

July 2021

An Architecture of a New Story

Nathan Y. Lumen
University of Massachusetts Amherst

Follow this and additional works at: https://scholarworks.umass.edu/masters_theses_2



Part of the [Environmental Design Commons](#), and the [Other Architecture Commons](#)

Recommended Citation

Lumen, Nathan Y., "An Architecture of a New Story" (2021). *Masters Theses*. 1060.
<https://doi.org/10.7275/22709679.0> https://scholarworks.umass.edu/masters_theses_2/1060

This Open Access Thesis is brought to you for free and open access by the Dissertations and Theses at ScholarWorks@UMass Amherst. It has been accepted for inclusion in Masters Theses by an authorized administrator of ScholarWorks@UMass Amherst. For more information, please contact scholarworks@library.umass.edu.

AN ARCHITECTURE OF A NEW STORY

A Thesis Presented

by

NATHAN LUMEN

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

MASTER OF ARCHITECTURE

May 2021

Department of Architecture

AN ARCHITECTURE OF A NEW STORY

A Thesis Presented

by

NATHAN LUMEN

Approved as to style and content by:

Robert Williams, Chair

Carey Clouse, Member

Stephen Schreiber, Department Chair
Department of Architecture

ACKNOWLEDGMENTS

To my advisors for their wisdom and patience, I offer thanks.

To my partner for her steadfast support and encouragement, I offer my utmost gratitude.

To my daughter for whom I work to leave a more verdant and peaceful world,

I dedicate this work.

ABSTRACT

AN ARCHITECTURE OF A NEW STORY

MAY 2021

NATHAN LUMEN, B.A. SOCIOLOGY-PSYCHOLOGY, SKIDMORE COLLEGE

M. ARCH., UNIVERSITY OF MASSACHUSETTS, AMHERST

Directed by: Professor Robert Williams

As the world reckons with an uncertain future at the hands of global climate change and biodiversity loss, the question of how to proceed seems ever more urgent. Approaches to sustainability in design tend to focus on technological solutions to what is often presented as a technical problem. This approach overlooks the ways in which the forces that have led us to this point are born out of our cultural story of what it means to be human, what the natural world is, and what our relationship is to it. This is the story that has permitted if not encouraged the kind of development that has led to global warming and extensive loss of biodiversity. If we are going to reverse these trends we must tell a new story – one that, among other things, removes humans from the center of the conversation, acknowledges the interconnectedness of things, and values multi- and extra-sensory ways of knowing. This thesis asks the question, “What might architecture look like if we held these beliefs and if we told ourselves a new story?” The thesis explores ways in which architecture can continue to advance the practice of sustainable

design by embodying, encouraging, and reflecting this New Story. The theory is put to the test via a curated experiential journey, culminating at a tower in the middle of a forest. The design at once exemplifies New Story ideals and offers a place to dream about new ways of being and building.

CONTENTS

	Page
ACKNOWLEDGEMENTS.....	iii
ABSTRACT.....	iv
LIST OF FIGURES	viii
CHAPTER	
I. INTRODUCTION	1
II. THE OLD STORY: TOUCHSTONES OF THE MODERN WAY	9
The Touchstones	10
Separation	10
Nature + Science	10
Capitalism	12
Buildings + Sustainability.....	12
Taking Stock	13
III. A WAY FORWARD, A WAY BACK	17
Connection	19
Systems	20
Eco-Centrism	22
Positive Impact.....	23
Precedents	28
The Willow School	28
John T. Lyle Center for Regenerative Studies	32
IV. METHODS	37
Design Process	37
Understanding Place	38
Understanding Human Intention.....	41
Suitability	42

V. THE PROJECT.....	44
The Place.....	44
Human Intention	48
Suitability.....	50
Integration.....	51
Design.....	52
A Place for Dreaming	52
Threshold	53
Disorientation / Deceleration	54
Ascension / Contemplation	56
Emergent Perspective.....	57
Return.....	61
VI. REVIEW.....	62
Discussion.....	62
Forward.....	65
BIBLIOGRAPHY.....	66

LIST OF FIGURES

Figure	Page
1. Touchstones of The Old Story	9
2. Touchstones of A New Story	17
3. Levels of building performance expectations	25
4. The Willow School in Gladstone, NJ	28
5. Natural materials, including wood and stone, featured at the Willow School.....	30
6. Landscaping at the Willow School featuring many native plants.....	31
7. The John T. Lyle Center for Regenerative Studies.....	32
8. Daylighting and passive ventilation strategies at the Lyle Center	34
9. An exploration of inquiries about place.....	39
10. The project site in relation to core habitat and critical natural landscape.....	45
11. Site plan showing distribution of activities.....	46
12. A variety of textures at project site	47
13. Stakeholder vision and interpreted values	49
14. Tower amid forest	52
15. Door at edge of field	53
16. View down hallway	54
17. Hallway apertures	55
18. Elevated walkway	56
19. Tree supports and walkway nodes	56
20. View from deck with canopy covering.....	58
21. View from deck with canopy retracted.....	58

22. Tower treetop perspective.....	59
23. Tower interior perspective	59
24. Tower structure and section.....	60

CHAPTER I

INTRODUCTION

“The major problems in the world are the result of the difference between how nature works and the way people think.”

- Gregory Bateson (Bateson 2010)

It has been thoroughly documented that we are in the midst of a global ecological crisis (Allen et al. 2018). Notably, climate change is bringing atmospheric temperatures toward inhospitable heights (Broecker 1975; Shah 2020). We are seeing ecological degradation and destruction at dangerous levels (Boivin et al. 2016). The risk of crossing irreversible existential thresholds looms large. The scale and breadth of these phenomena are practically unfathomable. As our relationship with the earth grows increasingly untenable, humans are faced with an ever more urgent opportunity to reconsider that relationship. Those more deeply rooted in the scientific mindset might take this opportunity to outline the nature of the crises, the specific ways in which the climate is changing or habitat is being lost, what the causes are, or how those forces took hold. But to focus exclusively on the technical nature of these issues neglects the underlying forces that allowed such a situation to precipitate; namely, our cultural story.

A cultural story is a collection of beliefs that a society holds about the world, what is important, and how things work. The story informs our actions, relationships, and generally how we structure our lives. The conceptual framework of a cultural story draws heavily from the works of Charles Eisenstein and Thomas Berry. Eisenstein notes in *Climate: A New Story* that the current ecological crises have arisen from a cultural story,

in part about the place and purpose of humans in the world (2018a). It is via this story that we have permitted, if not endorsed, the broad ecological degradation that is currently disrupting our Earth’s global regulatory systems.

Cultural stories matter. They define us and the world we live in. In *Braiding Sweetgrass*, Robin Wall Kimmerer reflects on the power of cultural origin stories writing, “Like Creation stories everywhere, cosmologies are a source of identity and orientation to the world. They tell us who we are. We are inevitably shaped by them no matter how distant they may be from our consciousness.” (Kimmerer 2013, 7) Donella Meadows writes, “The shared idea in the minds of society, the great unstated assumptions—unstated because unnecessary to state; everyone knows them—constitute that society's deepest set of beliefs about how the world works.”(Meadows 1999, 17) In the pages that follow, I will illustrate and discuss the story that has occupied Western cultural consciousness in modern times. The story could be fittingly called “late-capitalist industrial extractionist anthropocentrism,” for those inclined toward verbosity. But for now, let’s just call it “The Old Story.”¹

The contemporary architecture, engineering, and construction industry, as a force enabling human development, reflect The Old Story – they were born of it. Our buildings

¹ The Old Story is by no means the story of everyone, but rather an illustrative example of the dominant cultural story in America and in recent years.

and those who design and construct them contribute to global warming, economic inequalities, habitat destruction, racial segregation, and other endemic problems (“Why The Building Sector?” n.d.; Sigmon 2014; Solomon, Maxwell, and Castro 2019). Those operating within the story often understand its detrimental effects, but continue regardless, due either to perceived powerlessness or the temptation (or necessity) of short-term gain, often at the expense of the long-term systemic health. These are what psychologists call *social traps* (Costanza 1987; Orr 2011). One could consider the “tragedy of the commons” scenario as a classic social trap wherein shepherds independently chose to increase their flock sizes to the detriment of their common field’s health, which ultimately undermined each of them (Hardin 1968). Our current addiction to fossil fuels and industrial systems of production also exemplify this concept – born out of The Old Story for the sake of near-term convenience they prove ultimately self-defeating. There is a tendency in modern times to prioritize short-term gains over long-term solutions and personal gain over community survival (Harris, n.d.). And so, it is necessary for design professionals to reflect on the ways our cultural choices have undermined our goals and to discuss how we can address these issues more effectively and enduringly.

Recognizing these issues as a function of social traps sidesteps the sometimes counterproductive practice of finger-pointing; these crises are not a product of malice on behalf of design professionals, nor anyone for that matter. Nor are they fully brought to bear by indifference. For example, there are plenty of well-intentioned, compassionate, intelligent people exerting considerable effort to design buildings that minimize environmental harm to the greatest extent possible. That does not, however, suggest that

these efforts are by any means enough to bring about the kind of systemic and cultural evolution that is necessary to avoid catastrophic ecological collapse. Rather, it only makes it clear that our attempts at progressive, piecemeal solutions – such as sustainability’s technical solutions – will not produce the kind of change necessary to truly solve the slew of endemic problems that The Old Story has created.

Sustainability is the umbrella term describing efforts to address environmental problems. The term was established within the design community at the 1993 World Congress of Architects in Chicago. Their “Declaration of Interdependence for a Sustainable Future” proclaimed, “A sustainable society restores, preserves and enhances nature and culture for the benefit of all life present and future” (Majekodunmi and Maxman 1993). Functionally it was a call to fix, maintain, and improve both nature and culture. Yet, most efforts in sustainability these days focus on technological solutions while neglecting the underlying cultural components – the work of environmental regeneration and cultural transformation. Sim Van der Ryn and Stuart Cowan distinguish between technological sustainability and ecological sustainability in their book *Ecological Design*. Ecological sustainability, they note, involves rethinking relationships and values, and unearthing the roots of the problems we face, not just the symptoms (Van der Ryn and Cowan 1996). Ecological sustainability requires a deeper questioning about the underlying cultural forces that are affecting our world.

The authors note that technological sustainability is characterized by the notion of “expert interventions in which the planet’s medical symptoms are fully stabilized through high profile international agreements and sophisticated management techniques.”

(Van der Ryn and Cowan 1996, 20) Efforts toward this type of sustainability could be considered global life-support measures. As with human life-support – in a hospital bed, hooked up to oxygen, a dialysis machine, and intravenous nutrition – we offer the bare minimum needed for one’s survival while underlying conditions are left unaddressed. Similarly, technological sustainability does little to address the social conditions that permitted the spread of ecological degradation and thereby ensure its perpetuation.

Technological approaches to sustainability fit neatly within The Old Story: tangible, marketable solutions that permit the continuation of our way of living so long as we meet certain quantitative benchmarks. As researchers have noted, updates to sustainability frameworks “seldom [take] into account the critiques raised in theoretical and empirical research” (Gou and Xie 2017, 1) and thus so-called sustainable designs rarely extend beyond the level of environmental harm reduction – minimizing things such as fuel emissions, construction waste, toxins, and water use – without bringing into question the underlying systemic issues (Mang and Reed 2012). For example, often touted for their energy-efficient design, high-performance buildings are typically reliant on engineered wood and synthetic tapes, membranes, composites, and foams to meet their energy performance goals – most of which are petroleum-based and practically none of which have any meaningful life after the building. The quintessential net zero building seems to justify its existence through ostensible self-reliance though rarely accounts for the embodied environmental impact of the concrete foundation, aluminum-clad solar panels, or the rare earth elements in the circuitry.

To be fair, despite the somewhat common narrative of how well-designed places can prompt deep social transformation, designers within a market economy cannot

engage in cultural transformation in isolation. A building does not command behavioral, let alone cultural change. It can inspire, but its approach to behavioral change is most often successful when invitational rather than impositional. Those that restrict behavior are repressive. Those that don't allow for adaptation more often see demolition than reuse. Designers, who most often work at the behest of clients, and despite their best intentions, can only do so much to manifest cultural change without the cooperation of the client and the motivation of building occupants.

A truly sustainable design must address the detriment caused by The Old Story and its presence within our current practice of building design. A fundamental cultural shift must take place before real change will be realized – the kind of change that transforms cultural institutions and beckons us to reconsider the foundational structure of daily life.

In times of crisis, there is often a sense of urgency, especially for those newly or acutely aware of the risk. Yet, urgency often transforms into hurry. But, as Eisenstein notes, “The fundamental energy of urgency is not actually about hurry. It’s a craving to align.” (Eisenstein 2020) Seen this way, we can recognize urgency as more of a feeling, and a positive-facing one at that, than a force of self-implied pressure. So, the first step might be to muster the humility to acknowledge that The Old Story is not working and that it is fundamentally misaligned.

If we consider Swiss psychologist Carl Jung's concept of *integration* as the alignment of all parts of one's self – actions, feelings, beliefs, and thoughts – we might call their misalignment *disintegration* (Kelland 2015). Others in psychology call the impact of holding conflicting beliefs *cognitive dissonance* (Festinger 1957). This

disintegration, or dissonance, carries with it a great deal of pain. The pain stems from knowing the harm of fossil fuels but having limited transportation options. It stems from knowing that water is sacred, that it is life, and having limited choice but to use our waterways as a sink for our bodily and material refuse. We are culturally disintegrated and the effects are not just environmentally detrimental, they are socially and psychologically detrimental too. Before real change can come, we must acknowledge that.

It is not necessary, however, that we know what a new way of being will look like before decrying our old one. Some would argue that it is precisely this not-knowing that allows for a new way to emerge (Eisenstein 2018a). As Emerson wrote, “When half-gods go, The gods arrive.” (Emerson 1899, 127) Until we let go of our current way, or at the very least acknowledge its shortcomings, the new way will remain in a latent state. As William Cohen and Frederick Steiner note, “[W]hen an accepted way of solving problems does not fully solve the problems it attempts to address, the ensuing ‘failure’ opens the door to finding a new way to solve the old problems.” (Cohen and Steiner 2019, 8) Letting go of hope for old ways of thinking and doing opens up opportunities for new ways to emerge.

The sustainability paradigm, currently practiced as a series of harm reduction measures, must be revisited. As Graham Leicester, director of the International Futures Forum once noted, “Mere survival actually doesn’t inspire any of us. It would be a start, but it’s not enough.” (Cohen 2019, 339) It is certainly not enough to inspire the kind of evolution necessary to address our current crises. What we need is a total shift in consciousness about ourselves and our place on Earth. What we need is a New Story.

The Old Story, the underlying cultural understanding of what it is to be human, may be hard for some to comprehend. David Foster Wallace’s classic parable from his 2005 commencement address at Kenyon College illustrates this concept well. “There are these two young fish swimming along and they happen to meet an older fish swimming the other way, who nods at them and says ‘Morning, boys. How’s the water?’ And the two young fish swim on for a bit, and then eventually one of them looks over at the other and goes ‘What the hell is water?’” (Wallace 2005) Wallace demonstrates with this simple story the concept of *a fish in water* who knows not the essence of the very world that surrounds him – simply because of its omnipresence. As difficult as it may be to see from our vantage points, this world around us is in a state of rapid degradation (“UN Report: Nature’s Dangerous Decline ‘Unprecedented’; Species Extinction Rates ‘Accelerating’” n.d.). As proclaimed in the Dark Mountain Project’s Manifesto, “The pattern of ordinary life, in which so much stays the same from one day to the next, disguises the fragility of its fabric.” (Hine and Kingsnorth 2014) By making salient the essence of The Old Story, we can start to understand its contradictions, begin to let go of our attachment to its continuation, and start imagining a new story.

This thesis proposes a design process that reflects New Story ideals, encourages trust, curiosity, extra-cognitive ways of knowing and not knowing, explores the notion of suitability, and uses questions used to elucidate a new story. These questions include: “What does the land want?”, “What is human purpose?”, and “If we believed we could act *as nature* what would our buildings look like?” The process is tested via an experiential design project on a piece of land in rural Western Massachusetts.

CHAPTER II

THE OLD STORY: TOUCHSTONES OF THE MODERN WAY

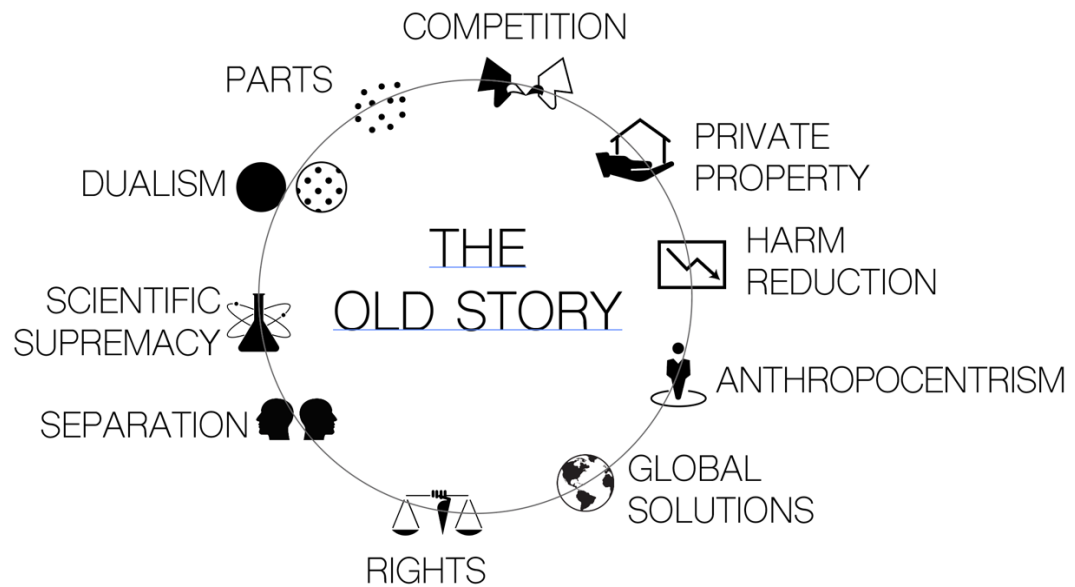


Figure 1: Touchstones of The Old Story

The concept of a touchstone originated in the 16th century. A touchstone was a fine-grained stone that, upon scratching with a metal such as silver or gold, would indicate its purity (“Touchstone” 2016). In modern parlance, touchstone has come to refer to a concept’s central characteristics. Let us explore the central characteristics of The Old Story and, in doing so, consider to what extent the promise of progress has been fulfilled.

It goes something like this:

The Touchstones

Separation

“The origin of the crisis on earth today, the origin of wrongness is a story, it’s an experience of separation. It’s our basic understanding of what it is to exist, what it is to be a self. Why we are here in the world. It’s our mythology...that says ‘who you are is a separate individual in a world of other’”

- Charles Eisenstein (Eisenstein 2020)

We are each an individual self, composed mostly of matter. We live in a world of others like us: separate, self-interested individuals. We are swirlings of blood and electrical currents. Our thoughts and actions are the result of a predetermined series of events at the atomic level, rendering us each delusional volitionless automatons.

“Intelligence, order, purpose, and design are illusions; underneath it all is merely a purposeless jumble of forces and masses.” (Eisenstein 2013, 4)

We view things dualistically. We separate us from them, good from evil, right from wrong, form from function, human from natural. We speak and think of things using a dualistic either/or mentality that has difficulty acknowledging multiplicities and overlapping truths.

Nature + Science

The acceptance of “the Baconian creed that scientific knowledge means technological power over nature...as a normal pattern of action may mark the greatest event in human history since the invention of agriculture and perhaps in nonhuman terrestrial history as well.”

- Lynne White (1967, 1203)

“History may someday record the greatest discovery of twentieth-century science not as nuclear power or electronics, but as the recognition that there is no absolute truth to be discovered about the world.”

- Elisabet Sahtouris (1999, 72)

The natural world is something outside of ourselves. It consists of a collection of separate, desacralized, less-sentient things. Donella Meadows reflects The Old Story writing, “Nature is a stock of resources to be converted to human purposes.” (Meadows 1999, 17) Progress is made by advancing from primitive ways of living that were harder and generally less desirable to modern ways that allow us to live better, faster, more comfortable, and more materially rich lives. We have escaped the natural world into a way of being that is far superior and allows us to use nature as we wish.

Nature and humans are in constant, direct opposition. The natural world would be better off without humans. When we protect nature, we do so because it provides us the things that we need. If we don’t protect nature, humans will probably go extinct or at least suffer a great deal.

Things can be fully understood if described thoroughly enough. Despite its complexity, the natural world can be fully and objectively understood through scientific methods. Beliefs that are not empirically defensible or which subordinate the role of cognition are categorically invalid. Mythology is unreal and entirely symbolic.

Capitalism

“Capitalism today has become a society”

- Murray Bookchin (Price 2006)

Money has meaning and measures worth. It is needed to motivate us to do things we would otherwise not do (Szal 2020). We are each motivated by self-interest. We have to work hard and compete with others in the free market to get our needs met (Weber 2011). More for others means less for us. We prioritize convenience, speed, freedom, cleanliness, and material goods. If we can achieve success, that is, a prestigious and well-paying profession, we will be happy. We work primarily to satisfy our basic needs, for which we need money, not because we recognize that the work we do needs doing. Goods and land can be owned by individuals. We call this private property. This ownership comes with rights to do with this property as we please.

Buildings + Sustainability

The built environment protects us from natural elements. It serves an instrumental purpose. The person best suited to designing a building is a professional who likely has little experience with the land where the building will rest.

Building sustainability can be achieved by reducing the impact of buildings on the environment and human health. This is achieved by reducing energy use, water use, materials, and environmental disruption (Gou and Xie 2017). Essentially, sustainability means doing less bad. Sustainability for any business entity fundamentally includes profitability (Slaper and Hall 2011).

We can recognize that the climate is changing but are powerless as individuals to make real change. Making these changes involves sacrifice. We trust that solutions will come through technological advancements in carbon sequestration and renewable energy brought to industry or consumers via the free market. We can save the natural world by slowing down or reversing global warming (Hawken 2017). Our lives do not fundamentally need to change in the process.

Taking Stock

The Old Story cannot rightly be wholly dismissed. There are surely ways that its aims at bringing forth a better world have, in part, succeeded. Science has brought us life-saving vaccines and greater knowledge of the workings of the natural world. Efforts in sustainability have reduced the harm that the built environment inflicts upon the natural world. Industrial capitalism has been a part of the reason that global living conditions have risen steadily for the last 200 years (Roser n.d.). Technology has allowed us to explore the world at scales both minuscule and astronomical.

However, the limitations of The Old Story and the realization that it will not bring us pure and infinite progress are becoming increasingly apparent. The Old Story that promotes capitalism as a social structure does not fully address deepening inequality, systemic racism, and other pressing social problems. The Old Story that frames sustainability so narrowly does not fully address the challenges posed by climate change, habitat loss, species extinction, and vast ecological destruction. The Old Story that relies so heavily on science does not fully account for its inability to fully understand the phenomena of the world we live in (Sahtouris 1999). The Old Story's notion of separate

selves in an insentient world fails to address our need for community, connection, and belonging.

As we watch the natural world convulse with heatwaves, fires, and floods, and as we take stock of the industrial landscapes, the pit mines, and the scorched earth, let us ask, is this what we intended? Would anyone, asked point-blank, choose to engage in a society whose ways of living on this earth threaten the future of one million other species? (“UN Report: Nature’s Dangerous Decline ‘Unprecedented’; Species Extinction Rates ‘Accelerating’” n.d.) Can we allow ourselves to recognize the loss both present and imminent, the incapacity of this story to meet its promise, and the needs of humans and of all life? Can we recognize how this destruction threatens us not just existentially, but spiritually as well? Thomas Berry writes,

We see quite clearly that what happens to the nonhuman happens to the human. What happens to the outer world happens to the inner world. If the outer world is diminished in its grandeur then the emotional, imaginative, intellectual, and spiritual life of the human is diminished or extinguished. Without the soaring birds, the great forests, the sounds and coloration of the insects, the free-flowing streams, the flowering fields, the sight of the clouds by day and the stars at night, we become impoverished in all that makes us human. (T. Berry 2014, 149)

Can we acknowledge that as the natural world degrades, the loss ripples through the human experience as well? Can we access and account for the pain caused by this degradation? Wendell Berry writes, “It is the destruction of the world in our own lives that drives us half insane, and more than half... To have lost, wantonly, the ancient forests, the vast grasslands, is our madness, the presence in our very bodies of our grief.” (W. Berry 1998, 98) Restoring a functioning, mutualistic relationship between ourselves and the rest of the living world encourages healing at once outwardly and inwardly.

Many have difficulty imagining another story. Robin Wall Kimmerer, recognizing the need for humans to repair our relationship with the Earth, notes, “The stories that might guide us, if they are told at all, grow dim in the memory.” (Kimmerer 2013, 8) Our stock of cultural knowledge that articulates how to relate to the rest of a natural world in a healthy, productive, mutually beneficial way is diminishing. Thomas Berry reflects on the liminal space between old story and new story writing, “We are in trouble now because we do not have a good story. We are in between stories. The old story, the account of how the world came to be and how we fit into it is no longer effective. Yet we have not learned the new story.” (T. Berry 2014, 12) It is this place in between stories that provides such spaciousness and opportunity – such hope and creative energy. At the same time, the comforts of the known slip away, and the discomfort of change sets in. Let us pause for a moment in this place of not knowing, feeling its discomfort, its hope, its potential, and its grief.

CHAPTER III

A WAY FORWARD, A WAY BACK

“[O]ur relationship with land cannot heal until we hear its stories.”

- Robin Wall Kimmerer (2013, 9)



Figure 2: Touchstones of A New Story

If the story that got us to this point is disintegrating, what story takes its place?

What story do we tell about the world that provides meaning, indicates our role within the cosmos, and informs the way we live? While it is impractical, if not impossible, to outline a new story authoritatively and comprehensively, expecting that its concepts will resonate for all people in all places for all of time, some of its core concepts can be ascertained based on our understanding of The Old Story. To borrow a phrase from Thomas Berry’s 1978 book *The Dream of the Earth*, let us explore a “New Story.” (T. Berry 1978, 123)

If The Old Story sees us as separate from one another and from the natural world, A New Story sees us all as connected and considers humans part of nature. If The Old Story is about the supremacy of science and technology, A New Story explores the sacred and other ways of knowing. If The Old Story sees the world dualistically, A New Story sees things pluralistically and multidimensionally. If The Old Story is about parts, A New Story is about systems and about the whole. If The Old Story is about the trust that capitalism's emphasis on competition, private property, and independence will bring about a more just, egalitarian, and beautiful future, A New Story is about collaboration, gift, and interdependence. If The Old Story is about reducing the harm caused by buildings, A New Story explores how buildings can have positive impacts, how they can be a contributing part of the rest of the living world. If The Old Story is about overarching global solutions, A New Story is about place-based solutions. If The Old Story focuses on and prioritizes humans, A New Story focuses on and prioritizes all of life. If The Old Story told us that land can be owned and comes with rights, A New Story says that land must be stewarded and comes with responsibility, that living beings own themselves and all things must be treated graciously.

To say that these components make up a New Story would suggest that this kind of story has never existed. Charles Eisenstein often refers to a cultural story involving deep existential interconnection as "A New and Ancient Story," and in doing so recognizes that its components have been known before, and perhaps forgotten by many (Eisenstein 2018b). Many indigenous cultures hold a close, interdependent, kin-like relationship with the rest of the living world and worldviews that reflect connection, interdependence, and acute knowledge of place (Thompson 2019). I will not attempt to

summarize their stories or beliefs, but only acknowledge that components of these ways of knowing, ways of being, ways of thinking may be novel to some and not others.

The following are several key touchstones of this New Story.

Connection

“If the way of Western civilization and Western religion was once the way of election and differentiation from others and from Earth, the way now is the way of intimate communion with the larger human community and with the universe itself.”

- Thomas Berry, (2014, 16)

If The Old Story is founded on notions of separation, perhaps A New Story is one of connection. Eisenstein suggests the notion of “interbeing,” revolving around the recognition that “we are inseparable from the universe, and our being partakes in the being of everyone and everything else.” (Eisenstein 2013, 16) While this might sound somewhat abstract or mystical, Western science is beginning to reinforce this notion as well. At a human scale, we might recognize that what we think of as ourselves is actually an immensely intricate series of relationships among trillions of our own cells and even more microorganisms that live in and amongst them (Sender, Fuchs, and Milo 2016). At the level of ecosystem, we might consider new findings that outline the intricate ways that trees communicate and share resources (Jabr 2020). At a global level, we might recognize that the earth’s systems – biological, geological, atmospheric, and otherwise – are intimately related, complex systems whose component parts are functionally inseparable from the whole. Reflecting on the challenge of seeing the connections within a world that imposes separation, Gregory Bateson once noted, “There are times when I

catch myself believing that there is such a thing as something which is separate from something else.” (Bateson 2010) In a world so focused on independence and individuality, it is routine to believe ourselves to be separate at any number of levels, despite the ways in which we are all connected.

Systems

A system is a group of interrelated components that work in synchrony. Complex systems often defy comprehension by traditional methods of scientific analysis which focus on understanding components most effectively in isolated conditions. This notion “led to the emergence of systems thinking as a major scientific field, a profound change from the analytic, reductionist mode that had dominated Western scientific thinking since the time of Descartes, Newton, Galileo and Bacon.” (Mang and Reed 2012, 5) Taking a systems approach to anything means recognizing the importance of relationships as much as that of parts. As Gregory Bateson once said, “We live in a world that’s only made of relationships.” (Bateson 2010) These parts form a functioning whole that we may understand to be a singular unit such as a human body, a lake, or even the earth – but is actually an immensely intricate and interdependent group of components and subcomponents, composing systems and subsystems all acting in synchrony. As Bill McDonough said, “What prevents living systems from running down and veering into chaos is a miraculously intricate and symbiotic relationship between millions of organisms, no two of which are alike.” (McDonough 1993) Each of these organisms has roles in maintaining the balance of the macro-organism, or system, of which they are a part. And it is these roles, these relationships, as much as the parts themselves that are

essential. The switch from recognition of parts to recognition of relationships acknowledges that the parts are only valuable insofar as they serve the functioning of the whole.

Today it is generally understood that the earth is composed of a series of natural systems. This was not always the case. The idea of ecological systems was first proposed in the 1930s by English botanist and pioneer of ecology Arthur Tansley. Tansley coined the term *ecosystem*, bringing a systems perspective to the study of nature. He recognized that “neither a living organism nor its physical environment could be thought of as separate entities,” but rather they form a system of ecologically integrated species and other components (Mang and Reed 2012, 4).

If we understand the earth as a series of systems, living and otherwise, we can also venture to imagine the entire earth, itself, as a system – self-regulating, evolving, composed of systems working together to establish vital and evolving balance. This concept was initially proposed in the West by British scientist James Lovelock who recognized that all of the earth’s parts coevolved into a macro-organism of sorts that self-generates and self-regulates (Ogle 2004). This theory, which he termed the Gaia Theory after the Greek figure Gaia, the embodiment of earth, proposes that the earth’s atmospheric, oceanic, and biotic systems act in synchrony through “myriad processes including feeding, excretion, breathing, reproduction, lightning, water condensation and untold others.” (Ogle 2004, 3) Its component parts not only react to the system, but act on it (Ogle 2004). At the time this was a revolutionary proposal: that our world’s parts co-create the world itself.

If we can understand ourselves both as part of and composed of complex and self-regulating systems, then perhaps we can begin to dissolve the perception of separation between ourselves as humans and the rest of the natural world. Perhaps we can begin to understand humans as one of innumerable species all composing a great symphony together. Perhaps we can recognize that the whole orchestration is not about us and our needs, but about the proliferation of all life. Perhaps we can rethink the role of human habitation in the greater ecological world and begin exploring alternatives within this New Story.

Eco-Centrism

The concept of nature has long been the subject of inquiry both scientific and philosophical. Is nature, as Emerson believed, outside of the human body? He proposed that “nature, in the common sense, refers to essences unchanged by man; space, the air, the river, the leaf.” (Emerson 2000, 2) Emerson’s nature verges on what we might think of as “wilderness,” places that have remain untouched and unaffected by humans. In this conception, very little nature remains. The United Nations estimates that three-quarters of terrestrial environments and two-thirds of marine environments have been severely altered by human activity (“UN Report: Nature’s Dangerous Decline ‘Unprecedented’; Species Extinction Rates ‘Accelerating’” n.d.). Concepts of preservation or restoration seem to presume that nature maintains a degree of stability and independence from humans that can be upheld by our discrete intervention and then departure. On the contrary, what we look at and call “nature” is most likely not some untouched system operating independently from humans, but rather a collection of living things that are

constantly arranging and adjusting themselves in response to human activity in one form or another.

So, if there is no primal state that we can return to, if nature and humanity are reciprocally evolving, what do we do now? Well, for better or worse, we are woven into the fabric of the natural world and creating with it a state of interrelations. Our purpose at this point must be to improve those relations, to increase the stability, complexity, and diversity of the system as a whole. We must shift our focus from what is best for humans to what is best for the totality of life, that is, from an anthropocentric framework toward an eco-centric one. As great as this sounds, what is proposed is an immensely difficult task that requires a deep and lengthy process of working to understand site-specific ecology, a commitment to ongoing stewardship, and perhaps above all, the humility to prioritize the health of the whole over our personal interests.

Positive Impact

“By working with living processes, we respect the needs of all species while meeting our own. Engaging in processes that regenerate rather than deplete, we become more alive.”

- Sim Van der Ryn + Stuart Cowan (1996, 125)

Beyond notions of harm reduction, efficiency, and technological sustainability lies hope that humans can have a positive, interactive, co-evolving relationship within the rest of the living world. The field of regenerative design works from this frame of consciousness. Regeneration was first conceptualized by Robert Rodale who researched the potential of rebuilding soil ecosystems through the human activity of organic farming

and gardening (Lyle 1994). The same logic of human-nature co-evolution has applications in various other fields. Regenerative architect and leading thinker on regenerative design Bill Reed refers to regenerative design as “a design process that engages and focuses on the evolution of the whole of the system of which we are a part.” (Reed 2007, 4) For several reasons, we must understand regenerative design as a process. First, as a process, it defies the prescriptive qualities of design best practices or frameworks that can be equally or systematically rolled out in a similar fashion in any location. Second, as a process, we understand that the emphasis is moved from the product of building to the considerations that go into it. This change of mindset is integral to lasting cultural change that will be necessary to address the world’s ecological issues. And third, the emphasis on process engages the building’s designers as well as the users on an ongoing basis – emphasizing that the practice of regeneration has only just begun when the building’s construction has been completed.

The potential of regenerative design lies in both its expansion of the conversation of sustainability and its capacity to have positive impact by conventional measures. Regenerative designers Pamela Mang and Ben Haggard implore us to keep regenerative goals “open and alive” and to “employ new measures of success” (Mang, Haggard, and Regeneration 2016, 137, 195). Buildings can serve many functions and regenerative design begins to expand the question of program to understand the wide array of things that buildings can do.

In architecture, the word *program* commonly refers to a collection of spaces, their associated activities, and eventually their sizes. To design or develop a building program is to discuss what types of spaces there will be regarding the activities that occur there.

Each activity serves a certain need, and typically these needs are human. The kitchen serves the human need for nourishment, the living room serves the human need for community, the bathroom serves human hygiene. A program is inherently anthropocentric. It asks, what spaces are needed or wanted here to serve human needs. In The Old Story, this was customary. At their basic level, buildings provide for human habitation, serving as places for us to rest, nourish, gather, work, and so forth. They protect us from the elements, helping us to maintain proper temperature and humidity. Yet, buildings have the opportunity to provide for much more than human-centered programming and environmental control (figure 3).

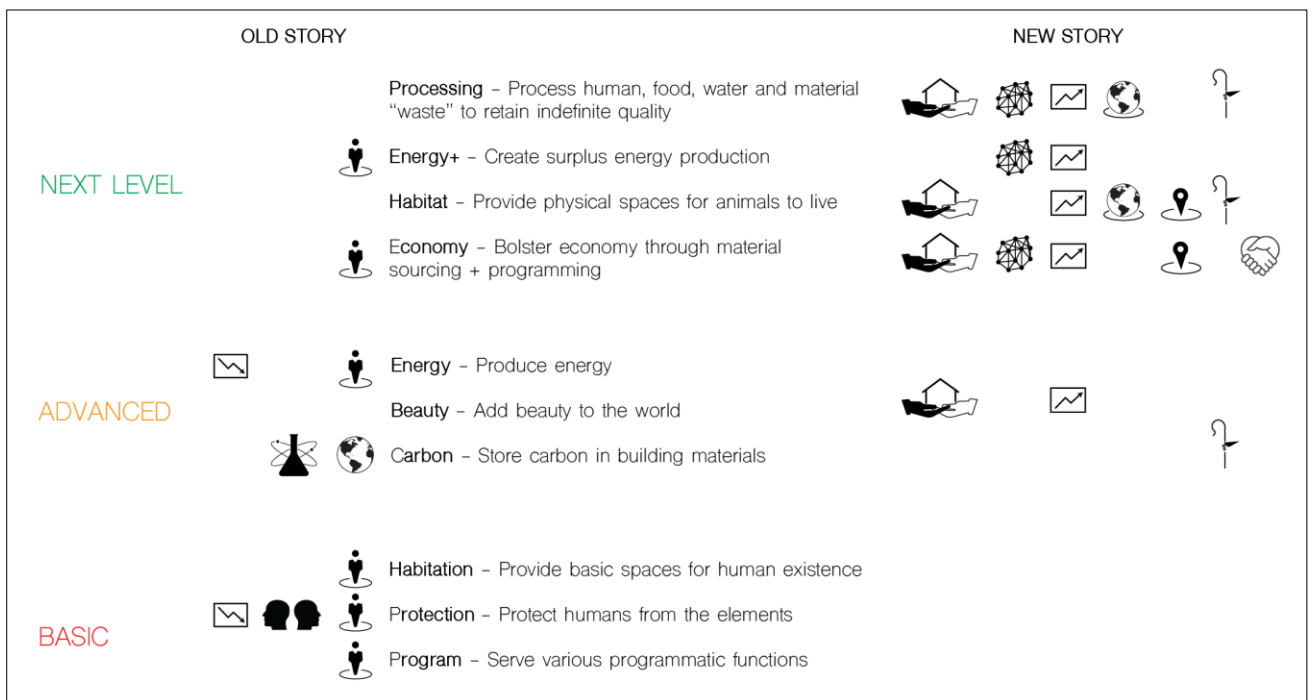


Figure 3: Levels of building performance expectations

At a more advanced level, buildings can produce energy, store carbon in their materials, and add beauty to the world. Buildings have opportunities beyond that, even,

being capable of processing “waste,” producing surplus energy, providing animal habitat, and bolstering the local economy through equitable material sourcing. As is illustrated, the most basic building functions operate within The Old Story paradigm, typified by anthropocentrism, harm reduction, and scientific supremacy, and as the functions become more advanced, they move into the New Story paradigm, typified by shared interests, responsibility, and eco-centrism.

Architects practicing net zero energy or high-performance design can balance inputs and outputs. It is not much of a stretch to imagine that their designs could provide surpluses of energy and clean water. But the conversation, referencing inputs and outputs, life-cycle assessments, and resource use fails to depart from The Old Story of buildings and the world – centering the conversation around preserving finite resources. These processes do not fundamentally question our cultural assumptions about the place of humans within the greater world. If we believed we were a part of the natural world, we wouldn’t be so focused on natural resources, we wouldn’t have a notion of “waste,” and we wouldn’t view our potential for impact so narrowly – as the opposite of the damage we cause.

Designs within A New Story will extend beyond harm reduction, beyond neutrality, and ultimately beyond restoration. Restoration is backward-looking; it assumes that there is some static state that the natural world can be restored to and our intervention work as humans will be complete. Regeneration on the other hand works to reframe the human condition as an integral part of the greater world, not antithetical to it. It is forward-looking, asking what it is we want to create, what kind of world we want to live in, and how we can provide for other life freely, and without seeking reciprocation.

At its best, it acknowledges the sovereignty of the natural world and calls upon a process of co-evolution between humans and the rest of life on earth in creating a more beautiful future we all deserve (Mang and Reed 2012). It expands beyond the building's walls and asks how the building and the humans who interact within can have a mutually beneficial relationship with the world around them.

The process of regeneration, as an ongoing place-based solution will look different in different places and at different times. This means that what works for Cape Town will not necessarily work for Prague will not necessarily work for Auckland. The notion of best practices, or global design solutions, doesn't work when designing regeneratively. As Ben Haggard notes of the design process, "Actually, best practices is the worst thing you can do. What you have to do is invent place-appropriate practices." (Haggard 2017) While the practices may differ, the consistency among the *processes* of design, however, is their underlying stories about the world. It is from this story that the process develops and through which the design begins to reveal itself.

Let us consider a few projects within the field of regenerative and sustainable design to tease out some of the principal components of the design process within The New Story.

Precedents

The Willow School



Figure 4: The Willow School in Gladstone, NJ
Photo by Robert Faulkner. (2017). From International Living Future Institutesm.
<https://living-future.org/lbc/case-studies/health-wellness-nutrition-center-willow-school/>

In 2006, the International Living Future Institutesm established the Living Building Challenge (LBC) – a holistic and regenerative design framework and certification. The framework operates around seven performance categories, called petals – “place, water, energy, health + happiness, materials, equity, and beauty.” (Koellner 2020) In contrast to earlier green building frameworks, the LBC goes beyond traditional performance metrics – energy, water, and materials – and emphasizes more dynamic

goals and metrics such as biodiversity, resilience, collaboration, co-evolution, inclusion, access, inspiration, biophilia, and local ecology (“Living Building Challenge 4.0 Basics” n.d.). These goals surpass the quantifiable anthropocentric metrics common within The Old Story and are, in fact, emblematic of A New Story within design.

The Willow School in Gladstone, New Jersey was an early LBC-certified building, opening its doors in 2015. The school, which serves as an independent day school for children preschool through grade eight, holds at its core a mission to provide students with not only a high-quality academic education, but with a foundation of ethics, integrity, and an appreciation of the natural world (“At-a-Glance” n.d.; “Mission & Philosophy” n.d.). In fact, environmental stewardship is one of the Willow School’s three basic teaching objectives. The project was initially slated to be a Leadership in Energy and Environmental Design (LEED) certified building, but upon consultation with regenerative design firm Regeneration, the client decided to look more holistically at the project as an integration of place, building, and human activity that could evolve together – something fitting for an institution founded on enabling development (“The Willow School” n.d.).



Figure 5: Natural materials, including wood and stone, featured at the Willow School.
Photo via Farewell Architects. (n.d.).
<http://www.farewell-architects.com/the-willow-school>

The site for the project is a 34-acre parcel of forest, fields, and streams. The LBC building is one of four campus buildings, two others of which are LEED-certified. The design was ultimately brought to fruition through a collaborative process of an interdisciplinary team of stakeholders, architects, engineers, and consultants (Koellner 2020; “At-a-Glance” n.d.). The building itself is a 20,000 square foot facility housing “four classrooms, a faculty room, movement area, dining room, commercial kitchen, health/wellness spaces, agricultural and educational gardens and a teaching kitchen.” (“The Health, Wellness and Nutrition Center at The Willow School” 2017) The structure showcases an array of natural materials from wood-framed windows and structural framing to exterior walls clad in local stone (figures 4 and 5).



Figure 6: Landscaping at the Willow School featuring many native plants
Photo via Private School Review. (n.d.).
<https://www.privateschoolreview.com/the-willow-school-profile>

The building performs well by a number of measures. By requirement, it is net zero water and net zero energy both operational and embodied (through carbon offsets). It has no materials included in the LBC’s “red list” of hazardous materials. The design provides ample daylighting and natural ventilation. Yet, beyond these basic measures, the design showcases several additional features that move beyond conventional “green” building. The LBC requires projects to have a positive contribution to local ecology. The Willow School design includes native plantings across the site that provide habitat and food for a variety of insects, birds, and other species (figure 6). Per the LBC’s Beauty and Biophilia petal, the Willow School design encourages outdoor classes, and by design, showcases natural patterns, processes, and materials (“The Health, Wellness and Nutrition Center at The Willow School” 2017). What makes the project truly regenerative

is the ongoing relationship between the people and the place. While not intrinsic to the building, the design helps to encourage and facilitate this relationship.

The Willow School exemplifies a holistic approach to building design in a rural setting. As an educational institution that emphasizes integrity, environmental literacy, and systems thinking, it is fitting that the Willow School's design requires an ongoing, interdependent relationship with its surroundings. The design serves not just as a teaching tool but as a participatory experience showing how humans can co-evolve with the natural world.

John T. Lyle Center for Regenerative Studies



Figure 7: The John T. Lyle Center for Regenerative Studies
Photo via Dougherty Architects. (n.d.).
<http://dougherty.us/project/lyle-center-for-regenerative-studies/>

The John T. Lyle Center for Regenerative Studies, built in 1993, was the brainchild of landscape architect and early pioneer of regenerative design John Tillman Lyle. The center serves as a teaching tool for students, demonstrating the capacity of human developments to progress notions of sustainability through regenerative design practices involving energy, food, water, and wind. The center's mission is fourfold – education, demonstration, research, and outreach (Brown 2017). As an educational facility, the center invites students to study the practice of regenerative design within a facility that is itself devoted to it. As Lyle notes, the ongoing relationship between students and the regenerative practices are likely as important as the technologies themselves (Lyle 1994).

The complex, situated on 16 acres at the California Polytechnic Institute in Pomona, California includes 9,000 square feet of living, teaching, and gathering facilities, laboratories and offices, as well as residential units for 90 students who engage in hands-on learning on-site (Bressi 1995). The project team was led by John T. Lyle himself in partnership with Dougherty and Dougherty Architects, an array of specialists, and college faculty members in architecture, landscape architecture, and agriculture.² Team members brought an array of expertise to the project including “agricultural economics, agronomy, anthropology, aquaculture, hydrology, and solar engineering.” (Bressi 1995, 22)

² The building's original name was the Center for Regenerative Studies and was later named for Lyle.

The buildings at the Lyle Center address many sustainable design goals including ventilation, daylighting, water use, energy, and materials. South-facing roofs feature solar arrays and are stepped, allowing windows to bring light and air into interior spaces (figure 8). Potable water is minimized through efficient water fixtures. Materials with integrated finishes were selected so they could later be reused with minimal effort. Materials were also selected for durability and high recycled content (Dougherty 1997).

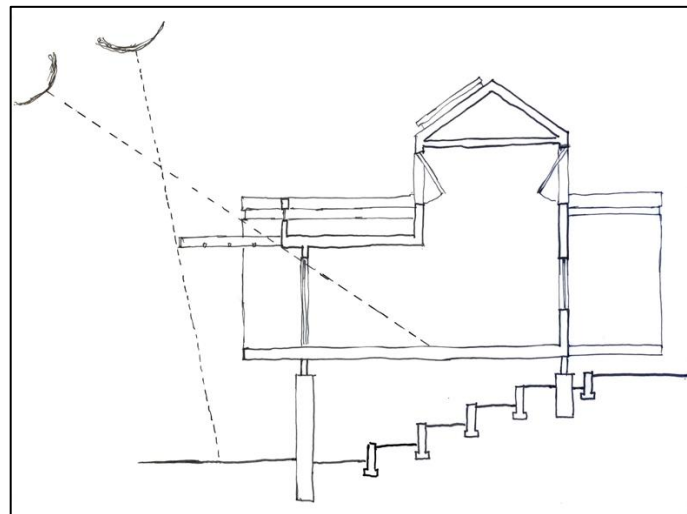


Figure 8: Daylighting and passive ventilation strategies at the Lyle Center
Adapted from <https://www.webpages.uidaho.edu/larc301/lectures/regen.htm> (n.d.)

What makes the design regenerative is most clearly apparent in looking at the greater site. The center features a series of buildings, some raised on piers both to minimize site disturbance and to maximize cooling airflows beneath the buildings and some banked into the hillside, using the earth as a thermal sink. Vertical and horizontal trellises filter incoming light in summer and it in winter (figure 8). These trellises along with the integrated biological wastewater processing and pier foundations model how

buildings need not preclude other life, but in fact can work synergistically with it. According to the architects, throughout the construction process, only a single tree was removed (Dougherty 1997). The whole site is designed to encourage engagement with the processes of the natural systems. A series of ponds process graywater from buildings to be used later as irrigation (Dougherty 1997). Organic farm fields use food waste as compost and feed the local community. The facility integrates humans through each project, serving as a hub where nearby communities can come to engage in activities that “foster a sense of belonging, self-worth, wellbeing, and possibility.” (Brown 2017, 2)

On the whole, the John T. Lyle Center for Regenerative Studies exhibits sustainability in its construction and regeneration in the relational, programmatic, and site aspects of the design.

Together these examples make clear that the success of the design doesn't lie wholly in the building itself. The potential of these projects lies in their implementation, both before and during occupancy – how the humans around them engage with them, their processes, and the greater ecological processes of the site. Their potential lies in the way that the designs implore humans to think differently about our place within the natural world. The building is not a finished product but rather holds its potential as an invitation to engage in an ongoing inquisitive relationship with the land.

It is worth noting that the buildings, themselves, do not so much differ categorically from high-performance or other types of green building. What does differ is 1) the way that they are considered within larger systems, 2) how they implore humans to

engage in the processes of life, and 3) the ways that they blur what is commonly held as dualism between built and natural, building and site, human and nature.

It is hard to say the impact of these structures and their associated activities. Science equips us to understand things in a somewhat fragmented way. The ongoing systemic effect of these buildings, however, is harder to quantify. Is the presence of humans disrupting other life? Were the metals and concrete and glass and plastics sourced in a way that promoted or prohibited life? The total impact of any activity extends in many directions in space and time and we are fairly ill-equipped to define and measure our success. What stands out in these projects is an effort toward understanding, stewardship, and human integrity. Their success, however, is contingent upon an ongoing relationship typified by curiosity, humility, and gratitude. Whether the projects ultimately qualify as *successful* is an ongoing and deeply situationally-specific question.

CHAPTER IV

METHODS

“Design is the first signal of human intention.”

- William McDonough (McDonough and Zachariasse 2014)

The question this thesis has been exploring is “What would design look like if we believed A New Story about the world?” To this point, we have outlined the central touchstones of both Old and New Stories and examined designs that aligned more with New Story concepts. This section outlines an inquiry-based design process which is tested through a design project, presented in the subsequent section. The design is presented both as a response to this thesis’s central question and as a place to continue its exploration. The final section features an assessment of how well the design and the process embody the New Story touchstones, as well as their implications for the design field.

Design Process

Within the framework of the New Story, the design process is as important, if not more important than, the design itself. The process is the method by which ideas are elucidated and challenged, understanding is reached, priorities are determined, and through which the design is ultimately configured. It is the process that allows for those viewing the world through an Old Story lens to begin to listen and feel into the New Story. The process aims to be rather broad in its applicability. For this reason, the level of

specificity evident in the design process will leave room for programmatic, climatic, cultural, and typological variation. While not a universal design framework, the process's emphasis on a mode of inquiry may make it applicable across a variety of projects.

Inquiry is the means by which we acquire all of the tools and supplies we need to set out in design. It equips us to make design decisions with the assurance that we have acknowledged and accounted for what is already here, what is already known, and what is already happening. The inquiry process is especially useful for those who are not very familiar with this New Story as it implores us to ask questions as a way of discovering, a way of disorienting and reorienting ourselves to the world.

The design process works broadly from a regenerative design framework laid out by Bill Reed in which the design team seeks to understand the essence of a place, the human aspirations in engaging with this place, and then develops a plan that marries the two together (Reed 2007). The process presented here also explores the role of story in design, considers specific aspects of building, and introduces what will be referred to as “suitability” – or the appropriateness of intervention.

Understanding Place

How does one know a place? One might offer that we can know it by name or by looking at a map. But while this may tell us where we are in space, and perhaps something of this place's history, this tells us little of the place's essence. How else might one come to know a place? Traditional architectural inquiry might suggest that we ask where the sunlight falls, from where the winds blow, or where one's eye is drawn. And yet, there is more to a place than even that. A series of questions and methods of

exploring place are outlined in figure 9. These questions aim to inspire the designer to explore the place with curiosity, playfulness, and a willingness to be surprised – to acknowledge that preconceived notions may be misguided. Understanding a place deeply takes time and attention, but it also takes curiosity, self-knowledge, and humility. These questions dig a bit deeper to help understand the mix of stimuli, patterns, relationships, and energy that exist all around us.



Figure 9: An exploration of inquiries about place

Some of the questions focus on the site’s physical characteristics – what utilities, infrastructure, and non-human species are already inhabiting the place. Other questions are experiential: what do the designers feel, hear, or smell when exploring the site. It is

important to leave open the possibility that unexpected things will reveal themselves to be integral to the process and to the design. Other questions involve patterns. These questions are more common in standard architectural site analysis – asking about the site’s history, climate, light, and circulatory patterns. Some questions ask about the relationships that exist in this place, how the site relates to its surroundings, what being there remembers to us, and what ecological, social, or economic relationships already exist there. Finally, the proposed inquiry includes some questions that draw on the designer’s intuition – the capacity to know things but not be able to explain from where this knowledge comes. This type of knowledge is typically dismissed within The Old Story’s scientific paradigm, yet intuition is a powerful tool. If we are to engage in a project from A New Story of the world, it is necessary to acknowledge the myriad ways that we can source knowledge.

The methods by which one can attempt to answer these questions are suggested on the figure’s right. A *dérive*, research, reflection, and examination are broad suggestions as to how one might get to know a place. The most thorough way, of course, would be for a group to spend years on-site, experiencing, studying, and feeling the various facets of the place and living interdependently with the land. The ongoing experience of a place by the same group of people results in an architecture that is deeply responsive to the nuance of that place. This kind of commitment, though typically unreasonable for a hired design professional, is the process by which vernacular architecture has historically emerged and can emerge still. The intention in the inquiry process proposed here is that it can help designers jumpstart the development of a new

vernacular design, helping them to learn a place in such a way that their work becomes deeply responsive to it.

Understanding Human Intention

Understanding what humans want, while seemingly simple can actually be considerably difficult. We often have a hard time knowing what it is we ourselves even want. When someone says they want something, it is not uncommon for their true desires to be not for a thing, per se, but rather for an accompanying feeling, or to believe something about themselves. Likewise, the value of a building is not in its materials, ultimately, but in the way it feels to be there, the things that it allows one to do, and the ways that it shapes our view and experience of the world. Thus, understanding what people want often requires some translation. For example, if someone says they want a modern farmhouse, perhaps what they really want is connection to nature, the approval of loved ones, or, if in a country setting, to fit in with their surroundings. It is not necessary to have a background in psychoanalysis to begin to see how what people want and what they say they want can be different. The process of distinguishing one from the other may involve considerable translation, asking poignant questions about what one would get or what one would get to believe if they attained the thing they describe.

An effective starting point for this process is to engage in a visioning exercise wherein stakeholders envision the project completed and explore the feelings or beliefs that arise within this vision. This type of exercise allows the designer, and hopefully the client, to recognize that perhaps it is the feelings or beliefs that are the goal, and the

design is merely the vessel. With this knowledge, the team can begin to craft a vision based on deeper desires and beliefs that will hopefully meet the client's true wants.

Suitability

With an understanding of place and a grasp on human intentions, before moving into the design proper, this process implores designers and their clients to consider project suitability. A feasibility study asks if something *can* be done – an assessment of its practicality. It asks if the technical, economic, and legal factors can permit a project's realization. A suitability inquiry, on the other hand, asking if something *should* be done. Clearly, this is a less objective question, but the required moral inquiry can provide telling questions that deserve to be part of the conversation before the process continues. The suitability study essentially asks if any human intervention could be in service to the place's highest purpose or if the place might be better off without human intervention. If the place could potentially benefit from human intervention, then the project proceeds beyond this stage. Proceeding beyond the suitability inquiry does not permit *any* project to move forward, but merely acknowledges that there is a subset of potential projects that would serve the given place. Considering suitability is important if we are to accept the New Story concepts of eco-centrism, responsibility, and the sovereignty of all living things.

Coming to answer the question of suitability is not entirely straightforward. It could implore one to converse with local elders or experts, learn the place's ecology and relationships within larger systems, or listen to one's intuitive senses. In any case, the process of determining suitability implores designers to get in touch with their conscience

to make an informed judgment about the project's suitability in the context of a given place and time.

CHAPTER V

THE PROJECT

The Place

The place selected to test this inquiry is a 100-acre lot in a small, rural town in Western Massachusetts. The site is a mix of forest and field with a small stream that runs through it on its way to a large river. The site is in a liminal period, as the people who own the land are considering transitioning its ownership to a small cooperative of people who are currently engaged with the land in a variety of ways. Much can be said about this place. The things we choose to describe about a place indicate both those things, themselves, and our values regarding what we understand to be important.

This site, this place, was explored by asking a series of the aforementioned questions and through research, conversations, and direct experience. To begin to know this place, I researched the history and ecology of this location, engaged in multiple conversations with the people who inhabit and work the land, and conducted multiple derives, or meandering sensory-driven walks. Like the place itself, the findings are varied and do not organize themselves neatly into a single, complete story. Still, they suggest certain essential qualities that can be used as a reference point in design.

At a regional level, this place is habitat for a number of non-human species. The site is a short distance away from a 94,000 acre stretch of what has been deemed “Core Habitat” by the National Heritage and Endangered Species Program, meaning it is crucial for the long-term perseverance of various species whose habitat is threatened (“BioMap2” 2012a).

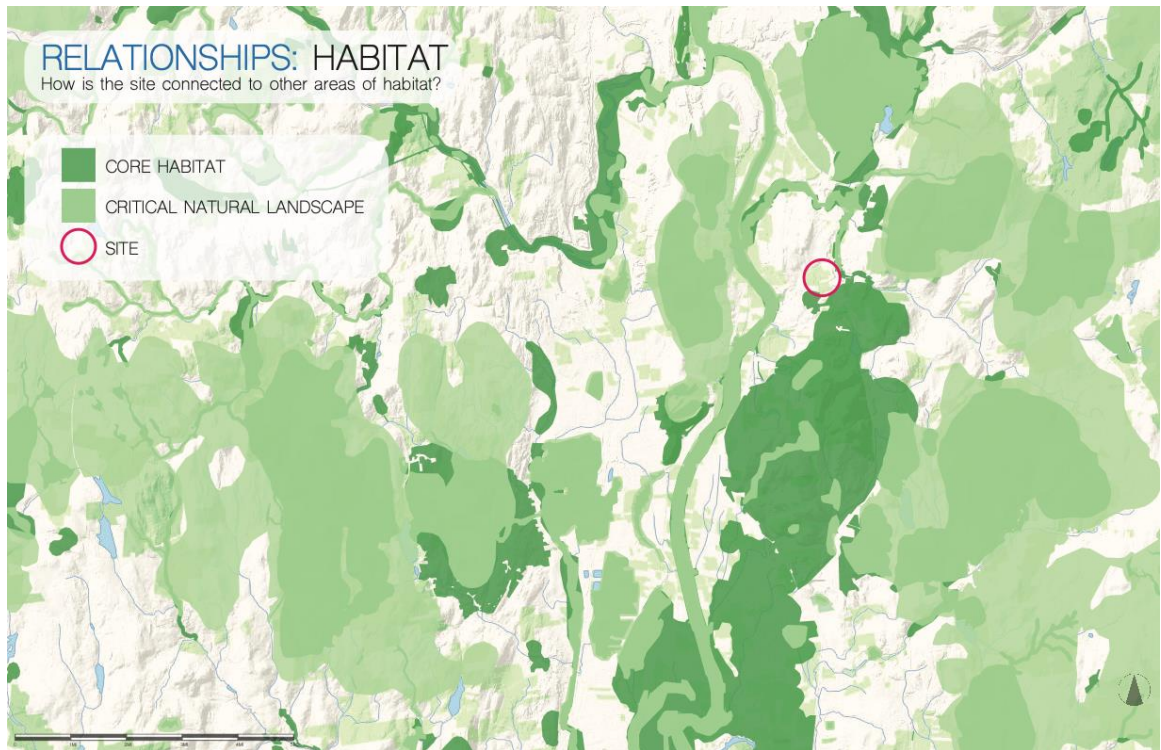


Figure 10: The project site in relation to core habitat and critical natural landscape Adapted from BioMap2. (2012a). <https://www.mass.gov/service-details/biomap2-conserving-the-biodiversity-of-massachusetts-in-a-changing-world>

The town itself is home to some 38 species who are either threatened, endangered, or of special concern, and many of whom live close to the project site (“BioMap2” 2012b). One of the most tangible impacts of human development on ecology is habitat fragmentation. Preserving critical contiguous habitat for non-human species while also creating places for humans is fundamental for co-evolution. Further, through the lens of

the New Story, we can recognize that these places of non-human habitat have inherent value and sovereignty in and of themselves. To add to them enriches life for the benefit of all.

The site itself is a mix of forest and field, with a small farmstead on one side. The farmstead lies at the edge of a large field and is home to a few young individuals, who partake in the various farm activities. These activities are split between this western field and a second field on the eastern side of a transitional hardwood forest.

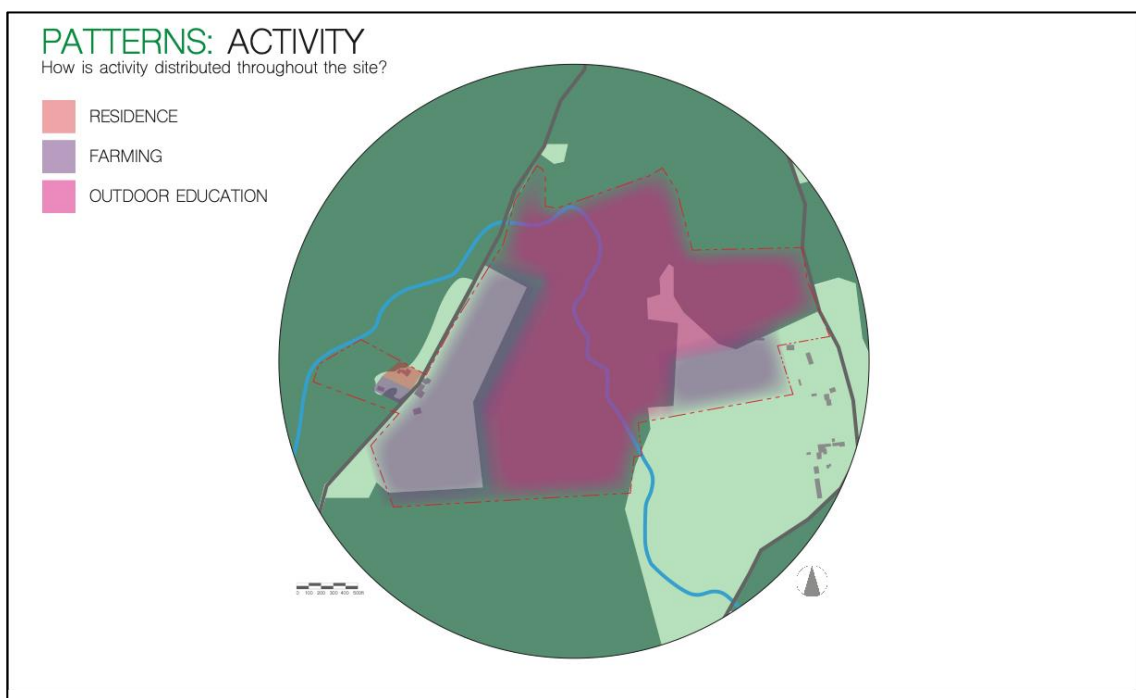


Figure 11: Site plan showing distribution of activities

The experience of being in any place is variable, both temporally and personally. Certain experiences are relatively consistent among individuals and across time. These may or may not be the most important experiences for the designer to consider. One could experience the cold breezes coming from the north, or the sun as it bounces off of

waving strands of orchardgrass in the sheep pasture. One could find the forest to be damp and mossy, or hot and dry.

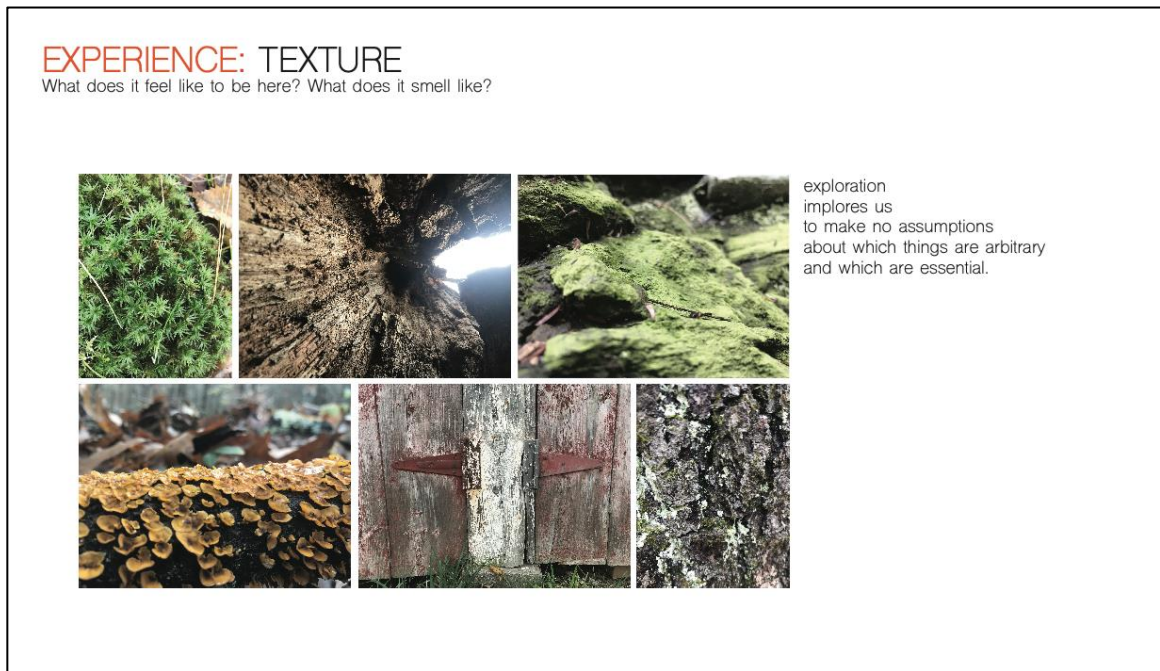


Figure 12: A variety of textures at project site

The stream that bisects the site has carved a large gorge that drips water over its protruding edges. The smells range from sweet soil to musty sheep to wood smoke. Each of these is as much part of the place as the circulatory and light patterns which generally receive more diagrammatic attention. It could be argued that these phenomena receive more attention because they are considered to be more important, that they are more easily documented, and/or that they are more predictable over time. Regardless, the experiential aspects of a place have an importance that should not be overlooked.

The site has a busy quietness to it. There are signs of activity, though there are many places of stillness. It is easy to hear the breeze and feel the earth steady underfoot. Light shines generously on the field and finds its way through cracks in the old timber-

framed barns. The farmhouse sits quietly, an unkempt garden springing from its base. There is a history here, a farm that has seen many seasons come and go, many people, many projects. The wear is visible in the rusted hinges, the splintering posts, the gnarled sugar maples along the road.

It is inherently impossible to fully encapsulate a place in words, diagrams, or images. Limitations to the depth of inquiry, whether because of time, effort, or access, can (and in this case, have) inhibit a complete understanding of place. While striving for complete understanding, in the name of experimentation, the inquiry must, at some point, be considered appropriately incomplete for the creative process to advance.

Human Intention

Alongside understanding place comes understanding the intention of the humans who are poised to adopt tenure of this place. A subset of this group was generous enough to spend some time with me on-site to discuss both their dreams with the place and their understanding of the place itself. These dreams are showcased in figure 13. Their ideas about the future of this place resonate with New Story concepts of connection, responsibility, place-based solutions, and cooperation, to name a few. These ideas have been distilled into five primary values that helped guide design: community, nature, service, resilience, and freedom.

IDEA EXPRESSION OF VISION	VALUE MY UNDERSTANDING
Living close to one another Places to support community gathering Place for people to be nourished / inspired	COMMUNITY
Close relationship with land Healthy / balanced ecosystems	NATURE
Land stewardship Accessibility to all types of people Spirit of abundance + generosity Tending relationships, human and otherwise	SERVICE
Diversity in animal species Capacity for food production, healing practices, housing, and creative expression	RESILIENCE
Well-maintained property Transparent operational processes	FREEDOM

Figure 13: Stakeholder vision and interpreted values
(Anonymous 2020)

While the process of dreaming is ongoing, these values are the ones that were selected to guide the design. With a basic understanding of the place and a distillation of human intention, our process can move forward toward asking what if any design interventions could possibly aid in the process of this place growing toward its highest purpose.

Suitability

For several reasons, we can imagine that human presence could be a continued benefit to this place. First, humans are already a part of this place and have likely been present for thousands of years, albeit with different ways of relating to the landscape. The ecology of the place is, strictly speaking, *unwild*. It has almost certainly responded to and adapted to the treading, the tilling, the logging, the hunting, the noise, and the general presence of humans over the years. Removing this presence is a difficult scenario to predict, but one that may well be a shock to the systems that have seemingly adapted. Secondly, the approach that the humans take to engaging with this place is thoughtful, curious, and generally respectful. Programmatically, the educational programs hosted there provide important growth opportunities for those who go there to learn, explore, or play. This is almost surely a benefit not just to this place but to the region. Finally, healthy human co-habitation with the rest of the living world is almost certainly a prerequisite for a sustainable future and this place is well suited to serve as a model in this regard. If human population continues to grow there must be a reckoning with our relationship with the rest of life. Some would argue that humans should all live in cities, leaving the countryside open and wild. Yet, this presumes humans to be irrevocably technical creatures. If humans are part of the living world, albeit a technologically advanced anxiety-ridden outgrowth, there must be a path forward that negotiates our place *within* this natural world, not apart from it. This place and this project have the opportunity to engage in that negotiation.

Integration

After recognizing the essence of place and the intentions of the people who wish to engage with it and after considering the possibility of total withdrawal, the next step in this process is to suggest how to bring together the desires of place and people for the sake of a verdant, mutually beneficial, co-evolving future. Possible design interventions that embody and reflect the New Story on this particular site could have taken many forms, including, for instance, a farm community center with integrated wastewater management, native landscaping, and integrated spaces for animal co-habitation. However, the inhabitants and stakeholders remain uncertain about the exact direction for the future of their land. They are still dreaming about possibilities and, as such, what they need is a place to dream.

Design

A Place for Dreaming

The design project proposed in this thesis is not a direct answer to the question posed by the thesis, but rather a place to continuing exploring this question. The program is simple and evocative: it is a space for dreaming. Dreaming, unlike planning, is expansive, allowing one to forego the limits of known reality, to suspend disbelief about the impossibility of a radically different future. To enter a dream state requires priming, so a significant portion of the design is dedicated to priming the visitor to leave behind the world they are coming from, to slow down, and to awaken their hearts and their senses.

The destination is a tower deep within the woods featuring an open-air deck with flexible support spaces below (figure 14). The tower is designed to be open to the public and free to use by reservation. It would offer exploratory space to consider, at one scale, the future of the land it occupies, and at another, the future of the world at large. The design is meant to be experienced sequentially and so it will be described here in a similar fashion.

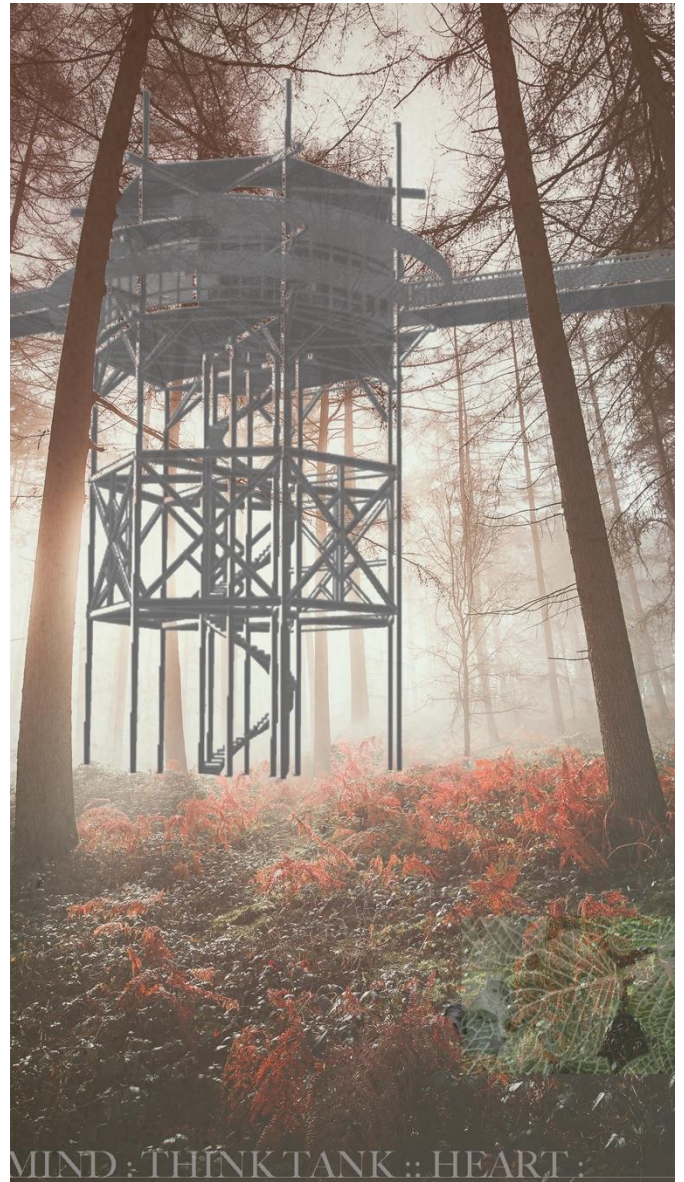


Figure 14: Tower amid forest

Threshold



Figure 15: Door at edge of field

At the edge of the field, there lies a door (figure 15). A path suggests its presence, but continues past, offering the door as an option to those moving slowly enough to spot it. The door itself does not much stand out, being somewhat dark and overgrown, so attention is required to see it. Native shrubs flank the door, obscuring what might lie beyond. From the outset, the experience beckons one to awaken from the necessary numbness one can develop to the stimulation of the outside world whose flashy timbre constantly pursues one's attention.

The door itself stands as a symbol of threshold, separating the known from the unknown – The Old Story from The New. Entry requires trust, openness, and a willingness to leave behind what is familiar. The door is unnecessarily heavy, suggesting the weight of the decision to pass through.

Disorientation / Deceleration



Figure 16: View down hallway

Beyond the door lies a long hallway (figure 16). Why there exists a hallway into the woods is anyone's guess. The hallway is sufficiently wide so as not to instill a feeling of entrapment given its length and the dimness of the interior space. The dimness requests pause of the visitor, allowing for the eyes to adjust to the scarcity of light.



Figure 17: Hallway apertures

The length of the hall is lined on either side with full-height apertures that reveal scenes of the surrounding forest (figure 17). Each window is recessed slightly, exposing a small area of floor that encourages one to pause and perceive the steady happenings of the forest outside. The windows are spaced at growing intervals so the travel time from one to the next is constantly increasing, creating the effect of decelerating time.

The tunnel acts as a means both of deceleration and disorientation. Why is there a hallway in the woods? Where does it lead? Why does the end seem to be getting further away? The hall allows the visitor a moment to leave the world they knew behind and enter a state of curiosity and openness.

Ascension / Contemplation

As the hall comes to an end, the ratio of aperture to opacity increases. The hallway dematerializes and the visitor is met with the realization that the ground has dropped away, causing them to have effectively risen into the lower level of the forest. A walkway continues this gradual ascent through the trees (figure 18) and is suspended intermittently by living trees. These trees act as nodes as the walkway

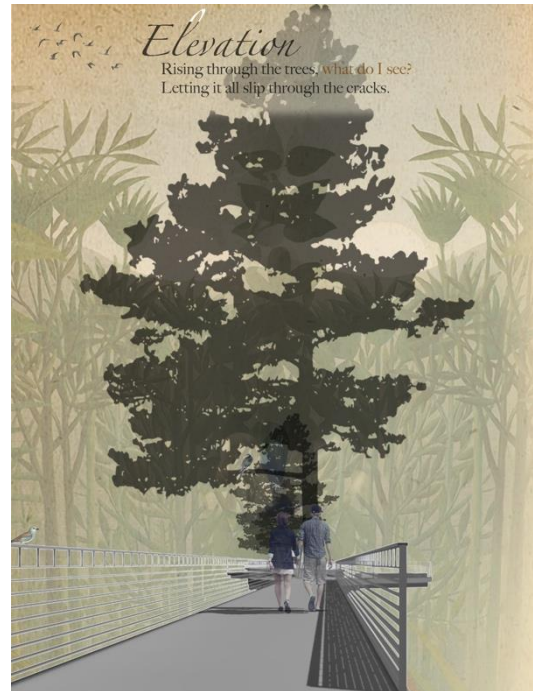


Figure 18: Elevated walkway

wends its way through the forest. At these nodes, platforms are suspended from the trees, and like nodes in plants, these nodes hold within them the potential for activity, growth, and healing (VanDerZanden 2008 ; figure 19). The visitor is encouraged to pause along this journey at these points to observe the forest life around them, or to converse with other visitors.

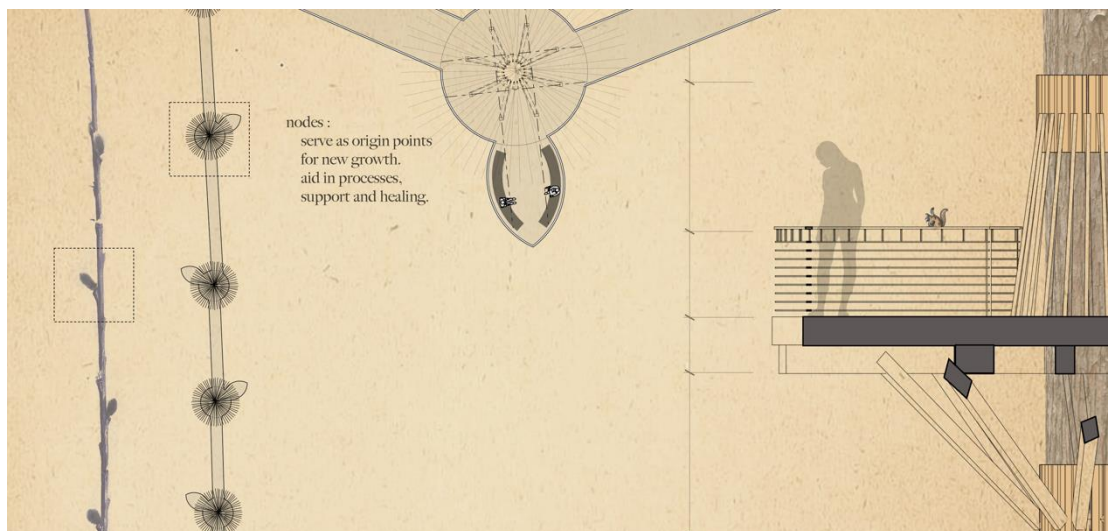


Figure 19: Tree supports and walkway nodes

The use of trees as supports for this ascending path requires some further explanation. A tree is particularly adept at supporting compressive forces and resisting being overturned, making it an ideal choice as a support structure. Further, it requires few external materials or excavation. That said, a tree is also a fallible and impermanent structure. This means that ongoing care is required to ensure that the structural integrity of the walkway is maintained. While this could be seen as a weakness, seen through A New Story lens, it could actually be a benefit. Unlike attempts at permanence, the acknowledgment of the tree's impermanence, its imperfection, solicits an interdependent caring relationship that could benefit both the forest and those who care for it. It effectively weaves together the fate of the forest and the people who co-inhabit it so that if one falters, so does the other. If one thrives, so does the other.

Emergent Perspective

The walkway continues through fourteen such nodes until finally arriving at what could be considered the destination of the journey: a tower hovering at the overstory, 80 feet above the ground. The tower is entered at the top level which consists of a circular

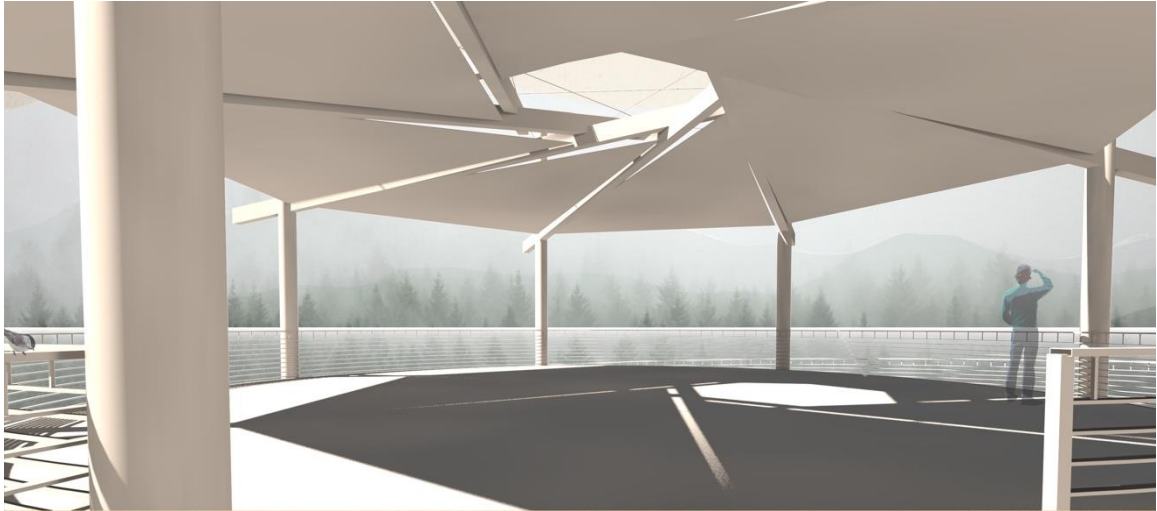


Figure 20: View from deck with canopy covering

deck, open on all sides and covered by retractable fabric shades supported by seven interlocking wooden beams (figure 20). The beams form a reciprocal roof structure, or a roof whose beams connect an inner circle to an outer one, each one supporting the next, creating an oculus in the center of the structure. This roof structure allows for certain protection from the elements, such as sun and precipitation, while having a degree of



Figure 21: View from deck with canopy retracted

permeability that connects visitors to the full, varied sensory experience of being outdoors, especially when shades are retracted (figure 21).

Views abound: in the



Figure 22: Tower treetop perspective

foreground, treetops sway in the wind, while beyond fields, rivers and mountains extend for miles (figure 22).

A ramp encircles the structure, leading down to a lower level that is enclosed in a continuous glass curtainwall (figure 23). The wall reveals the intricate forest life that surrounds, connecting the activities within with the living world outside. It is an enclosed space, but outward-facing. The lower story responds to the limitations of the upper story's open-air nature and

provides space for activities in inclement weather as well as a core of basic amenities such as toilets, storage, a small prep kitchen, and emergency egress.



Figure 23: Tower interior perspective

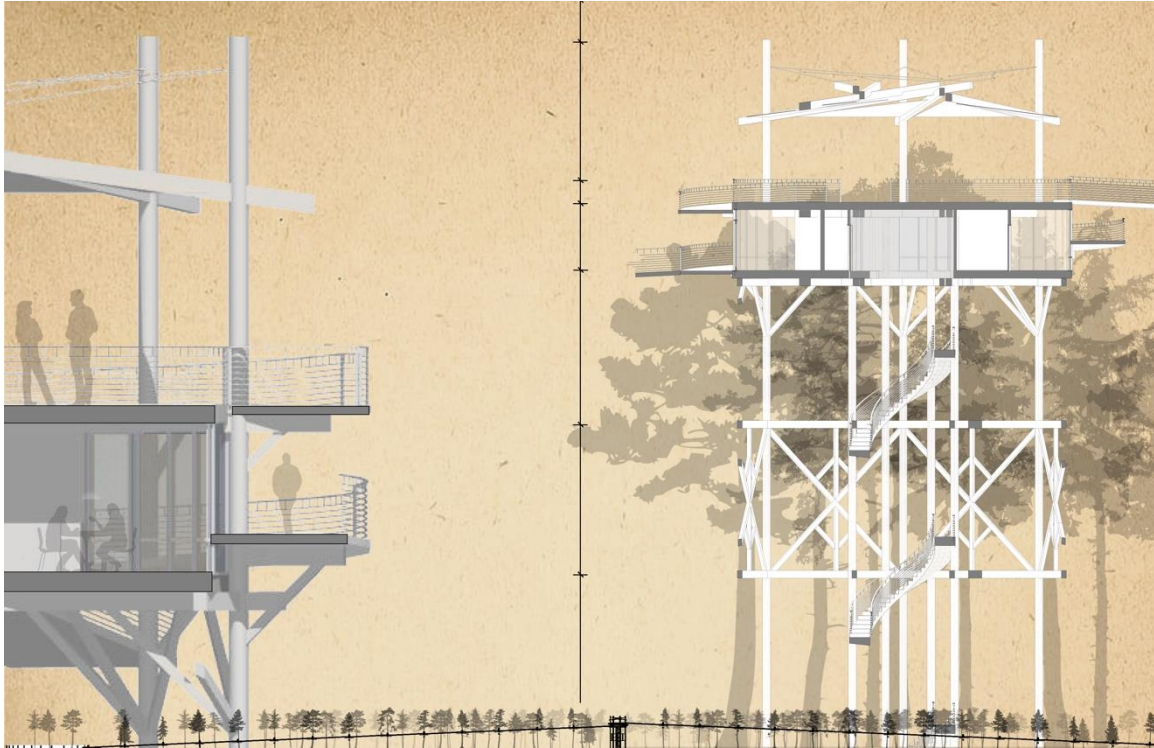


Figure 24: Tower structure and section

Beneath the upper levels is an unprogrammed, permeable structure that anchors these stories to the forest floor (figure 24). The structure consists of two concentric rings of timber posts, laterally braced with a combination of cables and timber. This structure is meant to provide for minimal earthwork, allow for flora and fauna to persist underneath, and to somewhat blend in (at least at lower levels) with the vertical timber of the forest's living trees.

This tower offers unique spaces that accommodate a variety of activities that extend the mind and the heart forward in time to consider our collective future. These activities could include workshops, faculty meetings, spiritual gatherings, sleepovers, live music or dance, art exhibitions, and festive meals. For visitors, the feeling of being

among the treetops may be particularly peculiar. Seldom does one get to experience a view from the peak of a forest canopy. The place is meant to create a feeling of being *away*, of stepping out of day-to-day life into something unusual, unfamiliar, and breathtaking.

Return

Visitors exit via another sloping walkway leading out from the lower level. This walkway wends a completely separate path back down to the forest floor, with nodes again along the way offering spots for rest and communion. The walkway returns visitors close to where they began, but not to the exact same spot, requiring a different path back to the parking area. This separation is meant to symbolize that one has been changed in this journey and cannot return to the place they started in the same manner.

CHAPTER VI

REVIEW

Discussion

In all, the design is meant to act as a transformative experience that draws one out of their current paradigm, disorients them, and offers a novel perspective – a place to explore, to dream. While being instigative, the design aims to offer few prescriptive cues as to the content of the dreaming, leaving open the possibility of discovery for those who partake in this experience. The risk of leaving the curriculum blank, of course, is that the discoveries or dreams conjured may be somewhat contrary to the ideals put forth in this thesis. However, imposing a prescribed lesson, or laying out a specific adventure both precludes the opportunity for true discovery and would offer less ownership of the discovery's contents. The answers one finds of their own volition, through their own effort and exploration are more likely to have a lasting effect than ones provided externally.

The design, as previously mentioned, does not directly answer this thesis's central question of what an architecture of a New Story looks like. Rather, through the process developed and its emphasis on exploration and suspending certainty, the project evolved to focus more directly on creating spaces for this question to be explored. Still, as a place to inspire new ways of thinking and being, there are design components that reflect New Story concepts.

The design encourages *other ways of knowing*, a New Story touchstone. The camouflaged nature of the door requires intuition or at least close attention to discover it.

The dimness of the hallway is meant to quiet the mind and awaken other parts of the being that might be able to listen more clearly with the routine mind-chatter subdued. These facets elevate the role of extra-cognitive senses and other ways of knowing over traditional brain-forward, rational analytics. They encourage the visitor to engage their intuition in discovering this place, and in doing so, assist in the collective understanding of what is going on here at different levels. This is an ongoing form of getting to know this place, or what architects might think of as ‘site analysis,’ that will benefit the community as they move forward with the land.

The walkway’s relationship to the trees requires human *responsibility*, or stewardship, another New Story touchstone. If the trees are not taken care of and kept healthy, they will fail as support structures. Further, the design minimizes waste by using materials, such as wood, steel, and glass, that are possible to recycle into another form of equal quality, thus taking an additional degree of responsibility for the impact of the design materials.

Along the walkway, the nodes encourage *connection*, a New Story touchstone, by offering spaces for visitors to stop and commune with one another and the surrounding forest. The tower itself revolves around this idea too, offering spaces for activities that bring people together, and bring them closer to nature and to the elements.

The design blurs some traditionally dualistic notions in favor of *multidimensionality*, another New Story touchstone. The tree supports blur the line between humans and nature. The open-air upper story and visually-permeable lower story of the tower blur the line between inside and outside.

Still, the design does not perfectly exemplify New Story ideals. Incorporating all of these big ideas into a singular design project proved considerably challenging. As we have seen, some show up to a degree, while others are entirely overlooked. For example, there are conventional components that have not been reconsidered through the New Story lens such as bathrooms and associated plumbing, waste, and electricity needs. We could imagine thinking about each of these facets as part of a multiplicity of systems that could be reorganized to create inter- and intra-systemic benefit.

For example, another design might reconsider the concept of waste anthropologically, or sociologically – what creates waste in the first place, how we think about materials and resources, and how supply chains could be reorganized or bent to eliminate the concept completely. These questions come about as we make decisions as designers. As we drop the dumpster or trashcan object into our CAD model we are making a decision to continue thinking about waste in the same way, as a societal necessity. The same logic could be applied to the materiality of the building itself. If designers had to assign each material used in a proposed building to a future-life category, whether reuse, recycle, compost, or waste, it would be interesting to see how this might alter their specifications. Perhaps bringing to the fore the pervasiveness of waste in building decommissioning could help reduce the concept of waste in buildings, taking the concept of responsibility to the next level. A process that helps stakeholders deeply reconsider normative cultural practices at each design stage or decision would be a powerful amendment to the New Story design process proposed in this thesis.

There are a few key ways in which the proposed design falls short of New Story ideals. For instance, the design does not account for the specific ecology of place in the

way that a fully evolved New Story design might. One could imagine the design including landscape alteration or habitat creation to encourage biodiversity, and systemic resilience. Relatedly, aside from the responsibility that comes from using trees as supports, the design is very much anthropocentric. The needs of humans in this design are generally put ahead of that of the local ecology. That said, one could argue that the effect the design has on the human soul does, in fact, act in service to ecology, albeit indirectly.

The design encourages exploration at the meta-level, that is, exploration of the story itself and its implications. It may not be fully inherent in the structure, but the aim has been to use the architecture as a form of social-emotional stimulus to encourage certain ways of viewing and experiencing the world. While not fully representational of New Story ideals, the hope is that a place such as this can foster the exploration and, ultimately the realization of paradigmatic change.

Forward

The world is changing at an accelerating clip and our relationship with the rest of the living world continues to grow increasingly untenable. The conception that technology alone can reestablish global systemic balance is specious at best. While technologies are certainly part of the solution, they are also limited. As designers, we must equip ourselves not just with the technological competence to design efficient buildings, but the courage and humility to question some of our very basic assumptions about what it means to be human. As we move forward in this unique time, whether motivated by survival or by love of the living world, we must reckon with our cultural stories if we hope to maintain the precious balance that enables life on our planet.

BIBLIOGRAPHY

- Allen, Myles R., Opha Pauline Dube, William Solecki, Fernando Aragon-Durand, Wolfgang Cramer, Stephen Humphreys, Mikiko Kainuma, et al. 2018. "Chapter 1: Framing and Context." Special Report: Global Warming of 1.5 °C. The Intergovernmental Panel on Climate Change.
<https://www.ipcc.ch/sr15/chapter/chapter-1/>.
- Anonymous. 2020. Conversation with project stakeholders.
- "At-a-Glance." n.d. The Willow School. Accessed September 26, 2020.
<https://willowschool.org/willow-at-a-glance/>.
- Bateson, Nora. 2010. *An Ecology of Mind*.
https://www.youtube.com/watch?v=GNkFU5ZkNkg&ab_channel=Dampflanze.
- Berry, Thomas. 1978. *The Dream of the Earth*. Sierra Club Books.
- . 2014. *Thomas Berry: Selected Writings on the Earth Community*. Maryknoll, NY: Orbis Books.
- Berry, Wendell. 1998. "1988-II." In *A Timbered Choir: The Sabbath Poems 1979-1997*. Berkeley, CA: Counterpoint.
- "BioMap2." 2012a. Sunderland. National Heritage & Endangered Species Program.
http://maps.massgis.state.ma.us/dfg/biomap/pdf/town_core/Sunderland.pdf.
- "———." 2012b. Montague. National Heritage & Endangered Species Program.
http://maps.massgis.state.ma.us/dfg/biomap/pdf/town_core/Sunderland.pdf.
- Boivin, Nicole L., Melinda A. Zeder, Dorian Q. Fuller, Alison Crowther, Greger Larson, Jon M. Erlandson, Tim Denham, and Michael D. Petraglia. 2016. "Ecological

Consequences of Human Niche Construction: Examining Long-Term Anthropogenic Shaping of Global Species Distributions.” *Proceedings of the National Academy of Sciences* 113 (23): 6388–96.
<https://doi.org/10.1073/pnas.1525200113>.

Bressi, Todd W. 1995. “Pomona, California - Center for Regenerative Studies [Roots].” *Places* 9 (3). <http://escholarship.org/uc/item/8ft616dj>.

Broecker, Wallace S. 1975. “Climatic Change: Are We on the Brink of a Pronounced Global Warming?” *Science* 189 (4201): 460.
<https://doi.org/10.1126/science.189.4201.460>.

Brown, Kyle D. 2017. “John T. Lyle Center ASLA Community Service Award Letter of Support,” 2017.
https://www.asla.org/uploadedFiles/CMS/Media/News_Releases/JohnTLyleCenterNomination.pdf.

Cohen, William J. 2019. “The Legacy of Design with Nature: From Practice to Education.” *Socio-Ecological Practice Research* 1 (3): 339–45.
<https://doi.org/10.1007/s42532-019-00026-2>.

Cohen, William J., and Frederick R. Steiner. 2019. *Ecohumanism and the Ecological Culture: The Educational Legacy of Lewis Mumford and Ian McHarg*. Philadelphia, PA: Temple University Press.
<http://ebookcentral.proquest.com/lib/uma/detail.action?docID=5755590>.

Costanza, Robert. 1987. “Social Traps and Environmental Policy.” *BioScience* 37 (6): 407–12. <https://doi.org/10.2307/1310564>.

- Dougherty, Betsey. 1997. "John T. Lyle Center for Regenerative Studies." American Institute of Architects | Top Ten Projects. 1997.
<https://www.aiatopten.org/node/229>.
- Eisenstein, Charles. 2013. *The More Beautiful World Our Hearts Know Is Possible*. Sacred Activism Series. North Atlantic Books.
- . 2018a. *Climate : A New Story*. North Atlantic Books.
- . 2018b. "The New And Ancient Story Of Interbeing." *Awakin* (blog). 2018.
<http://www.awakin.org//read/view.php?tid=2341>.
- . 2020. "Origin of Wrongness in the World." Presented at the Commune Courses: Political Hope: The power of truth and story.
<https://www.onecommune.com/political-hope-with-charles-eisenstein>.
- Emerson, Ralph Waldo. 1899. "Give All To Love." In *Early Poems of Ralph Waldo Emerson*. <http://name.umdl.umich.edu/BAC5599.0001.001>.
- . 2000. *Nature: Addresses And Lectures*. Infomotions, Inc.
<http://ebookcentral.proquest.com/lib/uma/detail.action?docID=3314480>.
- Festinger, Leon. 1957. *A Theory of Cognitive Dissonance*. Stanford University Press.
- Gou, Zhonghua, and Xiaohuan Xie. 2017. "Evolving Green Building: Triple Bottom Line or Regenerative Design?" *Journal of Cleaner Production* 153 (June): 600–607.
<https://doi.org/10.1016/j.jclepro.2016.02.077>.
- Haggard, Ben. 2017. *Ben Haggard: Starting from Place*. Regenesi Group.
<https://vimeo.com/showcase/5161013/video/202498056>.
- Hardin, Garrett. 1968. "The Tragedy of the Commons." *Science* 162 (3859): 1243–48.
<https://doi.org/10.1126/science.162.3859.1243>.

- Harris, Stuart G. n.d. "A Native American Perspective on Sustainable Infrastructure," 18.
- Hawken, Paul, ed. 2017. *Drawdown : The Most Comprehensive Plan Ever Proposed to Reverse Global Warming*. Penguin Books.
<http://silk.library.umass.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=cat06087a&AN=umass.016294929&site=eds-live&scope=site>.
- Hine, Dougald, and Paul Kingsnorth. 2014. "The Manifesto." 2014. <https://dark-mountain.net/product/uncivilisation-the-dark-mountain-manifesto/>.
- Jabr, Ferris. 2020. "The Social Life of Forests." *The New York Times*, December 3, 2020, sec. Magazine. <https://www.nytimes.com/interactive/2020/12/02/magazine/tree-communication-mycorrhiza.html>.
- Kelland, Mark. 2015. *Personality Theory in a Cultural Context*.
<https://cnx.org/contents/IISy6OT@1.1:tWAR219O/Carl-Jung>.
- Kimmerer, Robin. 2013. *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants*. Minneapolis, MN: Milkweed Editions.
<http://ebookcentral.proquest.com/lib/uma/detail.action?docID=1212658>.
- Koellner, Amanda. 2020. "Bringing a Building to Life: In the Future, Will Every Building Resemble the Model Set by the Living Building Challenge?" *Architect (Washington, D.C.)* 109 (6): 52–54.
- "Living Building Challenge 4.0 Basics." n.d. Accessed October 1, 2020. <https://living-future.org/lbc/basics4-0/>.
- "Lyle Center for Regenerative Studies." n.d. Dougherty Architects. Accessed April 29, 2021. <http://dougherty.us/project/lyle-center-for-regenerative-studies/>.

- Lyle, John Tillman. 1994. *Regenerative Design for Sustainable Development*. New York : <http://hdl.handle.net/2027/mdp.39015009121222>.
- Majekodunmi, Olfemi, and Susan A Maxman. 1993. “Declaration of Interdependence for a Sustainable Future.” UIA/AIA World Congress of Architects in Chicago. http://www.comarchitect.org/wp-content/architectsguide/declaration_of_interdependence_for_a_sustainable_future.htm.
- Mang, Pamela, Ben Haggard, and Regenesi. 2016. *Regenerative Development and Design*. Wiley.
- Mang, Pamela, and Bill Reed. 2012. “Regenerative Development and Design.” In *Springer Encyclopedia of Sustainability Science & Technology*, 8855–79. Chapter 303. https://doi.org/10.1007/978-1-4419-0851-3_303.
- McDonough, William. 1993. “A Centennial Sermon: Design, Ecology, Ethics and the Making of Things.” February 7, 1993. http://www2.iath.virginia.edu/id/ethics/cases/dtex/dtex_exhibit3.html.
- McDonough, William, and Coert Zachariasse. 2014. “Building for a Better World and Making People Smile.” June 5, 2014. <https://www.newsweek.com/building-better-world-and-making-people-smile-253543>.
- Meadows, Donella. 1999. “Places to Intervene in a System.” The Sustainability Institute. “Mission & Philosophy.” n.d. The Willow School. Accessed September 26, 2020. <https://willowschool.org/mission-philosophy/>.
- Ogle, Martin. 2004. “Gaia Theory: Model and Metaphor for the 21st Century.” In . <http://www.gaiatheory.org/wp-content/uploads/2013/05/gaiapaper.pdf>.

- Orr, David. 2011. "The Problem of Sustainability." In *Hope Is an Imperative: The Essential David Orr*. Island Press.
- Price, Andy. 2006. "Murray Bookchin." *The Independent*, August 19, 2006, sec. Obituaries. <http://www.independent.co.uk/news/obituaries/murray-bookchin-412486.html>.
- Reed, Bill. 2007. "Shifting from 'Sustainability' to Regeneration." *Building Research & Information* 35 (6): 674–80. <https://doi.org/10.1080/09613210701475753>.
- Roser, Max. n.d. "The Short History of Global Living Conditions and Why It Matters That We Know It." Our World in Data. Accessed September 12, 2020. <https://ourworldindata.org/a-history-of-global-living-conditions-in-5-charts>.
- Sahtouris, Elisabet. 1999. *Earthdance: Living Systems in Evolution*. <https://ratical.org/LifeWeb/Erthdnce/erthdnce.pdf>.
- Sender, Ron, Shai Fuchs, and Ron Milo. 2016. "Revised Estimates for the Number of Human and Bacteria Cells in the Body." *PLoS Biology* 14 (8). <https://doi.org/10.1371/journal.pbio.1002533>.
- Shah, Shalin. 2020. "Analysis of Greenhouse Gases." <http://arxiv.org/abs/2003.11916>.
- Sigmon, Jeremy. 2014. "Half the Planet's Animals Are Gone, and How Buildings Can (and Must) Help | U.S. Green Building Council." USGBC. October 7, 2014. <https://www.usgbc.org/articles/half-planet%E2%80%99s-animals-are-gone-and-how-buildings-can-and-must-help>.
- Slaper, Timothy F., and Tanya J. Hall. 2011. "The Triple Bottom Line: What Is It and How Does It Work?" *Indiana Business Review*, 2011. <https://www.ibrc.indiana.edu/ibr/2011/spring/article2.html#ftn2>.

- Solomon, Danyelle, Connor Maxwell, and Abril Castro. 2019. "Systemic Inequality: Displacement, Exclusion, and Segregation." Center for American Progress. August 7, 2019.
<https://www.americanprogress.org/issues/race/reports/2019/08/07/472617/systemic-inequality-displacement-exclusion-segregation/>.
- Szal, Will. 2020. "Haleversion." Medium. September 10, 2020.
<https://medium.com/@willszal/haleversion-8e1eef968fd8>.
- "The Health, Wellness and Nutrition Center at The Willow School." 2017. International Living Futures Institute. July 6, 2017. <https://living-future.org/lbc/case-studies/health-wellness-nutrition-center-willow-school/>.
- "The John T. Lyle Center for Regenerative Studies." n.d. Accessed April 28, 2021.
<https://www.webpages.uidaho.edu/larc301/lectures/regen.htm>.
- "The Willow School." n.d. Regensis. Accessed September 26, 2020a.
<https://regensisgroup.com/project/the-willow-school/>.
- "———." n.d. Farewell Architects LLC. Accessed April 26, 2021b. <http://www.farewell-architects.com/the-willow-school>.
- "The Willow School Profile." n.d. Private School Review. Accessed April 26, 2021.
<https://www.privateschoolreview.com/the-willow-school-profile>.
- Thompson, Tok. 2019. "Listening to the Elder Brothers: Animals, Agents, and Posthumanism in Native Versus Non-Native American Myths and Worldviews." *Folklore (14060957)* 77 (September): 159–80.
<https://doi.org/10.7592/FEJF2019.77.thompson>.

- “Touchstone.” 2016. In *Oxford English Dictionary Online*. Oxford University Press.
<http://www.oed.com/view/Entry/203901>.
- “UN Report: Nature’s Dangerous Decline ‘Unprecedented’; Species Extinction Rates ‘Accelerating.’” n.d. United Nations Sustainable Development. Accessed August 1, 2020. <https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report>.
- Van der Ryn, Sim, and Stuart Cowan. 1996. *Ecological Design*. Washington, D.C.: Island Press.
- VanDerZanden, Ann Marie. 2008. “Vegetative Plant Parts.” Oregon State University Extension Service. <https://extension.oregonstate.edu/node/115961/printable/print>.
- Wallace, David Foster. 2005. “This Is Water.” Commencement Speech, Kenyon College. <https://fs.blog/2012/04/david-foster-wallace-this-is-water/>.
- Weber, Max. 2011. *The Protestant Ethic and the Spirit of Capitalism*. Translated by Stephen Kalberg. Oxford University Press.
<http://silk.library.umass.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=cat06087a&AN=umass.016091105&site=eds-live&scope=site>.
- White, Lynn. 1967. “The Historical Roots of Our Ecologic Crisis.” *Science* 155 (3767): 1203–7.
- “Why The Building Sector?” n.d. Architecture 2030. Accessed February 4, 2020. https://architecture2030.org/buildings_problem_why/.
2017. July 6, 2017. <https://living-future.org/lbc/case-studies/health-wellness-nutrition-center-willow-school/>.