

Final Thesis Presentation

Architecture as Prosthesis: A Cultural Reimagination of Disability on Boston Harbor

Critique:

Our architecture and culture assert the disabled body as an outlier, fragmented, and “other.”

Increasingly specialized attitudes of the modern era lead us to approach disability as separate from mainstream culture. Applying top-down formulas to our designs as an afterthought, these “other” bodies are often displaced to the margins of cultural life, or wherever the ramps are, differentiating more than integrating. Hans-Georg Gadamer critiques this clinical, specialist attitude of the modern era, saying: “[What] touches each and every one is the silent form in which more and more areas of human life are subjected to technical domination.”

Thesis Question/Abstract:

How might reimagining the way that disability is approached in architecture advance the way that disability is perceived in culture? This question brings us here, to the city of Boston, Massachusetts, where changing perceptions of the body have been preserved in historical fragments of architecture and culture. Over the course of the city’s 400-year history, Boston has evolved from a place which once segregated its disabled residents to remote institutions into a diverse medical and cultural hub which leads worldwide prosthetic innovation. However, since this transformation story remains untold in the public sphere, its potential to advance public thought remains latent.

Program/Site:

How can architecture become an inventive medium for not only preserving Boston’s disability history, but also participating in and transforming it? To enliven history through architecture, we turn to the almshouses that once scattered colonial America to care for the disabled of society. Although well-intended, almshouses became institutions of mistreatment and disease and were often cast outside of the city, separating those with disabilities from broader culture, to the margins of public life. The separation of Boston’s almshouses from city life was one of the most severe in the nation, being founded miles inland from the coastal city as well as on harbor islands reachable only by boat. Traces of these institutions now scatter the Boston Harbor Islands and the forest floor in Newton, Massachusetts, forgotten and scarcely accessible. In order to share Boston’s transformation story with the public, the spolia of its crumbling almshouses along with other fragments of the city’s untold disability history are pulled from distances spanning all across and outside of the city and are reimagined near many

of Boston's most visited sites. Here at Long Wharf, a bustling center of tourism, recreation, and urban activity, Boston's Museum of Disability History and Prostheses returns this forgotten legacy to public memory in order that disability might be united with common culture, advancing perception of bodies labeled as "other."

Universal Contextualization/Big Ideas: The Phantom and the Prosthesis

Phantom Pain (Human Fragmentation)

Those with disabilities are labeled as being somehow fragmented, while fragmentation has been universal for all of human history. Described in Ancient Greek thought by Plato's Symbolon, our human condition still leaves us searching for a lost other half today. This fragmentation mirrors the **phantom pain that an amputee experiences**. In this phenomenon, the nervous system perceives that it has been divided by an amputation. The residual nerves fire signals beyond the body's boundary to the amputated nerves in search of the lost limb, creating sensations of a painful phantom limb in their pursuit for wholeness. As the amputee's nerves search outside of the body's boundary for their lost connections, we in our fragmented nature search for identity outside of the body, projecting cultural identity onto our surroundings as a sort of cultural body image. We have experienced this recently in the fire of the historical tower at Notre Dame and the worldwide grief at its loss.

Prosthetic Extension of Self (Architecture)

When we recognize our tendency to project a sense of identity onto the world around us, the boundary between self and world collapses, and architecture becomes an extension of our very selves. Crafted to resemble our own image within the world to which we long to connect, architecture can be seen as a **prosthesis** to our fragmented human condition: a body of flesh beyond the flesh, outside of oneself, yet, a life-giving extension of self through which we navigate the world.

Restorative Fragment

When we craft this extension of self, we articulate our cultural body image. Neuroscientist **V.S. Ramachandran** discovered that phantom pain could be temporarily relieved by positioning a mirror to reflect the remaining limb in place of the lost one, making the missing limb appear to be present. Similar to the image of bodily wholeness restored by the mirror, we see reflections of our own cultural image in our architecture, coming face to face with our unspoken priorities, such as how we view disability as separate from culture. What is needed is a reimagining of fragmentation on a cultural level. Although fragmentation has long been perceived as an aching

hindrance, it is the recognition that we are fragmented that moves us to seek reconciliation with the world. Fragmentation is thus turned over, or troped, from something which is negative into something which has the power to be restorative. This is what Dalibor Vesely calls “the restorative fragment.”

Precedents

Restorative fragment has been studied by Marco Frascari in his book, *Monsters of Architecture*, in which he suggests that architecture is not a body untouched but rather a metamorphic hybrid of history that is constantly being reimagined. His student, Federica Goffi, suggests architecture to be like the surrealist game of the exquisite corpse, in which objects are arranged into the form of a body to reveal new ways of seeing. Goffi investigates the exquisite corpse through a 15th century drawing of St. Peter’s Basilica which reimagines its old and new additions as an overlay upon itself, transforming an existing body by rearranging its spolia, or existing parts, to construct a palimpsest body which stitches together the old and the new. In a similar way, my architecture reimagines Boston’s forgotten almshouses to represent cultural values as they evolve over time.

Similar to the Exquisite Corpse Le Corbusier’s La Tourette Monastery reimagines the human form in time and space by mirroring the difficulty of the fragmented human spirit. As an interpretation of Le Corbusier’s own paintings, La Tourette tropes monastic archetypes to assert the human condition as a restorative fragment. This is most notably found in the dark chapel of the monastery in which a bright red confessional sits at the focal point behind the altar. In this position traditionally saved for a shimmering crucifix or frescos of angel choirs, La Tourette displays a cultural symbol of sin and brokenness in a veil that is burning red, suggesting the phantom pain of navigating the human condition to be a restorative fragment.

The Artefact

Assembly of Historical Fragments

The artefact and architecture reveal the user’s fragmentation as a restorative fragment in a similar manner to La Tourette by translating the phantom and prosthesis into embodied experience. We begin by assembling the prosthesis from found objects and fragments of Boston’s disability history. As audience members read the stories aloud, each fragment of this narrative is represented as a found object added to the “prosthesis.” Fish tanks, water, a projector, and spolia of the Newton almshouse are transformed by narrative and image into a new hybrid body. Projecting these historical images through the prosthesis, “phantom” images of Boston’s crumbling almshouses, newspaper headlines, and ground-breaking medical innovations flood the room and break from their boundaries as they spill across clocks, walls,

and the faces of people in the room, splitting and rejoining, stretching and vanishing at the user's operation of the prosthesis.

The found objects which compile the artefact evolve into a new hybrid body which rearranges the historical fragments that pass through it. This enlivens an exquisite corpse of both physical and historical collage-like fragments in architectural time and space, opening a space for **the reimagination of history suggested by Goffi and Frascari.**

An Exquisite Corpse

Once the audience has assembled the prosthesis from history, the user's own body is stitched into this same narrative and the phantom is evoked. The user's image is filtered through the prosthesis and comes out as recognizable but fragmented. Segments of the body vanish. Hands appear where the face belongs, mirroring the user's movements across a distance with ghostly distortion. As one's image travels across the room, it is also superimposed on the bodies of others present, blurring the boundary between self and other. The artefact stirs a psychological discomfort which is **an interpretation of phantom pain**, pointing the user toward the fragmentation within each of us. The user's consciousness extends itself outside of the body to unite with the fragmented image as the nerves would search outside of the body's boundary for the missing limb, and as Boston might search for memory that it has left across the harbor.

This fragmentation moves the user to piece one's reflection together so that the two self-images, body and phantom body, might be reconciled into one. **By operating the "prosthesis", the user navigates beyond the boundary of self** to try and resolve the image - a frustrating endeavor. As one's self-image is stretched, divided, and distorted across the walls, it is constantly being reimagined and reconstructed as a response to bodily movement.

Resonating with the amputee's experience of adapting to a prosthetic device, this embodied experience speaks to the effort required to reconstruct cultural perceptions of our fragmented bodies. Fragmentation is revealed as universal, yet is experienced as the self-conscious motivation to move forward: a restorative fragment. The artefact opens a space to reevaluate cultural perceptions of disability by reassembling history and inviting the users to become participants in it through their own fragmentation.

Architecture

Site

Like the artefact, the architecture is assembled as an exquisite corpse from the city's fragments and spolia of its almshouses. Boston's Museum of Disability History and Prostheses finds its home as an appendage to the historic Long Wharf, a stretch of some of the oldest manmade

land in Boston as well as a bustling center of tourism and urban activity. As the former site from which residents of the harbor almshouses were shipped from the city, Long Wharf is the site of amputation. Now the departing place for tours of the Boston Harbor Islands, nothing present at Long Wharf will tell its visitors the stories of the Harbor almshouses until they encounter the museum - a prosthesis to Boston's forgotten history. To enliven cultural memory in Boston, the museum unites spolia of the Newton Almshouse and the Harbor Almshouses in this place of tension between land and sea, reimagining these ruins in an assembly of new and old materials where they can be remembered by the public. Recreated at the end of the wharf, reaching out toward the sea, the Newton almshouse reimagination is a phantom to the original floor plan, referencing across time and space to a body which is no longer intact. The only ruin which remained intact at the Newton almshouse was the well - giver of water, center of life. At the museum, spolia of the almshouses transform the well into elbow joints which will animate the prosthesis. Around these joints, all life circulates. Grafted together at the joints of the almshouses are three major elements: the residual, an extension of the existing harbor walk which directs the visitors toward Boston's amputated disability history, the phantom, a disorienting descent through the forgotten stories of the city, and the prosthesis, a home for Boston to add to its history through further innovation, whilst always protecting the memory which started it all. All that is needed now is human life to animate the prosthesis, without which it is only a vessel of manmade material.

Boston's Residual Limb

The user's experience begins at Christopher Columbus Park, where a peculiar pedestrian bridge diverges from the coastline as an extension of the harbor walk that seems to be both sitting in the water and suspended above it: Boston's residual limb. From the park, figures can be faintly made out within the pedestrian bridge. Upon entry into the walkway, the mesh takes on an entirely different interior persona than its exterior had implied. The sunlight filtering through its mesh skin casts fleshy shadows that fall across the path as well as atop the bodies of those who enter the enclosure, grafting them into its flesh. Echoing the artefact, the body of the city is imposed upon the body of the visitor to become part of Boston's exquisite corpse. As the visitor presses on, a portion of the floor appears to be missing, as if it has been dismembered, amputated, plunging one half of the mass directly into the water and out of reach from the other half. In the space created by this tearing apart, a second path is revealed in the water. Previously unnoticed beneath the skin, it becomes a gaping void like an open wound. The path rips through the water and leads to a shaft in the middle of the walkway ahead. As the user follows along the path, they become like an electric pulsation fired through the nerve, curiously in search of the path's end. Though the visitor likely assumes that this path will extend straight to Long Wharf, Boston's residual limb is amputated frustratingly close to this connection, being interrupted and impaled by the museum's first joint. Rugged stone fragments of the city's

almshouses wear their age as they adorn an elevator shaft wrapped with a spiral stair. The joint is an echo of the well at the Newton Almshouse. However, it is not until the user ascends the elbow joint that they learn the significance of these weathered stones.

The Phantom

Upon emerging at the top of the shaft, the user navigates beyond the boundary of the flesh and into the phantom limb. Twisted by the joint, the amalgamation is fastened as an appendage along Long Wharf's edge. A new path unfolds in front of the user as the sum of many smaller, descending walkways - tangled, fragmented, knotted up and turning in on themselves like nerves in search of the phantom limb. Comprised of wood and suspended above the water, the nautical walkways are reminiscent of the docks that scatter Boston harbor, but at the end of these paths is a vessel unlike the ships and boats of the harbor, but a second, larger elbow joint. The joint binds together the pieces of new and old: of new, sleek, dark masses which frame the delicate screen of ruins that adorn the joint. A continuation of the prosthetic mesh of the walkway just navigated thrusts through the glittering facade, reaching back toward the residual and begging to be united. Through the cubistic view that is framed, the bodies of others can be seen emerging from and disappearing behind the many screens and visual interruptions, like the artefact had split and divided the bodies of those in the room, blurring boundaries of self. The edges of the walkways are contained by two, heavy, masses which slope the opposite direction from the top of the prosthesis, but which are inaccessible from this point. Below the water, a dark mass which seems to have fallen from them lingers just inches below the water's surface. Bridging the space between the residual limb and the prosthesis, the walkways create a timeline of fragments of Boston's disability history, demonstrating history to be the link which not only records cultural failure and triumph, but also transforms and adapts it toward cultural evolution.

As the user begins their descent, words and images burned into the paths tell the stories of Boston's disability history. The tangled paths materialize the interconnection between historical events as a complex cultural web, requiring the user to adapt and backtrack at the "dead ends" of Boston's progress. The user assembles stories of land-making, learning that $\frac{1}{3}$ of Boston sits on **prosthetic, manmade land**, including Long Wharf. Boston is a city that has reimagined its own body many times. Although the city had to grow bigger, it was still was not big enough for everyone, which the user learns as the paths spill them into the stories of almshouses. Established with good intent, **Boston's almshouses** became societal recycling bins for the disabled and vulnerable. The user learns that fragments of these almshouses are dispersed throughout the museum, evoking a memory to the elbow joint of ruins just navigated - a remembered body image like those of Ramachandran's mirrors. Winding into the next path, the user learns that out of desperation for the disabled and ill, **Boston's first hospital** was established. Just as social reformers and the founders of Massachusetts General Hospital

looked out upon the almshouses and saw the need for change, from the head of the hospital's path the user gazes down into a void framed by the paths of the almshouses, noticing the dark phantom mass sitting just below the water's surface, intriguing and compelling, but inaccessible. Becoming more and less visible with the changing of the tides, it is elusive at all hours of the day. Like the artefact's aqueous images, the water reflects the paths and surrounding parts of this exquisite corpse with ghostly distortion. This evokes the phantom, a distance from oneself, as the user is suspended in a state of tension between the masses overhead and the one underfoot. In a state of empathy for those who lived in the almshouses, the user is confronted with a reminder of our cultural fragmentation. Moved to draw nearer to the phantom mass below the water, the visitor pushes forward through the stories of Boston's cultural and medical uprising, learning about new institutions that brought the disabled back into the city and about **ground-breaking medical advancements**. Diverging paths join, extend upwards, and flex backwards animated with movement reminiscent of **the Boston Arm**, the world's first electric prosthetic arm, marking the beginning of Boston's specialty in prosthetics. Here another view to the phantom below the water is framed, providing a second chance to look backward on the path, as the user sees how far they have progressed, how far Boston has come, as well as how much closer they have drawn to the phantom beneath the water's surface as they have descended history. Due to the city's medical and cultural sophistication, the user finally learns that even the tragic event of the Boston Marathon Bombing served as a catalyst for opportunity in further prosthetic innovation and disability support programs, with many survivors becoming well-loved philanthropists within the city. From adapting to its fragmentation, Boston drew nearer to the phantom than ever before, now just below the visitor's foot.

As the user has navigated Boston's untold stories, the phantom has transformed history into a disorienting labyrinth of tension and desire for wholeness, of the simultaneous connection and loss of being suspended in the precarious present moment when recalling the past. Gravity pulls us downward, the joint winding inward, compelling us to navigate through the frustration of the tangled web of nerves for our desire to reach the thing we just barely see lingering beneath the water's surface: the phantom which we believe might restore wholeness. As we press onward and learn more about our own history, we make cultural progress, descending closer and closer to the heart of the truth and the root of who we are. Troping the timeline and redeeming the ramp - the architectural symbol of the disabled body- the phantom reveals the treacherous experience of history as a restorative fragment as it lands us at the foot of the prosthesis.

The Prosthesis

An atrium passes through the base of the prosthesis, carving a void through its center and framing a view out to the harbor. The second elbow joint suspending more ruins of the

almshouses plunges into the water, interlocking with the phantom. The building forms itself around the plan of the old Newton almshouse. On the north half of the building's ground floor is a flexible presentation space and gallery as a public platform for disability activism. On the south half is a small prosthetic research lab with large windows that frame views of this often unfamiliar process to the public plaza at the end of the wharf. As the user moves through these spaces, the prosthesis of how the city is responding to its disability history is constructed around them. Observing the fabrication of limbs and disability activism, the user is exposed to an underrepresented cultural issue and is compelled to reconstruct their own beliefs alongside the city, just as was initiated in the artefact. Overhead, the almshouse mass suspended above intrigues the visitor to press upward. As they begin their ascent up the second elbow joint, a shimmering glass elevator and spiral stair are bound together by a screen of almshouse ruins. (Lobby Perspective) Tendons around the perimeter of the elbow joint grasp to the edges of the lower and upper masses, giving the sense of an attempt to align them as the user did in the artefact, and as the fragments have been gathered from around the city and wound up here into one exquisite corpse.

Light-filled atriums surround the suspended almshouse at all four corners, connected by a maze of walkways which take the user through the exhibition of various prosthetic technologies, antique medical instruments of Massachusetts General Hospital, and personal anecdotes of survivors of the Boston Marathon Bombing. A space of tension between new and old is held as the user can walk beneath the misalignment of the almshouse skeleton and its inverse masses below. The user's mind works at putting together these pieces, pulling them into alignment and snapping them into place. Returning to the elbow joint, the user ascends to occupy the trace of the Newton almshouse.

Referencing across a distance to a body which has long been lost, a corten skeleton becomes a modern-day prosthesis to the phantom that is the Newton Almshouse. Hardly perceivable until this point in the journey, the skeleton's prison-like body encases the spolia of Boston's almshouses beneath its skin, layering the remembered body image of history beneath contemporary, manufactured flesh. The ruins in the shell of the old Newton almshouse evoke the memory of those who lived in Boston's almshouses and almshouses everywhere, a restorative fragment, intending to reflecting our shared history like Ramachandran's mirrors returning a memory to a forgetful city.

Spolia of Boston's almshouses are reassembled into shafts along what were the central corridors of the Newton Almshouse. Reminiscent of the small sleeping rooms that once lined the almshouse halls, the ruins have become a mausoleum bearing the tombs of the architectural bodies that history had previously forgotten. Reimagined here, they are given new life. Space to traverse beneath these dark cavities reveals images of Boston's almshouses to be projected as a superimposition atop the ruins, echoing the distorted images of the artefact and

meshing the residual, the phantom, and the prosthesis into one moment. As visitors move around the projector mounted upward, their shadows are also cast into the collage of history which they have just assembled, blurring the boundary between past and present, self and other. On the top floor of the almshouse, visitors navigate “a small bridge” through a forest of ruins which the visitor can touch, looking down on those below, who might have a sense of being watched from above, a historical self-consciousness like that of the artefact. An axis extends the central corridor of the Newton Almshouse to become a vast, empty scope for looking out. Toward the harbor, the scope points to the home of the harbor almshouses: the harbor islands that appear as mere specks on the horizon. As the visitor encounters the expanse of this distance, one might feel a sense of absence, loss. Toward the city, the scope points to the almshouses far inland and frames a view of the timeline which has just been navigated. As one gazes out upon the history they have navigated to reach this point, history now frames not only the present, but also the future.

Across a distance, one sees oneself in another: in those that have preceded them, those who navigate history alongside them, and those who now follow in their path: a historical experience of the phantom like that created in the artefact. The user at last sees the exquisite corpse, and recognizes their own image within this “other” body: a body whose bones are history and whose flesh is fiction, intertwined and bound together by tendons of imagination. A body whose musculature is elusive, whose strength is in evolution, and whose skin is flushed by the blood which marks a bearer of the human condition. A body who is organic yet entirely prosthetic, assembled by countless hands over the course of generations. A body whose nerves refuse to stay within their boundaries, and whose hand never stops reaching for more. A body who is culture herself, natural and manmade, ever old and ever new.

As the user has taken part in assembling the prosthesis which enlivened the exquisite corpse of Boston’s history, they may also be moved to imagine the many ways in which they take part in fabricating cultural history. Here the exquisite corpse becomes a captivating presence through which its visitors can reconstruct individual perceptions of disability, bringing this experience back into the world as builders of a collective body. Cultural perception evolves through a prosthetic act which we ourselves have initiated and begs that we never stop reimagining how we perceive ourselves and, in turn, the other.