Tropical Islands; or, how the architectural interior became the primary site of aesthetic mediation

by

Shane Reiner-Roth

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Signature of Author: _____   Signature redacted

Department of Architecture
May 24, 2018

Certified by: _____   Signature redacted_

Mark Jarzombek
Professor of the History and Theory of Architecture
Thesis Supervisor

Accepted by: _____   Signature redacted

Sheila Kennedy
Professor of Architecture
Chair of the Department Committee on Graduate Students

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SUPERVISOR
Mark Jarzombek, PhD
Professor of the History and Theory of Architecture
Massachusetts Institute of Technology

READERS
Jennifer Light, PhD
Professor of Science, Technology, and Society (STS), Director of the Program in Science, Technology, and Society, Professor of Urban Studies and Planning
Massachusetts Institute of Technology

Katarina Burin, MFA

Lecturer on Visual and Environmental Studies

Harvard University

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ABSTRACT:

For three days and two nights, I was a guest at the Tropical Islands Resort, the world's largest indoor water park. While inside, I ate the special at every one of its restaurants, drank every signature cocktail advertised, explored its perimeter in a hot-air balloon, went on all the water slides (twice), lounged in front of and within every water feature, slept in a canvas tent the first night and a junior suite the second.

During my stay, the Houston metropolitan area was suffering the worst of Hurricane Harvey, the first tropical cyclone of the abnormally active 2017 Atlantic hurricane season. The floods led to the widespread loss of electricity, the death of over 106 residents, and the incurment of over $125 billion in damage. During its peak, Hurricane Harvey was the top story of several American news outlets. But I had only learned about Hurricane Harvey after leaving the Tropical Islands Resort, stopped at a red light and scrolling through my news feed for the first time in days. For three days and two nights, I was in a bubble.

This thesis considers The Tropical Islands Resort as a site of aesthetic mediation, equally as mediating as any other form of popular media. The parallel histories of its precedents – including greenhouses, world's fairs, theme parks, bunkers and experiments in social ecology – reveal a crucial link between architectural interiority and the public response to some of the greatest challenges facing contemporary society. The Tropical Islands Resort is a testament to human ingenuity and denial thousands of years in the making, and it is absolutely a sign of things to come.

Thesis Supervisor: Mark Jarzombek
Title: Professor of the History and Theory of Architecture

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Introduction

The site of The Tropical Islands Resort can be approached either by private car or by a bus operated by the resort, offering hourly transportation to and from Berlin. Both modes of transportation enter the site by a single long and thickly forested roadway, reminiscent of the drives cutting through the Black Forest in the Southwest part of the country.

After making a turn on Tropical-Islands-Allee—a street marked by large boulders stamped with the signature logo on either side—the Tropical Islands dome presents itself in the distance, unobstructed and at an angle. As one draws nearer, the countless riveted metal panels that come into view define its surface like craters on the Moon, mirroring the dividing lines of the parking lot that engulfs the entire structure in a sea of asphalt.

The main drop-off point and parking lot are in front of the only entrance to Tropical Islands, featuring a shallow bridge and moat combination under an expansive awning, flanked by Tropical Islands branded flags that wave aggressively in winds intensified by proximity to the curvature of the dome.

Opening the tinted-glass doors at the entrance reveals a second set of doors at the far end of a vestibule. The smell of chlorine and a pronounced humidity fill the air before reaching the admission line. Partial glimpses of the grand interior are compromised by overhead palm trees and the elaborate check-in process, which concludes with a hotel key and a wristband equipped with a purchasing chip and locker access number. Beyond a turnstile and a row of luggage carts is the first full view of the interior of Tropical Islands: a perpetually warm and windless tropical paradise in the largest uninterrupted volume in the world, cradled within the capricious climate of Western Europe.

I was a guest at Germany's Tropical Islands Resort for three days and two nights in August, 2017. While inside, I ate the special at every one of its restaurants, drank every signature cocktail advertised, rode in a hot-air balloon, went on all the water slides (twice), lounged in front of and within every water feature, and slept in a canvas tent the first night and a junior suite the second.

During my stay, the Houston metropolitan area was suffering the worst of Hurricane Harvey, the first tropical cyclone of the extremely active 2017 Atlantic hurricane season. The floods led to the widespread loss of electricity, the death of over 106 residents, and the incurment of over $125 billion in damage. During its peak, Hurricane Harvey was the top story of several American news outlets.

But I had only learned about Hurricane Harvey after leaving the Tropical Islands Resort, stopped at a red light and scrolling through my news feed for the first time in days. I was in a bubble.

As the world's largest unobstructed interior, the Tropical Islands Resort had served as a site of aesthetic mediation just as mediating as any other popular form of media. Air-conditioning, maintenance systems and other architectural devices have all afforded the Tropical Islands Resort and other contemporary interiors the ability to become environments unto themselves, with such grandeur and calibration they may be referred to as 'artificial micro-climates.' When combined with complementary staging techniques, architectural interiors have been regularly presented as not only inhabitable, but in many cases the ideal respite against the threat of relatively harsh conditions just beyond their perimeters.

This thesis is a study of the architectural interior as a primary site of aesthetic mediation. As one of the greatest currently operating examples of a multi-acre architectural interior, the Tropical Islands Resort reveals a crucial link between architectural design and the public response to some of the greatest challenges facing contemporary society.

The following chapters connect the Tropical Islands Resort to the longer history of environmental interiority preceding it. The histories of several building types, including greenhouses, world's fairs, social ecologies, shopping malls make evident the increasing commodification of Nature and Culture through their interiorization.

At the end of each of each chapter, the Tropical Islands Resort is recalled as an exemplary model of contemporary architectural interiority that builds on the intentions of its precedents. Together they question the design choices of the resort as they reveal popular attitude towards the Climate, Nature and Culture in the 21st century: how is the environment of a tropical climate staged, from the entrance to the center? How does this image become compromised by the facilities that support it? How do the various beach-themed areas coexist, and what architectural techniques are employed to sustain their coexistence? How does plantlife coexist with synthetic materials, and how are the various elements of the megastructure generally sustained? And, in a larger scale and broader scope, what is the relationship to the outside for the ever-expanding interior of architecture, and how has the architectural interior been used to suppress popular dissent against social and environmental injustice? As the exterior climate potentially becomes less hospitable in the near future, what qualities and techniques present in mega-interiors such as the Tropical Islands Resort might be carried through to future developments?

Chapter one, The Botanical Spectacle (between conservation and consumption), is an overview of the greenhouse building type in the Western world. The interiorization of Nature has always been invested in the seemingly contradictory pursuits of close botanical study and mass spectacle, and that our approach towards understanding Nature has always also been an attempt to intervene in it and treat it as what we assume to be our infinitely resilient plaything.

Chapter two, The Culture Condenser (between history and nostalgia), links the curation of World's Fairs with the modern tendency to engage with the past and other cultures through nostalgic reproduction. From the future orientation of the first World's Fair in 1851 to the more nostalgic versions of

world condensing present at the 1893 Columbian Exposition and the 1964 New York World's Fair, the architectural interior has been a tool for the display of persuasive models of the condensed world in the postcolonial era, as committed to the histories of the regions and eras reproduced within them as their false characterization.

Chapter three, The Bunker-Bubble (between community and immunity), considers how the architectural interior was imagined as a tool for responding to the destructive relationships towards Nature and Culture addressed in the previous two chapters. The two proposals for futures that meaningfully respond to the environmental and cultural mistakes of the past differ in the building types they invented, with the prioritization of 'immunity' in bunkers on one side and 'community' in habitable bubbles on the other.

Chapter four reflects on the previous three chapters, arguing that the control humanity has tried to achieve over the climate, history, technology, life systems and various world cultures has been interiorized through three essential components: staging, invisible maintenance, and the enveloping structure that contains them. These components, I argue, should be considered as subjects of media studies alongside those of other, more renowned forms of media. While the increasing scale and sophistication of the architectural interior has been theorized in the last half-century as a symptom of late capitalism (by those including Fredric Jameson, Mark Pimlott, Gilles Deleuze, Peter Sloterdijk and Rem Koolhaas), it deserves renewed attention given its function as a mediating device in an era marked by serious debate concerning climate change, material scarcity and the conflicts of globalization.

This thesis considers the Tropical Islands Resort in relation to its contemporary context and the parallel histories of its precedents. These overlapping building types - starting with greenhouses, world's fairs, theme parks, and ending with bunkers and experiments in social ecology - give evidence to the gradual expansion and furnishing of the architectural interior as a formidable response to the modernizing world.

Tropical Islands is a testament to human ingenuity and denial thousands of years in the making, and it is absolutely a sign of things to come.

I. The Botanical Spectacle

Second to the remarkable structure overhead, the large mound occupying the center of Tropical Islands draws immediate attention, bearing several signs around its perimeter that read "Regenwald" (Rainforest).

The Rainforest Path Entrance features a spinning globe highlighting the various sights of rainforests around the world. The ground beneath it bears the distinct texture of cobblestones; once entering the rainforest, however, it more closely resembles the smooth but uneven footpaths of hiking trails. It is a windy path with a thick array of palm tree species that obscures the path ahead and the structure above at irregular intervals.

A wooden bridge appears several feet over a sizable pond in a clearing. Fitted to the handrails of the bridge are placards that point out the many species of wildlife underfoot; each one is placed directly in front of the specific feeding sites of the animals for which they provide information. A placard describing flamingoes frames a flamboyance of flamingos enjoying a continuous cycle of shrimp, just as a description for turtles frames a set of flat rocks occupied by a variety of lounging turtles. The water is animated by tropical fish.

Towards the center of the rainforest, where the path becomes progressively more labyrinthine and the structure overhead more shrouded, there is a collection of foam casts depicting wildlife, an isolated Chinese medicine cabinet, and a sound system scattered among nondescript boxes and rock-shaped structures, together playing a chorus of animal sounds on a loop. At night, it switches to a nighttime track - one that is louder than the one used for the day, with each of the animals represented by low and long guttural moans. It competes with the sounds of flamingos, turtles, and the rest of the creatures in the rainforest in their various nocturnal modes.

The maintenance crew shuffles out of the corners of the resort to tend to the rainforest, spraying long streams of water from peripheral hoses and reshaping any dirt on the sides of the path that may have come loose from foot traffic. They spend several hours each night, sometimes working until morning, combing the area for an even maintenance of the world's largest indoor rainforest.

"We live in a world turned outside in - what I shall call an inverted world - in which all that moves and grows, shines or burns, or makes a noise has been reconstructed within as a simulacrum or image of the exterior."

- Tim Ingold[1]

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[1] Ingold, Tim. The Life of Lines. Oxford, England: Routledge, 2015. Page 32

The assumed division between human history and natural history has gone unchallenged only until very recently in the Western tradition. In the wake of climate change and the contamination of the air, the unintended human occupation of 'geologic agent' has quickly made itself apparent. "What were formerly addressed separately under the headings 'nature' and 'society' are both revealed to be heterogeneous compositions," Nigel Clark argues, "forged out of complex, shifting permutations of human and physical ingredients."[2] 'Nature,' that concept which has signified a timeless and scaleless element beyond human comprehension, has recently been given timely and spatial limitations in the clumsy hands of Society.

The use of trees for wood and fish for food gradually led to the assignment of Nature as a "standing-reserve," to borrow a phrase from Martin Heidegger. "The Earth now reveals itself as a coal mining district," Heidegger wrote, "[and] the soil as a mineral deposit. The field that the peasant formerly cultivated and set in order appears differently than it did when to set in order still meant to take care of and maintain."[3] The original separation between Nature and society was designed for the benefit of society at the expense of Nature. Said differently by Benedetto Croce, "the concepts of the natural sciences are human constructs elaborated for human purposes."[4]

The confluence of Nature and society was perhaps never made more visible than the earliest manifestations of the Hortus Conclusus, latin for 'enclosed garden.' Though trees and shrubs were often manicured at very large scales to express human influence prior to their delineation within walls and courtyards, it was the Hortus Conclusus that allowed the image of Nature to first be constructed as a private object, worthy of close observation within a controlled environment. Nature was locked away in architectural confines principally so that it may be, to quote Heidegger, "ordered to stand by, to be immediately on hand, indeed to stand there just so that it may be on call for a further ordering."[5]

Tracing the history of the greenhouse building type, in particular, reveals a chronology of functions humans have had in store for Nature spanning millennia. Its study reveals that botanical study and museological spectacle have always been the dual purposes of greenhouse production. In the greenhouse, the intention of the social construction of Nature is more apparent than in nearly every other human pursuit: to marvel at Nature by mediating irrevocably.

The first recorded use of a greenhouse is approximately in 30 AD, for the year-round growth of a cucumber-like vegetable for the ailing Roman emperor Tiberius. According to Pliny the Elder, Roman greenhouses, known at the time as specularia, "consisted of beds mounted on wheels which they moved out into the sun and then on wintry days withdrew under the cover of frames, glazed with transparent stone or mica."[6] The daily practice of vegetal growth was, indeed, as ceremonial as it was medicinal.

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[2] Clark, Nigel. *Inhuman nature: sociable life on a dynamic planet.* Thousand Oaks CA: Sage, 2011.

[3] Heidegger, Martin, and William Lovitt. *The question concerning technology, and other essays.* New York: HarperCollins Publishers, 2013. Page 10

[4] Croce, Benedetto, and R. G. Collingwood. *The philosophy of Giambattista Vico.* Mineola, NY: Dover Publications, Inc., 2014.

[5] Heidegger, Martin. *The question concerning technology, and other essays.* New York: HarperCollins Publishers, 2013. Page 12

[6] Pliny, The Elder. *The natural history.* Bristol Classical Press, 2015. Book 19, 23: 64.

"With the consciously pursued objective of bringing the public inside to view the plant kingdom, the winter garden was an early herald of the entertainment industry."

- George Kohlmaier and Barna von Sartony[7]

Greenhouses received a generous update in 16th century Italy. Often referred to as 'giardini botanici,' or botanical gardens, they were much larger than the ones developed in ancient Rome, designed for the academic study of the medicinal properties of plants; hence their alternate title as 'scientific gardens.' Though temperature regulation was far from perfected in this era, the ability to walk into enclosed environments was crucial to botanical study.

Their advancement during the age of exploration and international trade, however, meant that the collections of botanical gardens far exceeded what was available regionally. Explorers voyaged to faraway countries, both colonized and unpopulated, and brought back with them the seeds of plants only heard about in stories or seen in illustrations.

The mix of scholarship and hubris that came to define the building type could finally be met by visual delight. Not only did an international collection provide insight to an elite few to assess its benefits for human consumption; it also confirmed the ability to extract the plant species from one climate and successfully grow them in another in a large and airy structure. The greenhouse by this point in history is a demonstration of power over Nature perhaps more strikingly than the gardens of Versailles: the image of Nature caught within the image of Society.

By the 19th century, the parallel advancements of ironwork and large glass sheets began to push greenhouses to the limits of interiorized environments. According to May Woods, it was the "realization that overhead light benefitted the increasing variety of plants within" that led to the rapid improvement of greenhouse structures.[8] For the first time, specimens from around the world could be kept under single, uninterrupted glass roofs for public viewing.

Writing in 1835, John Claudius Loudon recounted the appeal of greenhouses and the fantasies they elicit purely outside of their importance to the academies that supported them: "Some of these gardens have winding walks, fountains, and even plots of grass and ponds of water, so that the only difference between them and the real garden is that glass intervenes between the summit of their trees and the sky; and nothing can be more delightful when there is frost and snow upon the ground outside, than to enjoy the genial warmth and verdant beauty within."[9]

While European greenhouses in this era delighted in maintaining plants from various climates around the world under one roof, a significant percentage of them paid special attention to the singularly

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[7] Kohlmaier, George and von Sartony, Barna. Houses of Glass: A Nineteenth Century Building Type. London and Cambridge, MA: MIT Press, 1986. Page 2

[8] Woods, May. Glass Houses. Littlehampton Book Services Ltd. 1988. Page 89.

[9] Loudon, John Claudius. Encyclopedia of Gardening, London. 1835. page 1212.

tropical greenhouse. In fact, it was the desire to specifically maintain tropical plants that led to the rapid advancement in greenhouse technology 19th century Europe came to be known for. As the English landscape designer Humphry Repton argued, "the numerous tribe of geraniums, ericas and other exotic plants, requiring more light, have caused a very material alteration in the construction of the greenhouse."[10] [11]

But before chronicling the rest of the greenhouse's history, two erroneous terms need to be addressed: John Claudius Loudon's contrasting of the greenhouse interior and the "real" garden is one still made to this day, just as Humphry Repton's labeling of tropical plants as "exotic," as opposed to domestic, continues to be largely unconsidered from a Western perspective.

Loudon's distinction exemplifies the classic line often drawn between human history and natural history described earlier in this chapter, but it more immediately recalls the one drawn between the 'real' and the 'artificial.' In his essay, Ideas of Nature (1980), Raymond Williams argues that Nature is called upon as the representative of the real because, historically, "what was being looked for in nature was an essential principle."[12] By observing plants and animals, Williams argues, humans believe they are in sight of how the Earth was before human intervention, as though the beginning of time is visible in their plumages and cycles. But because the "essential principle" Williams describes is highly debatable, the social tendency is to define Nature by contrasting it with whatever is conventionally understood as 'artificial.' Nature is, according to the dictionary, 'natural,' whereas everything seemingly synthetic, non-indigenous or anachronistic falls out its definition.

In the case of Loudon's distinction, an outdoor garden is described as real, whereas an indoor one is somehow fake. Yet the cultivation of the outdoor garden requires human hands, the knowledge of botany and the lawful acquisition of land just as much as the greenhouse. And if Loudon compared the greenhouse with a patch of Brazil's tropical rainforest, for example, a similar argument could be made: the recognition of the Brazilian rainforest as a 'natural' entity also indicates its exploration by voyagers and its documentation by their techniques of surveyal. "Human action is visible everywhere," Bruno Latour argues, "in the construction of knowledge as well as in the production of the phenomena those sciences are called to register."[13]

The definition of Nature is similarly problematized by the incorrect assumptions of its universality and objectivity. As Steven Vogel argues, "the 'nature' experienced by modern inhabitants of a thoroughly industrialized world… is different from the one that was experienced by medieval peasants in Europe, or by hunter-gatherers in Africa thousands of years in the past." Therefore, "whatever we experience as nature is ipso facto *not* separate from the social or independent of the human because our experience of

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[10] Woods, May. Glass Houses. Littlehampton Book Services Ltd. 1988. Pages 90-91.

[11] Humphrey Repton, Observations on the Theory and Practice of Landscape Gardening, London, 1803. Page 28

[12] Williams, Raymond. "Ideas of Nature." Problems in Materialism and Culture. *London: Verso*. Page 2

[13] Latour, Bruno, "Agency at the Time of the Anthropocene." New Literary History. Volume 45, 2014. Page 6

it is always filtered through our own social framework."[14] Though there are many important distinctions to make between an outdoor garden and a tropical greenhouse, it cannot be properly addressed by a false division.

Repton's use of the word 'exotic' falls into a similar trap of misguided definition. The word can be traced to the late 16th-century France use of 'exotique,' meaning outside; foreign; "very different, strange, or unusual." While it is true that countries with tropical climates were foreign to Europe, those countries were labeled as 'exotic' long after their first encounter. In other words, the definition of 'exotic' was conceived with Western Europe as the assumed center of the civilized world in order to cast every other faraway region - inhabited by people with differently constructed languages, skin colors and traditions - peripheral to that civilized world. The labeling of these regions as 'exotic' thus made the colonization of their land that much easier to justify.

The tropical regions of the world were partially of great interest to the colonial expansion of Europe because they had what it did not in terms of 'natural' scenery; namely, a balmy climate, a wide variety of plant and animal species with a variety of medicinal properties, and, most importantly, none of the traces of cities and the pollution that come with them. They were understood as 'real' where industrialized Europe was 'artificial.' The reproduction of their biotopes in European greenhouses was ultimately the pursuit of the 'exotic' and its containment within climate-controlled structures. Visiting the warm and steamy interiors of Europe's tropical greenhouses was assumed to be the next best thing to visiting the countries from which their plants were plucked.

"You want more CO_2 in the atmosphere, we'll give you that. You want the oceans five degrees warmer, we'll do that. You want the plates to shift this way or that - no problem."

- Dr. Michael Crow[15]

By the turn of the 20th century, botanical study and museological pleasure had become the two inseparable roles of greenhouse production. Cavernous glass structures including the Temperate House of Kew Gardens and the many Palm Houses of Europe set a precedent for otherworldly interiors, forested by elements non-indigenous to the grounds on which they were newly planted.

In this era, however, the maintenance of greenhouses appears to be less about the colonialist deforestation that had come to define the building type and more about the preservation of the rarest plants from around the world otherwise under threat. Much like how zoos transitioned in this era from "collecting" to "preserving" animals, so too did greenhouse design and the environmental education offered within begin to suggest an appeal to ecological concerns (consider that, for example, by the middle of the 20th century the British use of 'conservatory' became an alternate word for 'greenhouse' in

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[14] Vogel, Steven. *Thinking like a mall: environmental philosophy after the end of nature.* Cambridge, MA: MIT Press, 2016. Page 34

[15] Crow, Michael. "The Big Picture - Columbia University's Global Systems Initiative: Rethinking the Way People Think." The Biosphere: The Magazine of the Biosphere 2 Project. Spring 1995. Page 11

other parts of the English speaking world). But it is likely that the language of botanical preservation was largely used to attract public audiences and academic institutions that had themselves become interested in environmental issues, thereby reconfirming the parallel purposes of greenhouse production.

One such greenhouse is the Climatron, a geodesic dome built on the site of the Missouri Botanical Gardens in St. Louis. Designed by the firm Murphy and Mackey and built in 1961, the Climatron was built to educate the public about tropical ecologies and, at the same time, the large-scale application of a climate-controlled interior newly achievable. In a Popular Mechanics article, the Climatron was given the nickname "Tropics on the Half Shell," while its features were said to include "a splashing waterfall, a miniature mountain, a mist forest, an aquarium (with a transparent underwater passageway so visitors and fish can watch each other), rice paddies and lily ponds, a swamp, and, at the touch of a push-button, man made indoor rain."[16]

The list of amenities in "the world's first air-conditioned greenhouse system" reads more like that of an amusement park or a highly interactive science museum, suggesting it was designed to hold the interests of thrill seekers just as much as botanical scholars, if not more so.[17] The Climatron was principally concerned with the demonstration of power over an interior climate against the ambiguities of the exterior, then the subject of Cold War paranoia.

In the same decade, the office interior was imagined as a greenhouse in its own right. Built in 1967 in Manhattan, New York, the Ford Foundation was designed by Dan Kiley and Roche-Dinkeloo Architects as a 160-foot "corporate greenhouse."[18] In his book, Manhattan Atmospheres (2014), the historian David Gissen argues that the Ford Foundation was a significant project in the history of environmental interiorization for its ability to marry the image of botanical conservation with burgeoning practices in worker productivity, allowing the building to receive generous funding in its production of a building hybrid.

"We want to bring nature closer," Ralph G. Schwartz, the Ford Foundation building's director of planning and construction claimed in an interview. "We want to give the man who spends most of his time in an office a more habitable environment."[19] The 'environment' of midtown Manhattan had, at this point, been understood as divided between the increasingly polluted urban atmosphere and the increasingly controllable interior within the city's many modern buildings. In response to the postwar rush to urbanize corporate practice, botanical life had received value principally through its potential benefit as a catalyst for worker productivity.

The modern application of air-conditioning met the centuries-long plundering of tropical rainforests for Western display as well as the newly popular concern for the preservation of those rainforests. While it no doubt teaches its visitors about the value of a delicate biotope in a time of rapid

[16] Author unknown. "Tropics on the Half Shell." Popular Mechanics. July 1961. Page 218

[17] Ibid.

[18] Gissen, David. Manhattan Atmospheres. Minnesota Press. Minnesota, WI. Page 83

[19] Schwartz, Ralph G. Quoted in Roberts, Steven, "Ford Fund's New Building Has Indoor Woods," New York Times, October 26, 1967.

industrialization - through informative booklets, tour guides, and allegiances to environmental agencies - the Climatron cannot help but also represent part of the issue addressed. The level of spectacle associated with the Climatron suggested that Nature can be, on one hand, the subject of immense appreciation and scholarly observation, and on the other, the highly resilient plaything of technical intervention.

The contradiction had become apparent by the middle of the 20th century: rapid urbanization required the exploitation of Earth's resources, yet those same sites of urbanization held shrines to Nature in the form of lawns, gardens, and, of course, greenhouses. A number of environmentalist movements were established in an effort to both critique and combat this trend. Among them was a migration from the urban centers to the countrysides among the youth of the 1960's, popularly known as the "back-to-the-land movement." Its members sought to develop a greater connection to Nature than they had found in the typical model of city living. "In nature," Paul Wapner writes, "the back-to-the-landers found what they thought was a route to more authentic living. Nature, in all its seeming purity and nakedness, appeared as an uncontaminated realm in which one could experience life unadorned by the corporate, consumer-based pretentiousness that characterized American society at the time."[20] Though it had too few members to significantly counter the practices of urban living and the growth of suburbs, the principles of the back-to-the-land movement "expressed a type of love of, trust in, and respect for nature that has always been implicit in the movement's long history, and continues to animate environmentalists to this day."[21]

A set of collages by Juan Navarro Baldeweg, together titled Tropical Rainforest in an Arctic Landscape and Ecosystems Enclosed in Pneumatic Bubbles Floating in New York Harbor, offered a critique of the Climatron and other sites of botanical intervention. First presented in 1972, the images show impossibly smooth bubbles floating in the oceans of the world without a person in sight. As a provocative alternative to the typically inhabitable greenhouse, Baldeweg's bubbles were designed as wayward museums, drifting around the globe wherever the wind blows. Unavailable to human contact, they 'preserve' evergreen landscapes otherwise obliterated by tropical deforestation.[22]

Appealing to both the many voices of the environmentalist movement and the burgeoning research on the benefits of introducing plantlife into the modern working setting, the end of the 20th century was met with the world's largest Earth science experiment set up in the Arizona desert. In 1991, the Biosphere 2 project was complete: a $150 million eight-story simulation of the Earth's biomes at a scale 39 billion times smaller than its referent. Complete with a miniature ocean, savanna, marsh, desert and rainforest, and containing more than 3,800 species of plants and animals, its biomes were subdivided by airtight doors and vestibules so that the complexity of each climate could flourish without disrupting

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[20] Wapner, Paul. Living Through the End of Nature: The Future of American Environmentalism. MIT Press. Cambridge, MA. Page 53

[21] Ibid.

[22] Zappia, Anna. "The Bubble is Back: Exhibit Highlights Inflatable Structures' Resurgence." Metropolis. April 25, 2017. http://www.metropolismag.com/ideas/bubble-back-exhibit-highlights-inflatable-structures-resurgence/.

one another. Each was connected by both the sunlight penetrating the unifying glass structure from above and the maze of mechanical rooms in the basement, known as the 'Technosphere.'

Four men and four women were sealed inside for a two-year experiment in supporting this recreation of the Earth and its life systems. The eight people selected for the experiment, known as 'Biospherians,' were regularly interviewed, televised and even put on display for tourists during the two year experiment. The original claim given to the press was that if they could maintain the biosphere's five biomes while also growing their own food within a separate 'intensive agriculture' space without any help from the outside world, the experiment would be deemed successful.

According to John Allen, the inventor and founding director of Biosphere 2, the project was designed to act as "an aid to dealing with the problems of the environment, an experiment to understand the laws of biospherics, and a prototype for a space colony."[23] Characterized by the Village Voice as "much more the Jim Jones than the Johnny Appleseed of the ecology movement,"[24] Allen's project received the majority of his funding for Biosphere 2 from Edward P. Bass, a self-defined "ecopreneur."[25]

Though it had investors lined up from commercial interests, such as those in space travel and environmental management, Biosphere 2 was ultimately designed to be a media sensation. "The visitors are a very significant part of [the revenue]," Bass said in an interview. "It has been said in an accusatory fashion that this is not science or research, that this is a Disneyland. Well, it certainly is. It's built to attract people, to be accessible to people, to be fun, but also to be educational."[26] Its glass skin, it turned out, was intended to let in both the light of the sun and the curious gaze of its visitors.

Naming it 'Biosphere 2' was one of its most provocative ways of reminding its close observers that they occupied Biosphere 1: Earth. The air they breathe is different than that of the Biospherians, and their oceans are different than its single, miniaturized ocean. Prior to opening, Biosphere 2 "[had] already been visited by thousands of paying tourists, many of whom profess astonishment at its scope and audacity. Some experts have called it the greatest venture since man landed on the moon."[27]

Within the first three months of the experiment, however, the oxygen levels within Biosphere 2 became exceedingly low and had to be pumped into the structure externally. Though many newspapers concluded that the experiment had failed at this point, it nevertheless proceeded for another two years.

In his book Ecocritique (1997), Timothy W. Luke argues that within the two years of the experiment, Biosphere 2 was most significantly a product of pseudoscience. "[When] the first Biospherians emerged in late 1993 declaring the experiment to be a success," Luke writes, "few outsiders

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[23] Allen, John. Biosphere 2, The Human Experiment. London: Penguin Books. 1991. Page 1

[24] Broad, William. "As Biosphere is Sealed, its Patron Reflects on Life." *New York Times*, September 24th, 1991.http://www.nytimes.com/1991/09/24/science/as-biosphere-is-sealed-its-patron-reflects-on-life.html

[25] Ibid.

[26] Ibid.

[27] Ibid.

were so positive."[28] But even outside the details of the two years experiment, including many other breaches of materials and other undisclosed ambiguities, Biosphere 2 would never have able to conduct the scientific research accurately: its reliance on both the Earth's electrical grid and the properties of sunlight unique to the planet rendered nearly all scientific data gained from the experiment nontransferable to space colony construction. Instead, Luke argues, "the ecology that has been packaged and sold at Biosphere 2 is a peculiar sort of corporate ecology… [since] to construct a Biosphere 2 is to engage already in biosphering - a service that might be bought and sold like any other."[29]

In the interest of providing a service, the elements of each biome were controlled more invasively and with as little sensitivity in Biosphere 2 than they had ever been in greenhouses preceding it. The project was, as Luke argues, "an essentially industrial apparatus, integrating machinery, computers, chemicals, plants, animals, and soils into a closely coupled cybernetic mechanism that produces an unstable but highly marketable product - a simulation of Earth's total environment."[30] The task put forth of 'simulating Nature' Biosphere 2 was initially problematic because its creators expressed little interest in the challenges that come with defining Nature to begin with. "Biosphere 2, then, has been a confused tangle from its inception," Luke writes. "Organized as a scientific simulation of the Earth, it has been run as another roadside attraction for the greater Tucson region's tourist industry."[31]

"Perhaps science and technology have always had far more to do with exploiting potentials than revealing essences."

- Paul Rabinow[32]

Tropical Islands is, like nearly every greenhouse preceding it, a celebration of the human triumph over the material world, the insatiable quest for botanical and zoological comprehension, and the tension between human history and natural history that, to this day, continues to be deeply unresolved and in many cases willfully overlooked. Tropical Islands is a botanical spectacle.

Comprising 3.15 acres of interior space, Biosphere 2 may have been a significant feat in the early 1990's, but it is easily dwarfed by the more than 18 acres that make up Tropical Islands, home to "the world's largest interior rainforest," which it also regards as "a natural biotope."[33]

The resort's unofficial slogan, 'Endless Summer,' is featured on many of the souvenirs available at the gift shops. The humidity of the air is the visitor's first clue that the production of an 'endless summer' is the motive of Tropical Islands, but it is the evergreen palm trees—which its website claims

[28] Luke, Timothy W. "Environmental Emulations: Terraforming Technologies and the Tourist Trade at Biosphere 2." *Ecocritique: contesting the politics of nature, economy, and culture.* University of Minnesota Press, 1999. Page 98.
[29] Ibid. Pages 104 - 105
[30] Ibid. Page 101
[31] Ibid. Page 104
[32] Rabinow, Paul. Marking Time: on the anthropology of the contemporary. (Princeton University Press, 2008). Page 25
[33] "Rainforest." Tropical Islands: Rainforest. https://www.tropical-islands.de/en/tropical-world/attractions/rainforest/.

number over 50,000 in the rainforest zone alone—that confirm it. Their splendor is not only the image of the summer months, but the image of those months spent in an 'ideal' setting: far from the capricious climate of Western Europe, in the verdurous cradle of one of the tropical regions scattered across the globe.

The architect Milica Topalovic argues that in the 21st century, the image of the palm tree in the West is in direct contradistinction to its productivity in the East.[34] "As a pictorial motive and a cultural symbol," Topalovic writes, "the palm tree has always occupied Western imagination... The palm has been a modern archetype ever since, one that stands at the intersection of wealth and leisure, marking our increasingly desire for tropicality."[35]

However, in the tropical regions where palm trees grow indigenously, the intensity of their material extraction contributes to an entirely different type of imagery. Comprising vast portions of countries including Malaysia and Indonesia, Topalovic argues that palm oil production has gone largely unnoticed in the West. "This is the modern-day terra incognita of industrial primary production," she writes, "hidden from view in areas away from big cities and in clandestine spaces of exception... these production territories seem homogenized and undifferentiated, lacking both social and natural characteristics. They appear as Cartesian, technical landscapes without geographic aberrations, without specificities: a uniform pattern on a map, a grainy texture on Google Earth."[36] Between the regions that plant them for decoration and the "palm oil hinterlands," as Topalovic describes them,[37] the palm tree has become one of the more complex standing reserves of the 21st century.

And because palm oil has made its way into many common consumer goods, it is, of course, in many of the products available at Tropical Islands. The resort has therefore doubly plundered tropical regions for their most apparent symbol: both for its visible, decorative value as well as for its hidden, material value. The two uses of the palm tree 'coexist' in the resort, and like many other places in the Western world, the visibility of one overshadows the embeddedness of the other. The two definitions of 'atmosphere' are explicated in this tension: the life systems subject to the meteorological atmosphere, the envelope that unites the world as a global exterior, are compromised for the betterment of the aesthetic atmosphere of the architectural interior.

Though the educational plaques scattered throughout its rainforest could easily shed light on this issue, they only provide information concerning the decorative use of the palm tree, not least because it belongs to a much older, more conventionally acceptable practice in Western civilization. These plaques provide about as much information as one might expect from a natural history museum or a zoo, indicating that the majority of the trees were imported through the help of an unnamed company in

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[34] Topalovic, Milica. "Palm Oil: A New Ethics of Visibility for the Production Landscape." Architectural Design. Volume 86, Issue 4. July/August 2016. Page 46
[35] Ibid.
[36] Ibid. 48
[37] Ibid. 45

Holland. Given time, visitors can learn basic elements of the 600 plant varieties, as well as those of the numerous animal species kept within the rainforest during the length of their stay.

However, if a visitor was overwhelmed by the sublimity of the space or otherwise ambivalent (if, say, one was merely using the rainforest pathway as a shortcut between two peripheral regions of the resort), the educational aspects of the rainforest might be wholly ignored. The rainforest's flora and fauna might be little more than living scenery throughout the day; like the elements chosen for Biosphere 2, the visible specimens chosen for Tropical Islands were not ultimately selected for their medicinal properties nor for their potentially beneficial influence on each other, but rather for their aesthetic exceptionalism, as might be determined by visitors. For this reason, only the greenest palms and the pinkest flamingos can be assured residence in the living image.

Though, intriguingly, the resort's website highlights the prevalence of a number of insects. "The cockroaches and beetles found in the Tropical Rainforest are in no way harmful or dangerous," the website explains. "In fact, they are essential for sustaining the natural ecological environment. For example, they help turn the leaves falling onto the ground into top soil. We control their numbers in a natural way, too: the eye-catching gold pheasant, blue-breasted quail, peacocks and geckoes you are sure to meet on your tour of the Rainforest ensure that a natural balance is maintained."[38] The resort publicizes this information because, without warning, the very sight of an insect might break the illusion of a total environmental hygienics. Tropical Islands is a highly sanitized version of the tropics, of course, but there are still some elements that may never be eradicated; when the palm trees in the resort were exported from tropical regions, the insects nested in their grooves came with them. The allure of gold pheasants and peacocks must be balanced by the repulsion of cockroaches and beetles.

On a larger scale, the botanical elements are pitted against the all-enveloping dome in such a way that the interior similarly takes on qualities beyond its own control. "When the gardeners are watering the plants," David Renton-Cooper explained, "we sometimes get a cloud building on the ceiling. When [the maintenance crew] waters the plants, you start to see a fog."[39]

The resort's unadorned membrane takes on a new purpose in light of the indoor rainforest it protects: the visible contrast between the two is the resort's single greatest expression of human ingenuity - the thrilling juxtaposition of plants and steel. The tension between the rainforest and the membrane aestheticizes the balance between the pursuit of botanical knowledge and the hubristic control of the nonhuman.

At a scale containing intense reverberations and pockets of trapped humidity, of misty surfaces and generations of insects, the natural sublime - first theorized by Edmund Burke and taken up by horticulturists, gardeners, and wilderness explorers - has been replaced by the technological sublime - the spectacle of uniquely human achievements exerted over human and non-human entities alike. The

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[38] "Rainforest." Tropical Islands: Rainforest. https://www.tropical-islands.de/en/tropical-world/attractions/rainforest/.

[39] "Tropical Islands Facilities Interview." Interview by David Renton-Cooper, Shane Reiner-Roth and Ellen Den Herder

Tropical Islands Resort's expressive performance as an artificial micro-climate is a reflection of this transition.

We live in a world turned outside-in so that we may both devour the fruits of Nature and keep them alive on life support. They are held under the microscope of the architectural interior to paradoxically become the subjects of both consumption and conservation, of disposability and veneration.

The historical increase in scale of the greenhouse, from the cucumber cart to the space inhabitation prototype, currently ends at the Tropical Islands Resort to make evident our fundamentally destructive attitude towards the elements that have long elicited the sublime. Constructed in an era openly aware of the entwinement of human and natural history, Tropical Islands' reproduction of the tropics and their fictionally singular climate can be seen as the tipping point in the history of the greenhouse building type. When the exterior environment can no longer maintain Nature's fragility, and must be brought indoors, there will no longer be an outside to emulate.

II. The Culture Condenser

After spending a sufficient amount of time in the Tropical Islands resort, its buildings and monuments begin to function as landmarks. The first significant markers are near the entrance: the last vestiges of European architecture within the resort. Underneath this fervent mashup of Tudor, Flemish and Elizabethan buildings is the main changing room station, where visitors first shed their civilian clothes before venturing out to Tropical Islands.

Circumnavigating the central rainforest zone from there, the buildings of the Tropical Village can be used for guidance despite the fact that their proximities in no way reflect the locations of the regions they refer to on any popular global map: the Thai-themed Sawadee Restaurant, for instance, is Southwest of the Kenyan-themed Zambezi Bar, while the Hawaiian-themed Kaikala Beach Bar is East of the Indonesian-themed Wayang Stage.

The Asian Wok House, a restaurant placed underneath a large Chinese-style pagoda, advertises a "Chinese fondue" that, upon closer inspection, more closely resembles a hot pot meal. The meats and vegetables traditionally associated with hot pot are served on the adjacent tray along with some unusual

comestibles, including salmon, corn and potatoes. The alcohol selection here is the same as at every other restaurant in the resort: a small selection of German beers and Italian wines.

The majority of the other buildings in the resort are not as easily traceable to their architectural origins; or, at least, not to specific countries. The unnamed buildings are more ambiguous than their named counterparts, and they are much more prevalent throughout the resort. There is, for instance, an African-themed hotel next to an Asian-themed restaurant next to a South American-themed gift shop. These buildings are embellished with the signs of weathering: chipped paint, cracked surfaces and unearthed fossils. Canvas tents dot the two large sandpits on either end of the resort, all of which are surprisingly sparse inside, equipped with electrical outlets and foam mattresses.

High above, from the vantage point of a tethered hot-air balloon, the surface of the tropical world reveal themselves all at once in the ersatz globe.

"World exhibitions are places of pilgrimage to the commodity fetish. ... World exhibitions glorify the exchange value of the commodity. They create a framework in which its use value becomes secondary. They are a school in which the masses, forcibly excluded from consumption, are imbued with the exchange value of commodities to the point of identifying with it.[40]

-Walter Benjamin

Though the many regions of the world have developed rich and distinct cultures of their own, artifacts can only reveal a modicum of their essences. However, the history of Western expansion can, in part, be understood as the misguided attempt to disprove this claim. Just as it was argued in the previous chapter that the 'discovery' of other lands, from the Western perspective of colonial expansion, has been a centuries-long attempt to assume the full spirit of unfamiliar regions by the collection of their flora and fauna, the same can be said of the objects produced in those regions.

Over the centuries, fields as disparate as archaeology and infrastructural engineering advanced significantly in the pursuit of artifactual collection. Many of the advancements in boat engineering, for example, can be attributable to the transcontinental shipment of ancient Egyptian obelisks, while entire schools of painting have been singularly devoted to idealized depictions of landscapes too far to be seen more than once in a lifetime.

One of the earliest known attempts at world condensing is the Wunderkammer, otherwise known as a 'cabinet of curiosities.' Ranging in size from a piece of furniture to a set of rooms, the Wunderkammer predates many of the methods of artifactual display known today, with examples produced as early as the 16th century in Europe. Because they were typically private collections, they

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[40] Benjamin, Walter. "Paris, Capital of the Nineteenth Century", *Arcades Project* (Harvard University Press: 2002), pp. 17-18

inspired generations of the European elite to make pilgrimages to wherever they could afford to travel. The typical Wunderkammer was held in high esteem by those that owned them, according to Francesaco Fiorani as "a microcosm or theater of the world, and a memory theater," because it "conveyed symbolically the patron's control of the world through its indoor, microscopic reproduction."[41]

As the world was said to have become 'smaller' in the postcolonial era - given the advent of faster transportation, improved techniques of documentation and effective linguistic translation - the past that lay before it became more complex, thus inspiring the gradual transition from an accurate reflection of history to its fabrication through nostalgic reproduction. One of the most celebrated methods of summarizing and condensing the highlights of each of the world's regions was the development of the 'World's Fair' style of exhibition, otherwise known as the 'International Exhibition.'

Because artifactual collecting and artistic portrayal significantly predated the ease of world travel (beginning with, for example, the train and followed by the automobile and the airplane), the representation of the world's cultures in condensed locations necessarily became a task of intense editing. Only the most exemplary artifacts and the most promising technological advancements were given attention in the representation of world cultures in singularly confined spaces, while the less distinct gestures and customs of each region were willfully overlooked.

The earlier attempts at world condensing in this era, notably in the form of the World's Fair, were essentially future-oriented for the purposes of industrial expansion and advancement. However, many of the later attempts, as they resemble more closely the programs of amusement parks and shopping malls, were essentially past-oriented for the purposes of staging and commerce.

In its eight months of operation in 1851, more than six million visitors attended 'The Great Exhibition of the Works of Industry of All Nations' - otherwise known as The Great Exhibition. Held in London's Hyde Park, the exhibition was organized by Henry Cole and Prince Albert to present both the cultures of the world's industrious regions as well as the most significant technology they had to offer, defined by four productive categories - Raw Materials, Machinery, Manufacturers and Fine Arts - and three territorial sections - 'United Kingdom,' 'Colonies,' and 'Foreign States.'

The organizers of the exhibition considered its success a benefit to all countries represented. As the official catalogue posited in its introduction,

"It may be said without presumption that an event like this Exhibition could not have taken place at any earlier period, and perhaps not among any other people than ourselves. The friendly confidence reposed by other nations in our institutions; the perfect security for property; the commercial freedom, and the facility of transport, which England pre-eminently possesses, may all be brought forward as causes which have operated in establishing the Exhibition of London. Great Britain offers a hospitable invitation to all the nations of the world, to collect and display the

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[41] Francesaco Fiorani, reviewing Bredecamp 1995 in *Renaissance Quarterly* **51**.1 (Spring 1998:268-270). Page 268.

choicest fruits of their industry in her Capital; and this invitation is freely accepted by every civilized people, because the interest both of the guest and host is felt to be reciprocal."[42]

The Great Exhibition was modeled after the more familiar event spaces of the time, such as the marketplace or the bazaar, though it could also be described as a museum of potential investments, with the intention of, in the words of a then-contemporary newspaper article, "exhibit[ing] all the productions of nature and art, and a universal competition to bring out all the powers in man in whatever concerns his material welfare."[43]

Towering above its many venues was the iconic glass and steel container known as the Crystal Palace, designed by the landscape architect and horticulturist Joseph Paxton. When asked to propose a structure to contain an exhibition of epic proportions, Paxton sketched what appeared to be a greenhouse several times larger than any ever even imagined before its creation. A German visitor's description of her family's visit captures the sensation of walking into the extraordinary structure:

"We see a delicate network of lines without any clue by means of which we might judge their distance from the eye or the real size. The side walls are too far apart to be embraced in a single glance. Instead of moving from the wall at one end to that at the other, the eye sweeps along an unending perspective which fades into the horizon. We cannot tell if the structure towers a hundred or a thousand feet above us, or whether the roof is a flat platform or is made from a succession of ridges, for there is no play of shadows to enable our optic nerves to gauge the measurements … it is sober economy of language if I call the spectacle incomparable and fairylike. It is a midsummer night's dream seen in the clear light of midday."[44]

The sublimity of gazing over the expanse of an unobstructed horizon had successfully been recreated within the built interior. The building's impressive size and structural uniformity was a necessary foil to the myriad objects on display within its confines.

The frenzy of activity, indeed, would have been overly stimulating, and as a matter of necessity would have required a heavy amount of editing in the curation of materials. Consequently, as Caroline Jones puts it, "national stereotypes condense[d] to haptic and functional qualities."[45]

And although the "Industry of All Nations" was advertised in the very title of the exhibition, all nations were far from equally represented. The original floor plan given to visitors shows that Switzerland, for instance, was given more space to show its wares than China and Tunis put together, while the United

[42] Cole, Henry, "Introduction," Official and Descriptive Illustrated Catalogue, Vol. 1 (3 vols; London: Spicer, 1851). Page 2
[43] "Among Other Delicate Questions," The Times (9 November 1850). Page 4.
[44] Bucher, Lothar. Kulturhistorische Skizzen aus der Industrieaustrelling aller Völker, 1851, quoted in Philip Drew, Frei Otto: Form and Structure. Page 58.
[45] Jones, Caroline A. The global work of art: worlds fairs, biennials, and the aesthetics of experience. The University of Chicago Press, 2016. Page 20

States received a generous space near the East Entrance, for the display of items ranging from musical instruments to raw produce.

Indifferent to the then-widely accepted Mercator map of the world, The Great Exhibition was organized for new cultural connections to be drawn. "Each similar article should be placed in juxtaposition," the official catalogue of the exhibition declared, "without reference to its nationality, or local origin."[46] With the ability to redraw cultural adjacencies, as the historian Paul Young argues, the interior of the Crystal Palace was "unhindered by the geographical boundaries of the nation, and unconcerned with questions of locality." With the opportunity to 'reorganize' the globe towards a more productive dialogue, the exhibition "could certainly be seen to encourage such a cosmopolitan order of things." Young then describes a bird's eye view of the exhibition, represented in the then-contemporary Illustrated London News, as "a blueprint for a borderless world."[47]

Cosmopolitanism seemed to have found ideal alliances with sophistication and social enlightenment at the Crystal Palace. Though the multiculturalism of its interior mirrored the melting pot of 19th century London, the exhibition of a "borderless world" had also come to simultaneously align itself with a new breed of exclusion and curatorial bias that such a vast and solidly constructed interior could make possible. As Peter Sloterdijk argues,

> "With its construction, the principle of the interior overstepped a critical boundary: from then on, it meant neither the middle- or upper-class home nor its projection onto the sphere of urban shopping arcades; rather, it began to endow the outside world as a whole with a magical immanence transfigured by luxury and cosmopolitanism. Once it had been converted into a large hothouse and an imperial culture museum, it revealed the timely tendency to make both nature and culture indoor affairs."[48]

The kaleidoscope of swaying flags lining the waist of the structure belied the highly specific intention of The Great Exhibition. It was less an overview of the rich history of the cultures around the world than a vast spatial catalogue for investors and business magnates. Conveniently sited in the economic center of Europe, London's Great Exhibition was curated in the interest of accelerating free trade with corners of the Earth shown to be newly profitable. In short, The Great Exhibition set its sights on the future of these regions, not their pasts. Within the enclosure of the Crystal Palace, "capitalist expansion," Adam Young argues, "[was] thus dependent upon communicative compression."[49]

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[46] Cole, Henry, "Introduction," Official and Descriptive Illustrated Catalogue, Vol. 1 (3 vols; London: Spicer, 1851). Page 23

[47] Young, Paul. Globalization and the Great Exhibition: the Victorian new world order. New York: Palgrave Macmillan, 2009. Page 64

[48] Sloterdijk, Peter, and Wieland Hoban. In the world interior of capital: for a philosophical theory of globalization. Cambridge, UK: Polity, 2015. Page 170.

[49] Young, Paul. Globalization and the Great Exhibition: the Victorian new world order. Page 61.

The World's Fairs established after The Great Exhibition continued to invest in the potential future industries of world cultures, though they also began to set their sights on their pasts. Because the success of a world's fair equally required the interest of the business magnate and the layperson, many following the Great Exhibition heavily reconsidered the purposes and methods of world-condensing for their inquiring patrons.

The historian Tom Gunning reflects on the evolution of World's fairs from 1851 to the turn of the 20th century:

"The World's Fair exhibitions in which the ability to purchase goods was replaced by their purely optical consumption, imaged the commodity as spectacle. As such, it served as one of the great training ground and laboratories for a new commodity-based visual culture. It raised the act of spectating to a civic duty and a technological art."[50]

As a result, the the first thing reconsidered for subsequent world's fairs was the aestheticization of technology. The historian Peter Hoffenberg recounts that unlike in the first world's fairs, "machines were no longer placed on columns as if they were monuments in rows, but were decorated. Exhibitors painted them bright colors and surrounded them with ornamentation and architectural framing. This mode of display provided an important link with the world of art and earlier craftsmanship; it also made them accessible to a public."[51] The layering of industrial and artisanal aesthetics gradually became an expectation of every exhibiting country whenever they presented their latest methods of industry. "Commissioners and exhibitors draped machinery displays with historical decorations," Hoffenberg writes, "to provide continuity with the past and a sense of the monumental."[52]

The second burgeoning element of world's fairs was a significant amount of ethnographic display. The inclusion of voices from the academic community gave rise to the museological exhibition of non-Western regions, emphasizing a greater investment in the 'fine arts.' At world's fairs, it was possible to display the artifacts of faraway cultures at greater scales and in more elaborate setups than possible in typical museum settings. But in an effort to engage a wide audience, these displays were typically designed to be more sensational than informative; more carnivalesque than educative. "As a collective phenomenon," The historian Curtis Hinsley argues, many of the world's fair's following the Great Exhibition "celebrated the ascension of civilized power over nature and primitives... exhibition techniques tended to represent those peoples as raw materials; within the regnant progressivist ideology they

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[50] Gunning, Tom. The World as Object Lesson: Cinema audiences, visual culture and the St. Louis World's Fair, 1904. Film History, Volume 6, pp 422-444. 1994. Page 423.
[51] Hoffenberg, Peter H. *An Empire on Display English, Indian, and Australian exhibitions from the Crystal Palace to the Great War*. Berkeley: University of California Press, 2001. Page 196
[52] Ibid. Page 197.

occupied the same category."[53] Through the transparent expression of power over people and things, "virtually all fairs embodied these two aspects: displays of industrial achievement and promise for the regional or national metropolis, and exhibits of primitive "others" collected from peripheral territories or colonies."[54]

The United States was the site of many world's fairs shortly following the inarguable success of London's Great Exhibition. The anniversaries of America's formative years were the convenient alibis for many expositions in the second half of the 19th century, most of which proudly celebrated its land's own history as a colonized state. The scale and method of curation for Chicago's 1893 Columbian Exposition, for instance, significantly influenced the curation of the world's fairs to follow, as well as many other sites of world condensing.

The Columbian Exposition comprised a territory several times larger than the Great Exhibition. Nearly 200 buildings over 600 acres of land defined the exposition in a layout designed by many figures including architect Daniel Burnham and landscape architect Frederick Law Olmstead. Though many technological advancements first debuted here, such as the zipper and the dishwasher, the Columbian Exposition is arguably more notable for its attentiveness to a globally curious audience. Surviving photos present the Columbian Exposition's interior as a rich and sensational environment, constituted by many nearly full-scale buildings of varying stylistic origins side by side down a enormous corridor underneath a lofty hangar. "This enveloping fantasy city, with its meticulous concern for the spectator's experience," Nelson writes, "makes the Columbian Exposition the first world's fair that can be examined from a scenographic rather than an architectural point of view."[55]

While the first world's fair of 1851 was organized as a multicultural free-trade zone, the Columbian Exposition more literally resembled a condensed version of the built world. The majority of its buildings were immense warehouse-like structures, huddling the facades of varied regions against the strong Chicago winds.

Though, upon closer inspection, the facades protected within were almost exclusively representative of then-contemporary architecture of European origins. While the main interiors were primarily reserved for reproductions of current European culture and displays of American inventions, a mile-long outdoor strip West of the fair's buildings, known as the 'Midway Plaisance,' featured displays and performances almost entirely representing foreign countries. In the interest of cultural authenticity, the people from these regions, including Kwakiutl Native Americans and Persian sword dancers, were brought to the Midway to perform in an outdoor circus along an axial strip. At the Columbian Exposition, the indoors became the sites of the 'Western future,' as manifested by technology and aesthetics, while

[53] Hinsley, Curtis M. "The World as Marketplace: Commodification of the Exotic at the World's Columbian Exposition, Chicago, 1893" In *Exhibiting cultures: the poetics and politics of museum display*. Washington: Smithsonian Institution Press, 1997. Page 287
[54] Ibid.
[55] Nelson, Steve. Walt Disney's EPCOT and the World's Fair Performance Tradition. Page 112

the outdoor spaces were those of the mythological 'non-Western past,' thus spatializing the distinction often made between the "exotic" and the "domestic" in Western vernacular.

As Hinsley argues, "the eyes of the Midway [were] those of the flaneur, the stroller through the street arcade of human differences, whose experience is not the holistic, integrated ideal of the anthropologist but the segmented, seriating fleetingness of the modern tourist 'just passing through.'"[56] The success of the Columbian Exposition is one of its era's greatest indicators of the intensifying demand for world travel and tourism: in a country with only 67 million people, the Exposition received an unprecedented 27 million visitors in its one year period. "For the average American visitor in 1893," the historian Steve Nelson writes, "the presence of so many different cultures in one continuous series of entertainments was an unheard-of novelty."[57]

Many of the world's fairs in the first half of the 20th century performed the same technological/ethnographic dualism at greater scales and with higher levels of ambition. At the 1904 Louisiana Purchase Exposition, for instance, one of the centerpieces was the Palace of Electricity, a hall of American inventions curated to dispel popular myths about the dangers of electricity by redirecting attention to its potential benefits, while an archipelago of peripheral stage sets held the people of America's newly colonized regions on display (particularly those of Guam, Puerto Rico and the Philippines). The contrast of local futures against distant pasts was at work here as much as it had been in previous world's fairs, and perhaps more transparently than ever; the twofold exhibition of a mastery over both technology and ethnographic scholarship and artifactual collection of faraway territories was becoming an exact science.

Given the significant number of the inventions on display at the Exposition were principally concerned with improved methods of long-distance communication and travel - such as the telephone, the teleautograph (a precursor to the fax machine), the electric streetcar, the personal automobile, and the airplane - the average visitor, no doubt, would have been struck by an alarming provocation: the world was about to become a smaller place.

"Nostalgia goes beyond individual psychology. At first glance, nostalgia is a longing for a place, but actually it is a yearning for a different time--the time of our childhood, the slower rhythms of our dreams. In a broader sense, nostalgia is rebellion against the modern idea of time, the time of history and progress. The nostalgic desires to obliterate history and turn it into private or collective mythology, to

[56] Hinsley, Curtis M. "The World as Marketplace: Commodification of the Exotic at the World's Columbian Exposition, Chicago, 1893" In *Exhibiting cultures: the poetics and politics of museum display*. Washington: Smithsonian Institution Press, 1997. Page 293

[57] Nelson, Steve. Walt Disney's EPCOT and the World's Fair Performance Tradition. Page 112

revisit time like space, refusing to surrender to the irreversibility of time that plagues the human condition."[58]

-Svetlana Boym

As the world's fairs of the 20th century struggled to compete with both the allure of international travel and increasingly immersive media, a baton of sorts was eventually passed on to another type of world building. Though the 1964 New York World's Fair was one of the first expositions to cost significantly more than it recovered, and therefore one of the last of its kind, it is at least memorable for the debut of a single attraction: in its first year of operation, Walt Disney's 'It's a Small World' ride guided more than 10 million visitors by boat through a serpentine path of self-defined multicultural unity. Walt's contribution perfectly complimented the theme of the world's fair - "peace through understanding" - as a highly immersive image of world peace: a wrap-around facade of "every corner of the Earth" setting the stage for over 300 audio-animatronic traditionally dressed children singing the praises of universal harmony in blissful repetition.

The original ride was divided into "The Seven Seaways," a representation of the world's major territories as conceived by its developers: North America, Scandinavia, Europe, Asia, Africa, Latin America, and Oceania. The scenery of each zone is as apparently flat as a stage set and operates in much the same way from the vantage point of the guiding boat. But supporting the smiling children and paper-thin facades was all the latest technology Disney brought to the fair. Not only was 'Small World' one of the first to employ audio-animatronic devices, but the ride also adopted a number of innovative air-conditioning systems and other novel techniques developed in the interest of comfort and special effects. In any environment of world condensing intended for popular consumption, technology is asked not only to function, but to *perform*, like a costumed actor on stage.

'Small World,' as a microcosm within the larger microcosm of the New York World's Fair, represented a significant shift away from the visible distinction between a Western future and a non-Western past often made at preceding World's Fairs, setting its sights instead on an embedding of novel technology within globally familiar imagery.[59]

As the world's fair gave way to the amusement park, and as the expression of technology became less desirable than its functionality, a major element of the production of mass spectacle became one of an aesthetic appeal to the mythology of 'better times.' Each of Small World's Seven Seaways were therefore equally presented as pre-modern versions of themselves, including those that had been

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[58]Boym, Svetlana. *The future of nostalgia.* New York: Basic Books, 2001. Page 10

[59] Consider that much of the media developed for the consumer market in the middle of the 20th century layered effects in the same way: when the first televisions were introduced to the consumer market in the 1950's, for example, they were regularly outfitted in oak, maple, and other fine woods or veneers to protect the bulky technology within from dust while also complimenting the desire aesthetic of the average living room. The only expression of technology in the early television set was the screen itself.

presented as 'advanced' in previous world's fairs: North America's scene was not depicted as the world power it became in the 20th century, but rather as the mythological Wild West' of the 19th, while that of Europe's was characterized as more scenically Bavarian than industrially cosmopolitan.

"As we move back to the future, always searching for the past that was never present, which forever approaches as the future that never arrives, we are consumed by the images we consume."[60]

-Mark C. Taylor, Hiding

The use of the architectural interior for world condensation generalized here bears three distinct models for the postcolonial world: the Great Exhibition imagined it as a consolidation of the global system of exchange, the Columbian Exposition a demonstrable exertion of power over unlike territories, and the New York World's Fair a nostalgic template for future world peace. Together, they make evident the gradually increasing fabrication of history and global relations, as well as the use of the architectural interior for cultural reproduction. World's Fairs influenced a number of building types developed in the 20th century.

Margaret Crawford reported on the rise of the mall building type, paying special attention to the West Edmonton Mall (WEM), the "world's first megamall" at 5.2 million square feet.[61] Built in Alberta, Canada in 1981, the mall "presents a dizzying spectacle of attractions and diversions," including "a replica of Columbus' Santa Maria float[ing] in an artificial lagoon," "fiberglass columns crumb[ling] in simulated decay beneath a spanking new Victorian iron bridge," and "fake waves, real Siberian tigers, Qing-dynasty vases, and mechanical jazz bands."[62]

Alongside the WEM and other malls, in which the "past and future collapse meaninglessly into the present,"[63] other developments instead attempt to reproduce a specific place and time, based almost purely on ahistorical mythology. Sourcing inspiration from the popular American interest in egyptology, the Luxor Hotel, for example, takes the form of a 30-story pyramid containing a superficially ancient village in its atrium. Built in 1993 at the Southern end of the Las Vegas Strip, its interior features oversized hieroglyphs colliding with neon and slot machines in an absurd balance, as though the former had waited thousands of years to be complemented by the latter, producing a folding of time spanning oceans and millenia. "As one walks under the Sphinx and enters the pyramid," Michael C. Taylor writes, "one does not so much step through a looking glass as pass through an invisible screen and enter a space that is virtually cinematic."[64]

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[60] Taylor, Mark C. *Hiding*. University of Chicago Press, 1997. Page 245

[61] Margaret Crawford. "The World in a Shopping Mall." in *Variations on a theme park: the new American city and the end of public space*. Hill and Wang, 1992. Page 3

[62] Ibid.

[63] Ibid. Page 4

[64] Taylor, Mark C. *Hiding*. University of Chicago Press, 1997. Page 242

At the West Edmonton Mall, the Luxor Hotel and countless other sites of contemporary culture condensing, the specificities of 'culture,' as that term reflects both space and time, are purposefully overlooked in an appeal to the immediate apprehension of their surface values. Their reasons for choosing specific cultures as references are unique in themselves, but each maintains a similar tension: the production of 'difference' within a local setting without making that difference too disturbing or unpalatable.

The Culture Condenser

Tropical Islands does not represent all of the world's cultures (such as world's fairs leading up to Disney World's Epcot), nor does it represent the culture of a single region in history (such as the Luxor Hotel and its adjacent casinos), nor does it even represent a confused mashup of places and times (such as the West Edmonton Mall). Tropical Islands is only a representation of the cultures within or adjacent to tropical climates prior to the Industrial Revolution. In a manner almost entirely its own, Tropical Islands is a culture condenser.

Select cultures from around the globe, exclusively between the Tropic of Cancer and the Tropic of Capricorn, are represented in miniature within the resort through their most apparent signifiers, particularly through their food and their architecture.

The representation of the tropics within Europe is significant, given the history shared between the two regions. As Liane Lefaivre and Alexander Tzonis write, "if there is a common feature unifying the highly diverse countries of the tropics - besides their climate - it is that they are, without exception, former colonies."[65] The simulation of former colonies within a colonizing country was expectedly controversial when the resort first publicly announced plans in 2003, but much of the initial sting was softened by the fact that it was a Malaysian company overseeing the project. Many of the culturally-specific buildings constructed within the resort were done with the supervision of their respective boards of tourism as well as their regional architects and landscape architects, while close inspection does provide a surprising amount of detail paid to the distinctions between, for example, the various Asian architectural styles on display. "Sandstone and palm trees, Balinese huts, a kalkut watchtower and the authentic Monkey Rock transfers you to Bali, the Hindu Island of the Gods," its website reads.[66]

Yet the traces of nostalgia are just as visible at Tropical Islands as they are in its precedents, and, in fact, take on a new layer of complexity: where the term has often come to reflect a longing for a semi-mythological space and/or time, here it also includes the climate. Gone are the days of cyclically predictable and stable weather patterns in much of the inhabited world. Like the imagined buildings and

[65] Liane Lefaivre and Alexander Tzonis. "The Suppression and Rethinking of Regionalism and Tropicalism After 1945." In Tropical Architectures. Page 14.

[66] "10 years Tropical Islands." Tropical Islands: 10 years Tropical Islands. Accessed November 28, 2017. https://www.tropical-islands.de/en/tropical-world/attractions/10-years-tropical-islands/.

juxtapositions in every former world-condensing project, an idealized climate is given permanent residence.

Tropical climates have long been the object of desire from the Western perspective, given the common misconception of their unwaveringly tepid weather. The climatic fluctuations of many tropical regions, in fact, make them regularly inhospitable over the course of a typical year. Singapore, for instance, is itself a largely interiorized and air-conditioned city; its citizens commonly maintain a diet and sleeping pattern designed to combat the fatigues of intense seasonal humidity. Across the world, tropical regions have a wide variety of weather patterns, and they are certainly not always pleasant.

Additionally, the natural climatic fluctuations of tropical regions have been further compromised by the effects of climate change. The consequences of climate change through large-scale manufacturing and energy use in a small handful of nations are most strongly felt in tropical regions, causing drastic changes in their ecosystems and modes of habitability. Pacific Islands are at risk, particularly those of low-lying islands where rising sea levels are felt most dramatically, and there are predictions that many members of these communities will soon have to migrate from their homelands as a result.[67]

Of course, none of these tensions are represented at Tropical Islands, where virtually all of the complications of contemporary island life are systematically edited out. The buildings exist in harmony frozen in time, while the many types of tropical climates - each with their own history and political conflict - are exchanged for a single Endless Summer.

Like every one of its precedents, Tropical Islands is primarily a tourist space designed for a tourist class. As argued earlier, tourists traditionally seek out what they cannot find in their homelands, but not at the cost of comfort. Dean MacConnell identifies two types of tourists. The first are tourists "motivated by a desire to see life as it is really lived," who might find the Tropical Islands an unpleasant place to visit, yearning less for the representations of tropical cultures than the sources of inspiration themselves. However, these sites have been equally accommodating to the touristic experience, if not more so. Many cities provide tourist zones that stage encounters with cultural production, "characterized by social organization designed to reveal inner workings of the place" through what Macconnell refers to as "staged authenticity."[68] The beaches of many tourist destinations, for instance, are elaborate fabrications of imported sand and exclusionary bordering.

For the second type of tourist MacCannell identifies - those less "concerned about seeing behind the scenes in the places they visit"[69] - artifice is one of the known and accepted qualities of touristic experience. Corresponding tourist spaces condense attractions within a visibly confined perimeter to maximize pedestrian efficiency and centralized profit margins. "The organized spectatorship of tourism," argues Anne Friedberg, "follow a historical development similar to that of the panorama, diorama and

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[67] Colette Mortreux, Jon Barnett. Climate change, migration and adaptation in Funafuti, Tuvalu. Department of Resource Management and Geography, The University of Melbourne, Victoria 3010, Australia

[68] MacCannell, Dean. *The Tourist: a new theory of the leisure class.* Berkeley: University of California Press, 2013. Page 94.

[69] Page 96.

cinema where, as the gaze became more "virtually" mobile, the spectator became more physically immobile."[70] The condensation of sights and sounds not only ensures aesthetic and narrative control but also the monopolization of the source of consumption.

For the tourist seeking packaged entertainment, there are cruise ships, city center malls, and, of course, the Tropical Islands Resort. In the tradition of the many buildings-in-buildings preceding it, Tropical Islands revels in the spectacle of its own containment; the sight of thatch and gnarled wood rooftops against the single metal structure overhead is one of its most striking features. This juxtaposition makes the uselessness of the many rooftops comically apparent, save for their role as decoration. While the buildings of tropical regions are undoubtedly distinct from those of more frigid climates - without the snow to whisk away and the below-freezing temperatures to combat - the buildings within the Tropical Islands resort are only competing with the occasional spike in temperature caused by momentary air-conditioning malfunctions.

The variety of buildings, which stylistically refer to regions with parallel but distant histories, are all brought together under a single roof and given a single identity: Tropical Islands. The choice to name the singular building as a plural is a reminder of the grandeur of its own achievement: to condense an idealized world at a scale so immense, and with a climatic system so advanced, that it can be compared to every corner of the Earth to which it refers combined.

III.   **The Bunker-Bubble**

Enclosing more than 710,000 square feet and 194,000,000 cubic feet of air, the Tropical Islands Resort currently holds the title for the largest uninterrupted volume in the world, the largest indoor waterpark in the world, and the container of the world's largest indoor rainforest. Located in the sparse municipality of Krausnick-Groß Wasserburg, thirty miles south of Berlin, Germany, the resort was completed in 2004. At the time of this writing, it has been in successful operation for fourteen years.

The dome structure of the resort was originally built in 1997 as a blimp hangar by CargoLifter, a German company founded the year prior to develop lighter-than-air technology. Costing more than 78 million euros to construct, it was nicknamed the 'Aerium' for the distinct air qualities of its interior and the

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[70] Friedberg, Anne. *Window Shopping: Cinema and the Postmodern.* University of California Press, 1994. Page 61

lightness of its structure. In 2002, CargoLifter declared insolvency and required the outside purchase of the Aerium.

The structure was purchased by Tanjong Public Limited Company in the following year. Founded in 1926 in London, England and relocated to Kuala Lumpur, Malaysia in 1992, the company "engages in power generation, gaming, leisure, and property investment businesses," according to its Bloomberg profile.[71] Tanjong completed the Tropical Islands Resort in 2004 with the assistance of the architecture firm CL MAP GmbH. In an interview, the firm's cofounder Jürgen Grothe stated the resort was initially designed for "people or families who can't afford to travel to the tropics."[72] As the resort grew in popularity, more attractions and landscape features were introduced; over time, "the concept was more and more adapted-- to the expectations of the visitors."[73]

The resort currently contains four tropical-themed areas (The Tropical Village, The Rainforest, The Tropical Sea, and the Bali Lagoon) and a number of hotels, restaurants, and corresponding amenities. It receives over a million visitors each year from several countries around the world.

If national dreams are obsolete and only a global vision of improvement now is viable, who can quarrel with Buckminster Fuller's assertion "that man on earth is clearly faced with the choice of utopia or oblivion?"

—Herbert I. Schiller[74]

The contamination of life systems and the conflicts of global relations guided the fears of the modern era.

The air we breathe—which, in the Western tradition, has long been the ethereal subject of 'our surroundings,' 'our atmosphere,' and 'our space'—had no longer been describable under such stable terms. Sampling from any coordinate on Earth reveals that human influence has left the air a mixed and unbalanced soup spanning continents.

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[71] https://www.bloomberg.com/research/stocks/private/snapshot.asp?privcapId=877778
[72] https://qz.com/782814/cultural-appropriation-the-worlds-largest-indoor-tropical-park-tropical-islands-is-inside-a-former-nazi-airplane-hangar-in-germany/
[73] Ibid.
[74] *Schiller, Herbert. The Slide toward Violence in the Hungering World. Bulletin of the Atomic Scientists.* Volume 23, 1967 - Issue 1

The selective weaponization of the air contributed to environmental concern in the modern era. According to the philosopher Peter Sloterdijk, "the 20th century dawned in a spectacular revelation on April 22nd, 1915," Sloterdijk wrote, "when a specially formed German "gas regiment" launched the first, large-scale operation against French-Canadian troops in the northern Ypres Salient using chlorine gas as their means of combat." For the first time in recorded history, the air became a weapon. "The 20th century will be remembered as the age whose essential thought consisted in targeting no longer the body, but the enemy's environment."[75]Reviewing the span between 1915 and the second decade of the 21st century, the enemy has since become indistinguishable from the perpetrator, the targeted environment now the unintended inheritance of every living organism that breathes it in.

Another contributing factor to environmental concern is a global climate change. Prior to the popular use of this term, Rachel Carson's revolutionary book, *Silent Spring (1961)*, educated an American audience about the unintended consequences of pesticides and other chemicals developed in the 20th century. Though they were lauded for their ability to eradicate disease-carrying insects, Carson and other environmentalists warned that their widespread use would yield untold consequences. Chemical products, according to Carson, "are now applied almost universally to farms, gardens, forests, and homes—nonselective chemicals that have the power to kill every insect, the "good" and the "bad," to still the song of birds and the leaping of fish in the streams, to coat the leaves with a deadly film, and to linger on its soil—all this though the intended target may be only a few weeds or insects."[76]

Though Silent Spring and many other studies paved the way for the environmentalist movement, an unprecedented amount of carbon dioxide was nonetheless released into the atmosphere, principally through industrial production, deforestation, waste pollution and car emissions. The regular use of refrigerators, hairsprays and other appliances containing hydrofluorocarbons and methyl bromide has meanwhile contributed to the seasonal hole in the ozone layer, which otherwise functions as a global sunscreen to protect the Earth from ultraviolet radiation. The air is therefore not only contaminated; it is also subject to unpredictable climatic shifts.

The gas mask was arguably the first tool to offer a material and symbolic response to these two fears simultaneously. Patented by Lewis Haslett in 1849 as a "lung protector," the bottom half of the gas mask is equipped with an air filter for immunization, eliciting an architecture of the body in places too compromising for naked lungs. The top half, meanwhile, provides an opposing function, through the affordance of visual transparency that enabled communication with its user's immediate context.

One of the first architectural responses to directly confront the volatility of the air and propose an alternate mode of habitation is also a remarkably early example of an ecological conception of space and the built environment. Siegfried Ebeling's essay Der *Raum als Membran* (Space as Membrane), written in

[75] Sloterdijk, Peter. *Terror from the air*. Los Angeles, Semiotext(e), 2009. Page 10.
[76] Carson, Rachel. *Silent Spring*.New York: Houghton Mifflin Company, 1994. Page 7-8.

1926, argued that architecture should be considered in the aftermath of World War One as, according to Pep Aviles, "an environmentally responsive epidermis, performing almost clinically."[77]

The use of the word 'membrane' was novel for its uncommon use in architectural practice, belonging more conventionally to the field of biology to describe a reciprocal envelope loosely defining an inside and an outside. Ebeling developed Space as Membrane during the newly forming technical understanding of the natural sciences, including environmental studies and the health effects of industrialization. "While the so-called 'breathing' wall skin - made of wood, mud, stone or substitutes - may be able to regulate in a very crude way the relation between the natural climate and the artificial interior climate," Ebeling wrote, "it does nothing to prevent the human occupants from being exposed to the detrimental effects of subtler atmospheric fluctuations (such as thunderstorms, blizzards or the Foehn or Scirocco winds)."[78]

According to Aviles, "Ebeling understood the environment as a combination of the visible (nature, light) and the invisible (climate, energy)." For the architect, therefore, "the environment was a continuous field of "vibrations' and "radiations" affecting all forms of life on Earth."[79] Though his writing and illustrations were treated with little public interest in his time, his subject was treated with greater urgency after the second World War, when the effects of industrialization had become more apparent. In this era, according to the historian Linda Nash, "the emergence of concerns about air pollution, radioactive fallout, and pesticides forced health professionals and laypeople to consider anew the interaction of bodies and environments and their definitions of health and illness."[80]

Given this mercurially 'modern air,' architecture's function as shelter was newly called upon as a safeguard from environmental degradation in the 20th century. In this era, the tendencies of seeking immunity and community were divided and placed on opposing sides of the political aisle in the 20th century.

Those seeking to not only survive but thrive in any climate led to the rapid advancement of climate-controlled interior environments, most popularly facilitated by the use of air-conditioning units and ventilation systems. "Air-conditioning," according to Eva Horn, "is one of the oldest dreams of mankind. It means creating a world without heat or cold, rain or snow, without suffocating humidity or dusty winds. Climate control allows for a life without weather, without meteorological contingencies and surprises, extreme weather events, seasonal changes, or locally challenging climate conditions."[81] By the 1930's, they were regularly installed in any establishment that could afford their maintenance.

[77] Aviles, Pep. "On Membranes, Masks, and Siegfried Ebeling's Environmental Raumkubus." In Climates: Architecture and the Planetary Imaginary. Lars Muller Publishers, New York, NY. 2016. Page 320.

[78] Ebeling, Siegfried, and Spyros Papapetros. *Space as membrane.* London: Architectural Association, 2010. Page 8

[79] Aviles, Pep. On Membranes. Page 321

[80] Nash, Linda Lorraine. *Inescapable Ecologies: A History of Environment, Disease, and Knowledge.* University of California Press, 2006. Page 7

[81] Horn, Eva. "Air Conditioning: Taming the Climate as a Dream of Civilization." Climates: Architecture and the Planetary Imaginary. New York, NY: Columbia Books on Architecture and the City, 2016. Page 233

But as the interiorization of life and other problematic solutions to environmental degradation elicited a greater distinction between the controllable architectural interior and the consequently volatile climatological exterior, so too did a distinction in attitudes emerge towards the problem that has only grown more tense over time. "The current planetary crisis of climate change or global warming elicits a variety of responses in individuals, groups, and governments," Dipesh Chakrabarty wrote, "ranging from denial, disconnect, and indifference to a spirit of engagement and activism of varying kinds and degrees." [82] While the two modern crises - the potential weaponization of the air and its unintentioned pollution - began to significantly take hold as political subjects by the mid-century in the United States, the struggle to find a universal consensus on the single greatest threat to the air in a politically divided country continues to be felt today.

Architecture is caught in the middle of this tension for two reasons: first, like the air, it too has long operated as humanity's nearly invisible background; second, as argued by Saskia Sassen, "architecture, more so than other fields, is marked by its ability to both destroy the biosphere and to work with it in multifaceted ways." [83] Two significant architectural responses have therefore emerged as the expression of the ranging attitudes towards the current planetary crisis: bunkers and bubbles.

"We all know the atomic bomb is very dangerous, since it may be used against us. We must get ready for it, just as we are ready for many other dangers that are around us all the time." Thus begins Duck and Cover (1951), an educational video produced by the U.S. Civil Defense to provide grade students with the recommended procedures in the event of an attack. Students are told to follow the advice of an animated turtle, Bert, who retreats inside his shell at the first sign of a nuclear blast. [84]

The video advises its viewers to literally turn away from environmental devastation, crouching against the nearest solid structure until the crisis can be assumed to be over. Bert's shell and the advice he gives to students are the ingredients of a typical 'flight' response: the hardest and thickest armor available in times of crisis that is, at the same time, deeply familiar to its user.

The project that most closely translated this advice into architectural form at the time was Jay Swayze's Underground Home. Developed as a prototype in the mid 1950's and publicly shown at the 1964 New York World's Fair, the most complete version was built underneath a nondescript home in Las Vegas, Nevada. The Underground Home is essentially a bunker, modeled after the then-popular single-story ranch style suburban home, entirely designed to distract its occupants from the potential threats of the Cold War. It's 'outdoor' area is equipped with a synthetic lawn, rubber trees, a heavily ventilated bar-b-que pit and a covered terrace. Along the perimeter walls—each one a mural of a uniquely climatic landscape scene—recessed lighting simulates sunrise and passing clouds. According to a visitor's

[82] Dipesh, Chakrabarty. "The Climate of HIstory." *Critical Inquiry*, Winter 2009. Page 197

[83] Sassen, Saskia. "A Third Space: Neither Fully Urban nor Fully in the Biosphere." Climates: Architecture and the Planetary Imaginary. New York, NY: Columbia Books on Architecture and the City, 2016. Page 173

[84] Reynolds, Glenn Harlan. "The Unexpected Return of 'Duck and Cover'." The Atlantic. January 04, 2011. Accessed September 29, 2017. https://www.theatlantic.com/national/archive/2011/01/the-unexpected-return-of-duck-and-cover/68776/.

booklet distributed at the 1964 New York World's Fair, the Underground Home offered its expected occupant "an island unto himself; a place where he controls his own world—a world of total ease and comfort, of security, safety and above all, privacy."

Its assumed responsibility to the exterior climate is spelled out clearly by a blurb from its pamphlet: "Create your own climate by "dialing" temperature and humidity settings. Pressurize the structure - much as a plane cabin is pressurized-and create any season of the year. Underground, one is free of the outside climate, and health no longer depends on it. Sufferers of chronic colds, asthma, sinus and allergies enjoy relief and the healthy man feels healthier."[85]

Its expected occupant was offered a potentially limitless array of visuals, sensations and activities as a distraction from the tolls of nuclear war potentially taking place just above ground. Swayze conceived the Underground Home as an attractive model for individual families at the expense of community engagement and dialog. In this vision of domestic life, Beatriz Colomina argued, "peace is achieved [...] by environmental control, control over "the exterior": temperature, noise, air, light, view. The publicity insists not so much on nuclear danger as on intruders, dangers of the street, insects, impurities of the air."[86] There were no plans for the Underground Home as a unit to be connected to others; the sense of isolation would have been overwhelming.

More recent versions of domestic subterranean bunkers are closely modeled after the lessons learned by the Underground Home. Equipped with significantly improved technology and more stimulating amenities, several companies have developed units of varying levels of extravagance and have quickly found clients in the wealthy elite.

A notable example is the Survival Condo, a former cylindrical missile silo in an undisclosed area of Kansas repurposed in 2008 as a 15 story subterranean condominium.[87] "If you've got the cash," one ABC News segment reported, "you can ride out the apocalypse in serious luxury."[88]

The middle floors are half and full floor condominiums (totaling approximately 20 units), each with amenities one would expect from a typical luxury home. Like Swayze's Underground Home, the Survival Condo units have televisions in place of windows that simulate, according to the company, "life-like outdoor views complete with varying light levels that reflect time of day, creating a normal living experience as if you were above ground."[89]

The condos are sandwiched between mechanical and ventilation systems above and communal amenities below, such as a swimming pool and dog park. The inclusion of communal amenities is, tellingly, not a community-building exercise, but rather, like the televisions in place of windows or the

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[85] Tarantola, Andrew. "This Swanky Bomb Shelter Might Be Hidden Somewhere Under an NYC Park." Gizmodo. March 19, 2014. Accessed September 29, 2017. http://gizmodo.com/this-swanky-bomb-shelter-might-be-hidden-somewhere-unde-1546678178.

[86] Colomina, Beatriz. "Domesticity at War." *Assemblage*, no. 16 (1991): 14-41.

[87] "Information." Survivalcondo.com. Accessed September 29, 2017. http://survivalcondo.com/.

[88] Why are the rich building Luxury Bunkers now more than ever? January 10, 2017. Accessed September 29, 2017. https://www.youtube.com/watch?v=kN8D-lVnPWA.

[89] "Information." Survivalcondo.com.

additional option of granite-top kitchen counters, part of the same objective: to simulate life above ground. Its residents are, in so few words and in as optimistic a description as possible, hiding without the sensation of hiding.

> "We stand now where two roads diverge. But unlike the roads in Robert Frost's familiar poem, they are not equally fair. The road we have long been traveling is deceptively easy, a smooth superhighway on which we progress with great speed, but at its end lies disaster. The other fork in the road - the one "less traveled by" - offers our last, our only chance to reach a destination that assures the preservation of our Earth."
>
> -Rachel Carson[90]

By the middle of the 20th century, while a significant portion of the population was ready to fully protect themselves against the exterior air—whether as a consequence of pollution, climate change or the assumed repercussions of the Cold War—a number of architects alternatively took on the task of imagining new human ecologies sustained within vast interiors.

Often positioned above their former settlements with minimal attachments, they advocated unadorned space-age materials and lightweight pneumatic structures. A climate-controlled, 'second' air, after all, meant potentially implementing a new system of human commerce and everyday experience, from the visual landscape to the potential new role of agriculture within society.

Among the most influential was Buckminster Fuller's Cloud 9 project (1960), developed in collaboration with Shoji Sadao. Only a single image of two massive orbs tethered a half mile above mountain tops and an instructional text remain of this visionary concept for a future above an uninhabitable Earth. "Many thousands of passengers could be housed aboard one-mile diameter and larger cloud structures," Fuller told his biographer. "The passengers could come and go from cloud to cloud, or cloud to ground, as the clouds float around the earth or are anchored to mountain tops."[91] Because the entire structure would be suspended by the weight distribution of its internal air pressure ("when we get to a geodesic sphere one-half mile in diameter, the weight of the air enclosed is so great that the weight of the structure itself becomes of relatively negligible magnitude for a ratio of 1,000/1"[92]), the structure is almost fully independent of the Earth's surface.

Fuller's lifework can be summarized by one of his poems: "To make the world work / In the shortest possible time / Through spontaneous cooperation / Without ecological offense / Or the disadvantage of anyone."[93] In the face of environmental devastation, Fuller hoped to be a voice of a new chapter in human evolution; one that advocated technical devices without losing sight of the tensions that

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[90] Carson, Rachel. *Silent Spring.*New York: Houghton Mifflin Company, 1994. Page 188

[91] Pawley, Martin. *Buckminster Fuller.* London: Grafton, 1992. Page 156

[92] Ibid. Page 157

[93] Baldwin, J. *BuckyWorks: Buckminster Fullers ideas today.* New York: John Wiley, 1996. Page v

define the modern individual. While Fuller was aware that "no human political or commercial organization could at that time summon the resolution to execute them," as the historian Martin Pawley wrote, "Fuller and Sadao strove with extraordinary daring to demonstrate what such 'new individuals' might do to hasten the advent of an ephemeralized space-structure architecture of the future."[94] Cloud 9's image and equally utopian title inspired several other architects to imagine bold architectural solutions to the foreseeable inhospitality of the Earth's air supply.

The many experimental projects by the Viennese firm Haus-Rucker-Co, for instance, offered a critique of the cultural tensions present in the late 1960's and early 1970's. Their largest built project was also their most plainly critical of the carelessness by which humans had negatively affected their environment: Cover (Surviving a Polluted Environment) (1971) was a two-month installation of a giant pneumatic bubble fully containing Mies van der Rohe's Haus Lange in Krefeld, Germany. According to the architects, Cover was "a serious plastic play-show about pollution," with the inhabitants of the house conceived as voluntary exhibition props.[95]

The bubble's contrast with the then-antiquated materiality of the Haus Lange was satirically absurd, likely a nod to more seriously considered projects at the time like Swayze's Underground Home. The thought of protecting every household with a massive plastic envelope was portrayed as a dystopian lesson against quick fixes. The bubble protected the home from the outside, but only in terms of air quality; the desire to fully retreat from any potential damage incurred outside of the bubble was ultimately denied by its transparency. If the sky grew dim with ash over Germany, for instance, so too would the interior of the bubble grow dim. "[Haus-Rucker-Co's] bubbles sought to make change substantive as both a visible and materially "felt" condition," Esther Choi argued, "rendering not only the solutions but also the problems themselves accessible to a public."[96]

The connection made in the 1960's between environmental responsibility and airborne, transparent structures is apparently indelible, as it has carried through to the 21st century. Tomas Saraceno's Aerocene project, for example, was established in 2015 as, according to the artist, "a multi-disciplinary project that foregrounds the artistic and scientific exploration of environmental issues,"[97] and is otherwise described as a "floating museum."[98]

Much like Fuller and Sadao's Cloud 9 concept, Aerocene is an inhabitable spheroid structure "inflated by the air," "lifted by the sun," and "carried by the wind." Soon, it will "float continuously, both day and night, around the world by everlasting energies of the planet and all its dwellers," advertising its independence from both fossil fuels and political/geographical borders. Aerocene encourages the

[94] Pawley, Martin. *Buckminster Fuller*. Page 156

[95] Burns, Jim. *Anthropods: new design futures*. London: Academy, 1972. Page 65

[96] Esther, Choi. "Atmospheres of Institutional Critique: Haus-Rucker-Co's Pneumatic Temporality." *Hippie modernism: the struggle for utopia*. Minneapolis: Walker Art Center, 2016.

[97] Tomas, Saraceno. "Welcome." About. Accessed September 29, 2017. http://aerocene.org/.

[98] Saraceno, Tomás. "Would you live in a floating city in the sky?" Tomás Saraceno: Would you live in a floating city in the sky? | TED Talk. Accessed September 29, 2017. https://www.ted.com/talks/tomas_saraceno_would_you_live_in_a_floating_bubble_in_the_sky#t-131576.

development of communities, whether they are traveling the winds of the Earth within its billowing interior or on the ground watching it pass by.

> "The naive utopias of the 1960s must be revised: "Imagination in power!" - "Take your dreams for reality!" - "No limits to pleasure!" All of these slogans were realized (or hyperrealized) in the development of the system."[99]
>
> <div align="right">-Jean Baudrillard</div>

While the overlaps between the architectural 'flight' and 'fight' responses reveal their tension to be more spectral than binary (some 'fight' models can be read as nostalgic; some 'flight' models adopt a community model to some degree), a few important distinctions between the two can still be made. The contrast is still one of bunkers versus bubbles, pastiche opacity versus futuristic transparency, and paranoiac individualism versus ambitious communitarianism.

As has been made clear by fields beyond architectural production, appealing to fear has been, historically, a more powerful sales tactic than ethical responsibility and long-term problem-solving. According to the aforementioned research conducted by the ABC news, "disaster preparedness is now estimated to be a 500 million dollar a year industry."[100]

These projects demonstrate that consumers are more likely to invest in short-term solutions to protect themselves and their immediate families than those of the long-term that require larger community efforts and a commitment to that community as an irreducible unit. The line between the two groups can first be drawn by their respective choice of words: bunkers have typically been advertised with promises of "privacy," "control" and "protection," whereas bubbles have more often advocated "cooperation," "responsibility" and "humanitarianism."

In his essay, *Community, Immunity, Biopolitics (2013)*, the philosopher Roberto Esposito historicizes the choice often made between social engagement and protective privacy as 'community' and 'immunity.' For Esposito, the preference for one comes at the expense of the other. "If the community determines the rupture of the individual's identity protection barriers," he writes, "immunity constitutes a way to construct such barriers in a defensive and offensive shape, against any threatening external element."[101]

One's identification as belonging to a community necessarily exposes that person to potentially threatening external elements. However, one's retreat from a community, in order to gain immunity, yields a differently troubling consequence. "When immunity is brought beyond a certain threshold, though it is necessary to the preservation of our life, it forces the life itself into a sort of cage where we end up losing

[99]Baudrillard, Jean. *The agony of power*. Semiotext(e), 2010. Page 33

[100] Why are the rich building Luxury Bunkers now more than ever? January 10, 2017. Accessed September 29, 2017. https://www.youtube.com/watch?v=kN8D-lVnPWA.

[101] Esposito, Roberto. "E10.1 Essay - Community, Immunity, Biopolitics." Hemispheric Institute of Performance and Politics. Accessed January 22, 2018. http://hemisphericinstitute.org/hemi/en/e-misferica-101/esposito.

not only our freedom, but also the very sense of our existence - that is to say, we lose existence's openness to its outside."[102] Therefore, "if immunity tends to enclose our existence in circles or fences, which do not communicate with each other, the community, more than a bigger circle which comprehends them, is rather an opening which, cutting the boundaries, mixes human experiences, freeing them from their securing obsession."[103]

Immunity, in the form of a privatized and interiorized environment, also comes at the cost of the relationship between geographic siting and personal identity. "The main antagonist of rooted culture," Kenneth Frampton writes, "is the ubiquitous air-conditioner, applied in all times and in all places, irrespective of the local climatic conditions which have a capacity to express the specific place and the seasonal variations of the climate."[104]

Given that the architecture of the bunkers and bubbles both adopt an immunological mediation to separate its internal occupants from the external air - whether as a plastic membrane or as several feet of compacted earth - they each imagine futures that do not entirely belong to the side of 'community,' according to Esposito's definition. Aesthetic and immunological mediation, according to media theorist Antonio Somaini, "may be either transparent or opaque, bright or dark, colored or colorless, pure or impure, but its nature is somehow always active: an instrument or a source of clarification or confusion, illumination or disruption, truth or falsehood."[105]

It is therefore not the adoption, but rather, *the level of transparency* of the mediation that is of enormous consequence in distinguishing between bunker and bubble ideologies. In short, highly transparent insulation maintains an aesthetic relationship to the environment exterior to them; opaque insulation does not. The former maintains a dialogue with the enormity of the changing exterior climate to hint towards the potential of a life lived meaningfully and inoffensively with the global environment, while the latter instead gives priority to notions of privacy, control and protection towards the illusory comfort of an eternal present.

Though, ultimately, it is their respective levels of success in entering the consumer market that marks their greatest difference. The projects that belong to the first group demonstrate relatively little trouble with funding—typically supported by investors including the 1964 World's Fair to nervous billionaires—when compared to those of the second, which have generally gained little traction beyond the media of exhibition, drawing, art piece and critique. Bunkers are financed by the fearful; bubbles are hidden away in textbooks.

But when sampling many of the self-defined 'public' spaces of today, it is clear that they regularly adopt the language of 'community' initiatives while indeed appearing and functioning more immunologically. Their interiority is a solution to both the unpredictability of the exterior climate and the

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[102] Ibid.
[103] Ibid.
[104] Frampton, Kenneth. "Towards a Critical Regionalism." in The Anti-Aesthetic. Bay Press, San Francisco, 1983. Page 27
[105] Somaini, Antonio. "Walter Benjamin's Media Theory: The Medium and the Apparat." In Grey Room, #62. Winter 2016, pp. 6-41. Page 32

exclusion of any potentially unwanted people and elements (a substantial admission fee, for example, ensures that many of the 'public spaces' of today are initially exclusionary). When a building today is said to be "protected against the elements," it can be assumed that 'the elements' include much more than just the weather.

Tropical Islands is a manifestation of the two main responses to the environmental crisis. Tropical Islands is a bunker-bubble.

Looking below the horizon line, Tropical Islands plays into nearly every technique of pastiche and escapism imaginable; looking above, it can be mistaken for one of the cloud structures Fuller never dreamed would exist in his lifetime. "Despite its size," its website claims, "the giant edifice is actually quite lightweight."[106]

Though the membrane is in stark contrast to nearly everything below it, the resort's operators have since made no attempt to veil it: no blue paint to resemble the sky above it; no pixel or projection screen to operationalize its resort-wide visibility. The structural membrane, as a final remnant of its former role as a blimp hangar, is decidedly left intact.

Intact, that is, except for the 44 transparent, ultraviolet-coated PVC panels that were installed to replace the southern section of the membrane's metal structure, allowing a generous amount of sunlight into the resort throughout the day. "If people don't use sunscreen in the summer," warned Tropical Islands spokeswoman Vivian Kreft, "they'll definitely get a sunburn."[107] Fabricated and installed for over half a million dollars per unit, the panels contribute to the maintenance of the resort's life systems. As a consequence, and much like Haus-Rucker-Co's Cover, the membrane of Tropical Islands maintains a visual dialog with the exterior weather: if the sky grew dim with ash over Germany, so too would the interior of Tropical Islands grow dim. Though it is an immunological bubble of the highest technical ability, it still hearkens to the structures of Fuller's Cloud 9 or even those of speculative space colonization.[108]

However, it is only after entering the resort that the blankness of the enormous membrane is revealed to patrons. The photographs of Tropical Islands distributed by its marketing team typically only show what is visible below the horizon line: palm trees, large bodies of warm water, beach chairs, and everything else that might suggest a climate otherwise impossible to find in Western Europe. From afar, the resort markets itself as a mysteriously Edenic paradise; once inside, it proudly elicits the technological sublime.

Performatively, Tropical Islands is sustainable in some aspects and highly dependent on external resources in others. During the summer months, the resort collects heat from the sun and expels any excess through imperceptible vents about halfway up the dome. Additionally, a shallow pool of water

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[106] "Dome." Tropical Islands: Dome, 2015. Accessed September 29, 2017. https://www.tropical-islands.de/en/tropical-world/attractions/dome/.

[107] "Bringing the Tropics to Germany" DW.COM, 2004. Accessed September 29, 2017. http://www.dw.com/en/bringing-the-tropics-to-germany/a-1344791.

[108] Also, consider that, prior to its current role as a resort, the hanger was referred to as the "Aerium."

along the exterior perimeter of the dome has a "natural cooling effect" in the summer months, according to the facilities manager, David Renton-Cooper. All of the electricity and heating not collected by the sun is generated in various mechanical buildings—some of which are as large as two-story houses—located near the base of the dome.[109]

However, as Renton-Cooper explained, "to a degree we have our own wells where we're pumping [water] from, but obviously that does not satisfy the complete demand. So we also get purified water coming in." Additionally, "per day, we have to purify one cubic meter of water per day per guest and replenish it with fresh water."[110]

Socially, Tropical Islands maintains the hybridity of a bubble-bunker as well. Much like a cruise ship, it hosts several activities throughout the day that involve large gatherings for staged entertainment and televised news and sports. Though however popular these social activities may be during the waking hours of each day, their spectacle is overshadowed by the patrons lounging in beach chairs dotting every region of the resort. The long-standing appeal of islands has been the sense of privacy they seem to guarantee by their apparent isolation in vast oceans, after all—finding "an island one one's own" is said to be the dream of every hermit and recluse.

However, those seeking this type of privacy in Tropical Islands are ultimately participating in what might be called a 'public privacy:' even while demonstrating minimal physical activity or social engagement, whether by reading a book or receiving a suntan, for instance, a person's visible presence in the grand interior contributes to the resort's social animation. Short of purchasing a hotel room, privacy is never truly achievable.

The forced publicity of the Tropical Islands resort recalls elements of the social ecologies described in Felix Guattari's essay, The Three Ecologies (1989), a polemic meant to convey a network of interactions that simultaneously make visible the human influence on the climate and the non-centrality of that same species in the ecological sphere.[111] Concerned about the state of the three ecologies by the late 1980's, he argued that "it is not only species that are becoming extinct but also the words, phrases and gestures of human solidarity."[112]

Though Guattari's demands for an ecosophically based society were notoriously hard to meet, the ingredients for a 'social ecosophy' - defined by Guattari as "a state of 'group-being' that would "modify and reinvent the ways in which we live as couples or in the family, in an urban context or at work, etc."[113] - are present at Tropical Islands. At any given moment, the resort caters to the desire for a community, a 'shared experience,' and equally to a semblance of isolation, a 'public privacy.' A tagline from its website confirms the value of shared experiences, but only within the familial or personal unit: "Tropical Islands is

[109] "Tropical Islands Facilities Interview." Interview by David Renton-Cooper, Shane Reiner-Roth and Ellen Den Herder
[110] Ibid.
[111] Guattari, Félix. *The three ecologies*. London: Bloomsbury Academic, 2014.
[112] Ibid. Page 29
[113] Ibid, Page

more than the sum of its attractions. It's more than a theme park or a water park. Tropical Islands represents a unique tropical experience in Germany, a place to spend unforgettable moments with your family or friends."[114]

However, it is important here to consider that the success of the resort partially resides in its adoption of the rhetoric of communal participation in an effort to appeal to a group of visitors concerned about the potential alienation of a tropical-themed water park in a blimp hangar.

Tropical Islands and similarly vast environmental interiors regularly promote the language of 'community' initiatives while mechanically, spatially and aesthetically functioning towards the increasingly high demands of 'immunity.' The interiority of these spaces—including airports, malls, community housing complexes, cruise ships and indoor water parks—is often a solution to both the unpredictability of their exterior climates and the desire to exclude any potentially unwanted visitors and elements (a substantial admission fee, for example, ensures that many of these spaces are initially exclusionary). While their enormity suggests the possibility of freedom and choice, Mark Pimlott argues, they are "opposed to improvisatory human interaction and stifles the possibility of an authentic public."[115] The "naive utopias of the 1960s" that Baudrillard denounced are fully 'hyperrealized' at the Tropical Islands resort, which offers its visitors the public-privacy of connected isolation and only the faintest glimpses of the outside world.

If the Tropical Islands Resort is a sign of things to come with the looming volatility of the climate, it is somewhat assured that the future will not be strictly made up of bunkers nor of bubbles. Though humankind rarely owns up to the destruction it has caused or the threats it finds immanent, it is the trace amounts of what it can that has always offered the potential for equilibrium. Should a disaster strike the Earth one day in the future, rendering the outside air inhospitable, the occupants of the Tropical Islands Resort might huddle close together to form a community of the interior, enlightened by the tyrannies of humanity's past.

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[114] "Tropical World." Tropical Islands, 2015. https://www.tropical-islands.de/en/tropical-world/

[115] Pimlott, Mark. "The Continuous Interior." In Harvard Design Magazine, Fall/Winter 2008-9. pp 75-86. Page 85.

IV. The World Stage

The resort is hushed in the morning. The pools are still and the air windless. Sunlight pokes through the panels overhead and illuminates the plants and plastics alike.[116]

The quiet is broken by the opening of the Sawadee breakfast buffet, as the labors of a hidden kitchen staff are enjoyed by an overslept clientele making plans for the day. Many rush to claim one of a thousand lounge chairs facing the Tropical Sea, the largest and most popular attraction of the resort.[117] The clarity of the pool's half-ovular surface is disturbed by the frenzy of activity and the pool toys frenzy brings. The glistening metal-plate floor underfoot is evenly patterned with holes to swallow up the sand and debris collected from the influx of swimmers by midday.

Abutting the pool's straight edge is a six-hundred foot image of still clouds against a still sky, stitched together from prints as wide as the maximum width of the plotter used to print them. The canvas sags inward under its own weight and distorts the shadows cast from the structure overhead. A small rip near its base reveals a hallway of staff offices behind its hulking facade.

From any position within the Tropical sea are unobstructed views across the expanse. The structure and the ground visibly meet to form a horizon line that provides a lifeguard and a tourist equal vantage.

If the exterior weather permits, an outdoor area becomes available. At the southern edge of the Tropical Sea is the stone-formed entrance to a tunnel leading visitors through winding lightbox images of close-up tropicality interrupted by metallic vents. On the other end is Amazonia, an outdoor water-world beginning with an enclosed atrium with a wall of plastic slats through which swimmers permeate the southeasternmost tip of the interior. The stability of the water's temperature contrasts the infinite sky above it. The wind blows in all directions; the atmosphere rapidly brightens and falls dark and brightens again. The mercurial weather patterns cause involuntary goosebumps to form.

Belly up and eyes drying in the global air, the looming dome of the resort's exterior dwarfs the sky; inside is an immaculate shelter, an oyster cultivating fossilized pearls.

Tropical Islands did not appear out of thin air, nor is it alone in its operations. As the previous three chapters illustrate, the main elements on display in the resort - the Climate, Nature and Culture - have each been the subjects of control for hundreds if not thousands of years, and the architectural

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[116] https://qz.com/782814/cultural-appropriation-the-worlds-largest-indoor-tropical-park-tropical-islands-is-inside-a-former-nazi-airplane-hangar-in-germany/

[117] https://www.tropical-islands.de/en/tropical-world/tropical-waters/tropical-sea/

interior has played a central role in controlling them. Given its ability to contain effects within a closed system and definable perimeter, the architectural interior has simultaneously become a tool for both the exhibition and the invisibilization of control over climatological, natural, and cultural elements.

The architectural interior takes on renewed importance in the 21st century. In an era marked by serious debates concerning climate change, material scarcity and the conflicts of globalization, the architectural interior has confirmed its status as a primary site of aesthetic mediation for those who wish to seek shelter from these debates. The architectural interior is instructed to dig deeper into its primary function as shelter through a commitment to the three essential components of interiority. The first is *staging*.

"The things that are most delicate become objects only later."
-Peter Sloterdijk[118]

In his most recent book, Atmospheric Architectures (2017), the philosopher Gernot Böhme presents his definition of the 'aesthetic economy,' as

"a particular phase in the development of capitalism in which the advanced Western industrial nations currently find themselves. It is a condition in which aesthetic work counts for a large part of the work of society as a whole, that is, in which a large part of total work is no longer concerned with the production of commodities but with their staging – or with the production of commodities whose use value itself consists in their deployment for staging – of people, of the public sphere, of a corporate image, and so on. It is the phase of high-gloss capitalism, where people take holidays in malls and center-parcs; where advertisements no longer suggest commodities but lifestyles; in which the reference to reality is replaced increasingly by mediated imagination."[119]

In this era, commodities are no longer defined solely by their use or exchange values, as Karl Marx had defined them in the late 19th century, but additionally their *staging value.* Because "the economy of developed industrial nations is dependent on the production of luxury articles,"[120] according to Böhme, the popular reliance on commodities must be based on desire rather than necessity. In this way, the circulation and increased production of commodities necessitates staging to support the basic tenets of capitalism and the aesthetic economy in particular.

Under the auspices of architecture, control is not only expressed; it is *staged.* If staging is the method by which commodities stand in for deep-seeded, collectively felt phenomena and are put on

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[118] Sloterdijk, Peter. Foams. Frankfurt am Main: Suhrkamp Verlag. 2004. Page 65
[119] Atmospheric Architectures. Page 33
https://slowrotation.memoryoftheworld.org/Gernot%20Bohme/Atmospheric%20Architectures_%20The%20Aes%20(48409)/Atmospheric%20Architectures_%20The%20-%20Gernot%20Bohme.pdf
[120] Bohme, Gernot. Staged Materiality Daidalos 56. Page 3

display, architecture is the stage itself. Even an inconspicuous window display, after all, is not complete without the shelving as the armature of its products, the ground as their support, the ceiling as the carrier of their spotlights, and the plate glass window as their protection.

The staging of control in Tropical Islands is evident from the moment one enters the vestibule to be greeted by the rush of humid vapor. The contrast between the blustery exterior of the dome and the still air of its interior is staged to ensure the sensation of control most apparently. Just as Jean Baudrillard claimed Disneyland's function was to legitimize the adjacent city of Los Angeles when it had otherwise been described as 'tinsel-town,' the staging of effects at Tropical Islands serve to promote a feeling that the unadorned parking lot outside of its dome and the land beyond it are the rugged wilds to its firmly domesticated interior.[121]

Whatever great mysteries lie within the compositions of the elements reproduced in Tropical Islands have been popularly overshadowed by their *sensate* properties; those which can be easily apprehended by the naked eye and the wandering mind. When reproduced or publicly displayed, whatever qualities may be deeply embedded within their makeup - which have inspired endless curiosity and interpretation in their pasts - have been systematically clarified and forced to their surfaces so that they may be communicably affective. In the aid of mass consumption, the exquisite and the ineffable have necessarily given way to the apparent and the immediately perceptible.

In the Tropical Islands Resort, the subtleties of tropical climates are exchanged for a singularly ideal temperature as it makes contact with skin, the muted details of tropical flora and fauna are modified to privilege their most compelling attributes as they may demand attention, and the richness of tropical cultures is replaced with the apparentness of their artifacts as they grant access without great study.

The exhibition of these elements enables a curation of their properties; the few that are forced to their surfaces necessarily conceal all those left behind. To render each element as a commodity is to highlight their most attractive features and simultaneously withhold all those considered unattractive or noncommunicable.

The staging of space/time/climate present at the Tropical Islands Resort is more than just a product of nostalgia, as it has been identified in the previous three chapters. In The Machine in the Garden (1964), the historian Leo Marx traces a history of "the uncomfortable middle" that has consistently placed us between our "animal nature" and our "rational ideals."[122] Though the pastoral ideal, according to Marx, has been challenged by increasingly advancing technology, its image remains no less influential, if not more so. 'The 'future' then, must be balanced with 'the past,' the local with the global, and the fickle exterior climate with a reliantly stable one.

To make machines look intelligent, it was necessary that the sources of their power, the labor force which surrounded and ran them, be rendered invisible.

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[121] Baudrillard, Jean. Simulacra and Simulation.
[122] Marx, Leo. The Machine in the Garden. Page 100

The second ingredient of aesthetic mediation is *invisible maintenance*. In his essay, A Home is Not a House (1965), the architectural theorist Reyner Banham argues that domestic space has been compromised by a "mechanical invasion," referring to the mechanical services hidden behind the walls of domestic space, such as those of air conditioning and ventilation.[124] "This baroque ensemble of domestic gadgetry epitomizes the intestinal complexity of gracious living. In other words," Banham writes, "this is the junk that keeps the pad swinging."[125]

The visual separation of mechanical services from domestic spaces, Banham argues, mediates our comprehension of their relationship. But this separation is not limited to mechanical services, as many other types of services are hidden from the spaces in which their labors are consumed.

The theorist Dean MacCannell elaborates on the sociologist Erving Goffman's distinction between what he referred to as "front regions and back regions," and provides examples through architectural arrangements. "Examples of back regions are kitchens, boiler rooms, executive washrooms," MacCannell writes, "and examples of front regions are reception offices and parlors."[126] But while MacCannell offers architectural spaces to illustrate Goffman's terms, "[this division] is primarily a *social one*, based on the type of social performance that is staged in a place, and on the social roles found there."[127]

Typically, the staging of the architectural interior is also the invisibilization of its maintenance. Aesthetic control, in other words, necessitates the concealment of its preservation.

Mechanical services and human labor are almost entirely hidden beneath and along the perimeter of the Tropical Islands Resort. Some of the methods of concealment are ingenious forms of aesthetic staging in themselves: the temperature monitoring system is centralized in a stucco-rock formation with vents disguised as craters; daily supplies are organized along the perimeter and made invisible by a moat wall tapered away from the center; the 600-foot sky painting at the center of the Tropical Sea Stage doubles as a cloak for staff offices. Meanwhile, the imported lizards gobble up the unwanted insects and the millions of gallons of water filter in a constant loop.

As mentioned in Chapter II, the maintenance of the resort is also hidden through rigorous scheduling and a dedicated work staff. After the last restaurant closes and before the breakfast buffet opens the following morning, the maintenance doors are propped open to repair any damages occurred throughout the day and to water the plants. Even the stealth of the nightly work staff is an essential component of the successful separation of the staging and its hidden maintenance. Underground, along the perimeter and under the cover of night, the Tropical Islands Resort straddles the line between the

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[123] Schaffer, Simon. From Physics to Anthropology - & Back Again. Prickly Pear Pamphlets. Page 204

[124] Banham, Reyner. "A Home is not a House." Art in America. 1965, Volume 2, NY: pp 70-79. Page 71

[125] Ibid. 71

[126] MacCannell, Dean. Staged Authenticity

[127] Ibid. Page 92

sensational and the secreted. Underground, along the perimeter and under the cover of night, the Tropical Islands Resort operates between the sensational and the secreted.

"In [the interior's] omni-directional plan, one's view is forced inward."
-Mark Pimlott[128]

While the realities of tropical climates, tropical natures and tropical cultures are aesthetically mediated by their staging and the maintenance of their staging, their cooperation is secured by the dome that contains them. The third ingredient of aesthetic mediation is *bordering*.

Bordering, at the scale of architecture, only partially refers to interiorization. The conflation of staging is in effect at some of the non-interiorized sites previously addressed, such as Disneyland, Disneyworld and Tianducheng. However, the total envelopment of staging and maintenance through the production of an interior ensures a climatic bordering not available through walls alone.

The increasing scale and sophistication of the architectural interior has been theorized in the last half-century as a symptom of postmodernism. For the philosopher Fredric Jameson, postmodernism is spatialized by the interiority of architectural environments themselves. Jameson argues that John Portman's Bonaventure Hotel, in Downtown Los Angeles, bears little relationship with the city around it. "The entryways of the Bonaventure are, as it were, lateral and rather backdoor affairs," he writes. For Jameson, the Bonaventure is an architecture of the postmodern precisely because of its self-sufficiency and its celebration of its assumed autonomy. The world beyond its border is so relatively multivalent and unpredictable that its instinct is to turn inward, towards the interior, to foster the comfort and controllable defined by apparent limits.

Because architectural interiority enables an indifference to context, the physical distance between the Eastern German resort and the tropical regions of the world it represents is arguably its most attractive feature. The dome above the resort is unadorned to remind its visitors of this immense achievement.

The architectural dome is without a corner for shadows to collect, leaving the eye to rest instead on everything that lies within. It is likely the common architectural envelope of control because it also bears a close formal relationship to the sphere, the most common geometric symbol of encapsulation and the mastery of elements (consider that, for instance, fields of study are divided into 'spheres of knowledge,' while our planet is itself a sphere to which we ascribe every Earthly object of inquiry). Because a dome is essentially a sphere with a firm grasp of flat terrain, it carries many of the sphere's symbolic attributes.

In media history, the architectural dome has long served as the container of biopolitics and alienation. Movies and literature exploring these subjects to illustrate the modern condition - including *The*

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[128] Pimlott, Mark. "The Continuous Interior: Infrastructure for Publicity and Control." in Harvard Design Magazine. Fall/Winter 2008-9. pp. 75-86. Page 76

Truman Show, Under the Dome, Biodome, Silent Running, Logan's Run and Synecdoche, New York - have each appropriated vast architectural containers as their signature narrative devices. Each one demonstrates the careful calibration of aesthetics and sensate pleasures afforded by the dome as definable enclosure.

The very idea of control is itself physicalized and given parameters by the typical dome structure. Reflecting on his book *Under the Dome (2009), Stephen King* saw it "as a chance to write about the serious ecological problems that we face in the world today. The fact is we all live under the dome. We have this little blue world that we've all seen from outer space, and it appears like that's about all there is."[129]

The realities of life systems and cultural relations are aesthetically mediated by these three elements - staging, invisible maintenance, and an enveloping structure - in the architectural interior as effectively as other, more renowned forms of media. While literature, illustration and film have famously revealed the essences of world elements as often as they have concealed them, the architectural interior has proven itself to stand tall among their ranks. This is clear when reviewing the history of bunkers, greenhouses, and theme parks, but it is also figures into the production of restaurants, movie theaters, office buildings, and, of course, water parks. The architectural interior's commitment to these three elements in the 21st century reveals the symmetry between what we want and what we don't have: namely, a clean, warm air and a oneness with flora, fauna and the history of global relations as we have idealized them.

What we build in consequence is made available through technical intervention and very little patience: by profiting from the life systems we find most desirable, by fabricating the history of global relations, by protecting ourselves through the conditioning of the air, and finally by staging the whole enterprise in as large and as detailed an environment as humanly possible.

Because The Tropical Islands Resort is a tribute to these habits, and is currently the most exemplary form of architectural interiority of the 21st century, it also reveals the clues for a way out of the current crisis of aesthetic mediation afforded by the architectural interior. Although the aesthetics of immunity, consumption and nostalgia seem to be on display at the Tropical Islands Resort without competition, they hang in a balance with their opposing forces. The rhetoric of community, conservation and history are present everywhere in its marketing, forbidding the resort to truly indulge in a destructive path towards absolute hedonism.

Additionally, for even the most remotely observant of its visitors, world elements are called into question when their manipulation is as apparent as it is in the Tropical Islands Resort, the architectural interior par excellence, where they are spectacular precisely because we get the sense this is not where they belong. The explicitness of its methods of display and appropriation perform as warnings of themselves, but only if its observers remain critical.

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[129] Stephen King. Interview.

Let us look to the Tropical Islands Resort as a barometer for the unpredictable future. Will it defend the life systems it has long forsaken, or continue to devour what little there remains? Will it recall more complete histories of the cultures it has parodied, or continue to appropriate them until they are reduced to false memories? Will it become the site of a brave new republic, or the gated community of the few and faint-hearted? As we direct our attention to the architectural interior, we will undoubtedly see ourselves in its reflection.