, people are welcomed and offered information about kite boarding, sailing, surfing, or allowed to meander into the space if they are simply there for the view. After the light wall, life jackets, paddles, and some boats are available for renting. In the same large space, indoor teaching can occur for those who need instruction prior to recreation activity in Lake Michigan. Exiting the interior room, a covered deck extends over the dune below and a wide ramp leads directly into the Lake Michigan waters.

On the west side of the building, the corten ramp continues to spiral up to an accessible roof. At the top of the ramp, a weather station collects data on wind conditions for dispersal inside the building.

Below the building, hanging boats, kite boards, paddle boards, surfboards, and windsurfers are flanked by a field of structural columns which allow for the movement of shifty sand while also acting as a maintenance sand fence. (16)
The accompanying deck of cards, referenced in this essay, provide a visual framework for this thesis. One side contains precedents, drawings, photographs, an diagrams. The back side allows for a reorganization of the deck into a drawing of various relationships. The intention is to emphasize the importance of architecture as a temporal device drawn from its emphasis on the relationships between things rather than the things themselves. It is the hope of the author that new conclusions may be reached and different strategies defined by an alteration of those relationships.

The back side of each card contains a graphic which, when organized, is able to create a variety of drawings, suggesting multiple readings and relationships.

What follows is a brief description of the cards. They are divided and color coordinated in categories based on the themes of this essay and the elements of the boathouse:
1-11 Paradoxical Paradigms

12-23 The Boathouse

24-31 Material

32-42 The Event

43-49 Culture

50-55 Lake Michigan

56-63 Gary, Indiana

64-80 The Boathouse: works in progress

1 Spaceship Earth
www.nasa.gov

2 Sombrero Galaxy
www.nasa.gov

3 Earth from Mars
www.nasa.gov

4 LIFE Magazine front cover, 1969
www.oldlifemagazines.com

5 Wabi Sabi
http://www.shinichimaruyama.com/
Shinichi Maruyama creates drawings from the movement of water. As he paints, each work is documented by photograph or film- the only remaining product of the beautiful, temporary works of art.

6 Peter Zumthor, Bruder Klaus Chapel construction
http://en.wikiarquitectura.com
The Bruder Klaus Chapel was constructed by a framework of wood onto which rammed earth was formed. The wood was eventually burned out of the structure, and what remained was filled with moments of wabi sabi.

7-11 Sinichi Maruyama
http://www.shinichimaruyama.com/

12 The Boathouse
waves on the shore at the site
Material
nytimes.com/2014/10/16
The wood used in Studio Gang’s Arcus Center for Social Justice was left raw on its cut access, to suck carbon dioxide out of the air. It acts as a material device.

Ise Grand Shrine
www.detail.de

Andy Goldsworthy
artfixdaily.com
A temporary sculpture made using the recently fallen snow will not last outside of the photograph.

Andy Goldsworthy
From: Earthworks and Beyond, 4th Edition
The yellow leaves inform us that this installation took place at a certain time of year, where a certain color of leaf had fallen. The river will soon wash away the leaves leaving the rock as it was prior to Goldsworthy’s installation.

Peter Zumthor: Bruder Klaus
archdaily.com
The interior of the chapel showing the effect of the burnt out wood on the textured surface.

BLUR Building, Diller Scofidio + Renfro
dsrny.com
The material of the BLUR building was primarily vaporized water from the site. Temporary and in tune with the weather conditions present, the project was ultimately ephemeral.
30 Eva Hesse  
Contingent, nga.gov.au  
Hesse’s work was allowed to droop and sag, to yellow and to become old. She embraced the wabi-sabi qualities of sculptural materials.

31 Tom Friedman  
joanmitchellfoundation.org  
While many artists choose to paint or draw self portraits, Friedman’s is created from construction paper violently strewed on the floor. The work questions the value and longevity of materials.

32 The Event: Tom Friedman  
www.saatchigallery.com/aipe/tom_friedman.htm  
In this untitled piece, a witch has cursed the area above the pedestal placed in a gallery. The space is occupied by the event.

33 Peter Zumthor Bruder Klaus  
archdaily.com  
The construction of the Bruder Klaus Chapel involved the burning of its wood form.

34 Walter de Maria Lightening Field  
www.theguardian.com  
The permanent installation, a series of poles, fills a field and waits for lightening to strike.

35 BLUR  
dsrny.com

36 Jenny Holzer  
exodus.tumblr.com  
Holzer’s temporary installations exist briefly.

37 Ann Hamilton, Event of the Thread  
www.booooooom.com  
Participants in Ann Hamilton’s work were able to swing in the space, causing a large sheet of fabric to sway.

38 Ann Hamilton, The Event of the Thread  
designandarchitecture.tumblr.com

39 Ise Grand Shrine  
library.osu.edu  
The existing shrine sits next to the site where the shrine will be completely rebuilt.

40 Ise Grand Shrine  
www.pitt.edu  
A plan of the existing and future shrine.

41 Tom Friedman: Hot Balls  
matome.naver.jp  
Friedman stole bouncy balls from various places in the neighborhood and displayed them in the gallery. Their history, the event of stealing, and the subsequent placement in a gallery cause viewers to consider the relationship between events.

42 Tom Friedman: Untitled  
www.luhringaugustine.com  
Two identically wrinkled sheets of paper.

43 Culture  
detail-online.com  
The Ise Grand Shrine, and the Ise Grand Shrine rebuilt.
44 Sound Mirrors
www.andrewgrantham.co.uk
These large structures were built to catch the sounds warning of oncoming danger.

45 BLUR
designcanopy.files.wordpress.com

46 Theo Jansen
www.strandbeest.com
Jansen’s strand beasts occupy the shoreline, moving with the wind and walking along the shore. Several beasts have been available for the public to experience at the artist’s studio.

47 Octave Chanute and Otto Lillienthal
invention.psychology.msstate.edu
Performing gliding experiments on the dunes at Gary.

48 Octave Chanute and Otto Lillienthal
airandspace.st.edu

49 Jenny Holzer
ffffound.com
A temporary projection on the architecture.

50 Great Lakes
www.nasa.gov

51 The Aquatorium at Gary
www.flickr.com

52 Lake Michigan at Gary
www.nasa.gov

53 Diagram: Sand Bar Formation
Anna Pettinga: with reference to:

54 Diagram: Evolution of the Indiana Shoreline
Anna Pettinga: with reference to:

55 Diagram: Water Columns
Anna Pettinga

56 Gary, Indiana
garystime.com

57 An Industrial Utopia

59-63 Photographs from the making of Gary
webapp1.dlib.indiana.edu

64 Site model
Anna Pettinga
Milled positive and negative site, used to mold the dunes from sand

65 Sketch model
Anna Pettinga
On the sandy site, with ramp and rinse station
66 Sketch model
Anna Pettinga
On the sandy site

67 Site model
Anna Pettinga
Milled positive and negative site

68 Site model
Anna Pettinga
Molded in sand for use, reuse, and alteration

69 Site model + sketch model
Anna Pettinga

70 Diagram: Digging, Revealing, Finding
Anna Pettinga
Sand in a covered box with iron filings, the magnet is used to reveal the materials.

71 Detail: Digging, Revealing, Finding
Anna Pettinga
Magnet, sand, iron filings

72 Site mold
Anna Pettinga

73 Mechanisms for a door
Anna Pettinga
Test model for the mechanism of the rotating door. As it rotates.

74 The door
Anna Pettinga

75 Test model

76 Mechanisms
Anna Pettinga
Working drawing- the mechanism in space

77 Spaceship earth and the making of Gary
Anna Pettinga
Collage: photograph showing the building of the shoreline, women working at the steel mills, earth from space, networks, and Chicago/Gary at night

78 Site Model
Anna Pettinga
printed and stretched on canvas: Gary, Indiana

79 Glaciers to Kiteboards
Anna Pettinga
Evolution of the dunes from mile high glaciers to tall dunes used for flight experiments to this proposal for a boathouse

80 The Site
Anna Pettinga
Photograph of shoreline at the site with superimposed model of the shoreline built from liDAR data


Kosky, Jeffrey L. Arts of Wonder: Enchanting Secularity--Walter De Maria, Diller Scofidio, James Turrell, Andy Goldsworthy. NA: NA, 0. Print.


Appendix

A deck of cards
earth
THE EVENT
YOU LIVE THE SURPRISE RESULTS OF OLD PLANS
AN INDUSTRIAL UTOPIA

BUILDING GARY, INDIANA, TO ORDER

By HENRY B. FULLER

The manufacturing centre of the United States is preparing to shift. Like other important factors in the national life, it is moving westward. The creation of the new steel town of Gary, at the head of Lake Michigan, marks the transition.

This new "flat"-city of the United States Steel Corporation is situated twenty-five miles southeast of Chicago, and seven miles across the Indiana State line. It is the last in that wide group of industrial communities which includes Pullman; South Chicago, the seat of the Illinois Steel Company and the Chicago Shipbuilding Company; Whiting, the Western headquarters of the Standard Oil interests; and East Chicago and Indiana Harbor, new towns of a more general character. It is named, of course, for Elbert H. Gary, chairman of the executive committee of the corporation.

A union of considerations operated to determine the site of Gary. Broadly, the problem was a dual one. First, to produce steel in greater quantities and at lower cost than elsewhere. Second, to lay out and build a city for those who were to do the work. To bring the raw materials together, to distribute the finished products, to look to markets present and prospective, to insure the supply and control of labor, to make provision for unlimited expansion—all these points were to be kept clearly in

is expending a hundred and twenty million dollars at the rate of twenty-five thousand a day.

There is wide room here—the ground once prepared—for many and various activities. Subsidiary companies engaged in the manufacture of tubing, wire, sheet steel, tinplate, and bridge material are expected to gather round the parent concern and to occupy a wide ten-mile tract from east to west, with Gary itself as centre. Thus, with thick-coming accretions and a constantly growing momentum, the great industrial centre of the West and of the country is establishing itself.

The general disposition of this curious town-site is markedly symmetrical. A mile or less south of the lake shore there flows, east and west, the Grand Calumet River, now straightened into a