

# The Seventh Stopping Place: Climate Migration and the Future of the Great Lakes

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**In the coming decades, the Great Lakes region is projected to become one of the most desirable places to live in North America. While the devastating ecological effects of climate change will make arid, tropical, and coastal zones uninhabitable, the cities by the lakes are considered by some to be climate havens—areas which are expected to remain relatively comfortable. They are far enough north to maintain tolerable summer temperatures, are surrounded by the resources of abundant boreal forests, and will be insulated from the worst effects of drought by a five-lake reserve that contains 20% of the world’s surface fresh water. The arrival of climate migrants will carry significant pressure to accommodate more people, as well as a renewed possibility of land dispossession and displacement for the many indigenous communities that call the area home. If the Great Lakes can expect many millions of new arrivals in this century, what kind of urban development will this bring? Are there other ways to imagine the region’s future beyond the extractive infrastructure and carbon-intensive architecture that are typically thought to be prerequisites for urbanization?**

**This paper proposes that the lighter methods of construction practiced by native people in the area for millennia are ideal alternatives. For centuries prior to colonization and industrialization, the lands around the lakes were already home to a thriving Anishinaabe culture, which continues to build in ways better suited to the environment than conventional modernism. By following the models of ephemeral dwelling and impermanent urbanism that characterized indigenous practices of land use here for thousands of years, a more ecologically responsible and ethical model for development in the region might be possible.**

## MIGRATIONS

Eddie Benton-Banai, of the Lac Courte Oreilles Band of Lake Superior Ojibwe, tells a story of the 500-year migration of Anishinaabe people from the Atlantic coast to a series of seven stopping places alongside the waterways of the Great Lakes. It

begins over a thousand years ago, with the arrival of the prophets of the Seven Fires, who warned those living on the eastern shores of a future in which they would face many hardships. The journey the prophets advocated would take the Ojibwe west to higher ground, in search of a turtle shaped island and *manoomin*, the “food that grows on water”, and was meant to safeguard them against the destruction that would come to those who stayed in place. But the decision to heed the prophecies and begin the migration was not an easy one. “Life was full for the people” Benton-Banai writes, “There was ample food from the land and sea, and there were fish from many rivers. This fullness of life made many people doubt the predictions of the seven prophets. There was much discussion among all the Anishinaabe... Many people did not want to move their families on the journey to the West.” Maps of this migration have been etched many times into the surfaces of birch bark scrolls (fig. 1) tracing the lines of the oral tradition along what proved to be a difficult, centuries-long path to the lands surrounding the Great Lakes. But this path spared the Anishinaabeg from the fate of many who stayed behind, setting a precedent for collective adaptation that continues in communities across the region today.

A new wave of migration is coming that could radically transform the area’s culture and landscape, as the devastating effects of climate change make many arid, tropical, and coastal regions of the continent nearly uninhabitable. Under current rates of change, it is projected that the “geographic climate niche” of human populations will move more in the next fifty years than it has in the past six thousand, and many millions of people are expected to move with it. In the United States, these effects are predicted to be most severe in the south and southwest, where fresh water will be scarce, summer temperatures unbearable, and coastlines erased. Many in these areas will move north. Even without accounting for likely droughts and crop failures, “13 million Americans will be forced to move” from sea level rise alone, making for “the largest migration in North American history.” As these massive changes take shape, the Great Lakes watershed—with its distance from and elevation above the oceans, relatively cool weather, and abundant freshwater and forests—is poised to become what some have referred to as a “climate haven”. Superior, Michigan, Huron, Erie and Ontario together make up the largest body of fresh water in the world, containing 21% of

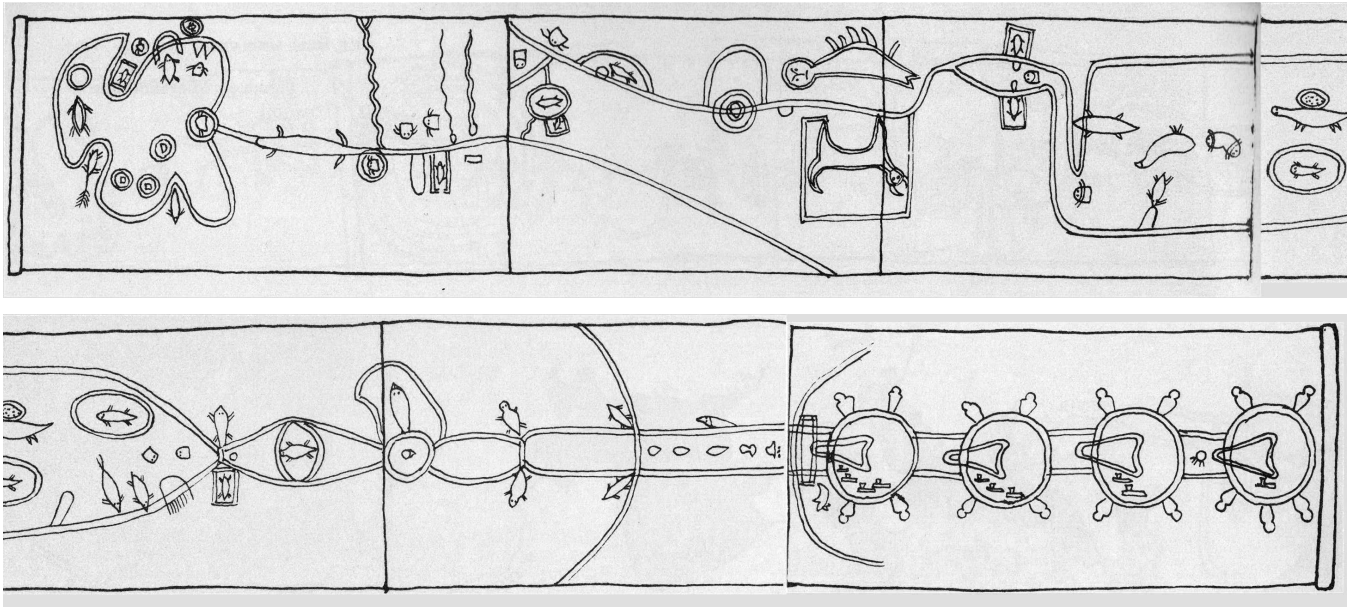


Figure 1. *Red Sky's Migration Chart*. From Selwyn Dewdney, *The Sacred Scrolls of the Southern Ojibway*. Toronto: Univ. of Toronto Press, 1975.

the planet's fresh surface water and 84% of North America's. For those who believe that "water is the new oil" of a precarious twenty-first century, these quantities make the lakes more valuable than the petroleum reserves Saudi Arabia and Venezuela wielded in the twentieth. Beyond its obvious aquatic assets, the region will also be insulated from extreme weather events like hurricanes and tornados, the worst of the expected floods, wild-fires, and increased prevalence of insect-borne disease, leading some to conclude that small cities like Sault Ste. Marie will be among the most desirable places to live in America by the next century. Urbanist and climate gentrification expert Jesse Keenan has even developed a marketing slogan for the destination he sees as most promising: "Climate-proof Duluth."

### CHALLENGES

Despite enthusiasm from local mayors and real estate agents, these unprecedented ecological and demographic changes pose two fundamental problems for those planning the area's urban future. The first will be pressure to construct resource-intensive architecture and extractive infrastructure to accommodate new environmental migrants. If millions of new residents are likely by 2100, then one might assume that vast numbers of new housing units are required, along with millions of square feet of commercial space, each emitting many tons of greenhouse gasses throughout construction and occupation. Even if this hypothetical urban project were to adhere the most ambitious mandates of a Green New Deal, it would still require enormous investments of embodied energy and materials, whether from "clean" sources or not. As environmental historian Troy Vettese has observed in comparing energy transition proposals with calls for degrowth, one of the difficult realities of any new development is that "even an eco-austere society will need steel and cement, if only for hundreds of thousands of wind turbines. For

both of these, fossil fuels are [still] indispensable ingredients." Under the greenest conditions, creating conventional architecture is never a zero-emissions proposition, a fundamental connection between construction and carbon which has led architect and scholar Charlotte Malterre-Barthes to call for "a Global Moratorium on New Construction." While such an impressive halt would surely be an effective means to limit future damage, it might prove difficult to achieve in places like rural Michigan, which would find itself with many new people, but no new buildings.

The second problem posed by an expanded urban future for the Great Lakes is that people already live there, and a significant number of them are descendants of Native communities that have called the region home since time immemorial. An influx of climate migrants creates a dangerous possibility of further dispossession, repeating the patterns of displacement that have marked some of the most tragic and shameful episodes in American and Canadian history. In fact, "climate-proof Duluth" sits atop the sixth stopping place of the Ojibwe migration, which remains a significant physical and spiritual home to Anishinaabe communities. Just outside Duluth lies the Fond du Lac Reservation, where there is substantial concern about an influx of new residents and development. Former Fond du Lac Tribal Chairwoman Karen Diver has said she "wants to be sure their arrival doesn't further degrade the natural resources that make Northern Minnesota special—and that Indigenous people aren't further marginalized (or further pushed off their land) by new migrants."

Imagining the future of the Great Lakes Region is therefore a challenge for urbanism that is multiplied threefold: demographically, ecologically, and ethically. But given the likelihood of a

population surge, what should be done? Is there a way to make a home for climate migrants that could be sustainable in terms of material and energy use, as well as ethical in respecting the sovereignty of the original inhabitants of the land? The most promising answer to these questions is as intuitively obvious as it is anathema to conventional ideas about progress and development: the best way to accommodate these imminent changes is to follow the spatial and relational models that sustained human life in the area for most of the last 12,000 years. By empowering Indigenous communities and tribal governments to take the lead in planning for the future of their homelands, spaces can be created for new arrivals while affirming Native sovereignty. If those spaces are built following traditional Anishinaabe material practices, they can reestablish relationships with local ecologies, rather than imposing the forms of heavy urbanism that have historically treated the landscape only as a resource to be exploited. An indigenous urbanism could create a new woodland nation surrounding the lakes, one that can begin to rebuild from the damage wrought by the twinned forces of colonialism and climate change.

### PROJECTIONS

If such a radical plan for the future of the region seems unprecedented, it is not. The Great Lakes have long been a favored site for ambitious urban projections. From the Erie Canal's 1825 opening of the region to trade and industry from the Atlantic, to the 1909 Burnham Plan for Chicago, to Benton McKaye and P. S. Lovejoy's projects for land reclamation in deforested stretches of the Midwest, to Frank Lloyd Wright's Broadacre City, the areas surrounding the "Nearctic Mediterranean" have been central to the American imagination surrounding urbanism and infrastructure. Perhaps the zenith of these plans came from Constantinos Doxiadis, whose comprehensive 1966 study of Detroit led him to propose "A Great Lakes Megalopolis." At the time, the city was still booming from the economic successes of the automotive industry, and its upward trajectory as a hub of growth and technical innovation placed it at the geographic and psychic center of a regional network of urban areas extending west to Milwaukee and Minneapolis and east along the St. Lawrence to include Montréal and Québec. The extensive documents his team of researchers produced included maps of climate, geology, resources, and land use at various scales, but didn't directly engage these features of the landscape. Instead the proposal consisted mostly of linking existing urban centers with a rational grid of transit, energy, and communications infrastructure, and placing new cities at intersections where they did not yet exist. The study's most optimistic projections for growth never materialized, due to the post-industrial hollowing of city centers throughout the Rust Belt, but Doxiadis's megalopolitan model for connecting otherwise discrete regions through transit and communications corridors finds echoes in the sprawling construction that continues to develop along the edges of the interstate highway system.

Detroit and the Great Lakes were only a starting point for Doxiadis and his Center of Ekistics, whose classification system projected outward to a continental-scale "eperopolis" and ultimately to a planet-sized city he called the "ecumenopolis"—an urban model that was expected to house 30 billion people and which he called "the inevitable city of the future." This utopian vision assumed that such an enormous system could somehow exist in equilibrium with the land below it, 50% of which he claimed could be left "natural." Such a statement seems blissfully naïve today, as the global effects of atmospheric carbon dioxide and the ubiquitous presence of plastics in the air and ocean have proven that such a clean division between the natural and man-made is impossible. Even with only eight billion humans, it has become clear that there is no corner of the Earth that our urban actions have left untouched.

But this was already clear to many at the time Doxiadis made his plans for such an improbable future. When the Club of Rome published *The Limits to Growth* in 1972, their research team had analyzed the same global trends in population growth and land use, but had arrived at very different conclusions. Chief among these was that the Earth has fundamental physical and ecological constraints which will ultimately resist our ever-expanding use of resources, no matter the technical or urban means by which these potentially disastrous results are delayed. Vital to the report was the understanding that all human habitation is fundamentally of the Earth, is enabled by it, and thus will always rely upon the planet's continued ecological existence. The world within the world—the one we build for ourselves—can never be a world apart. Doxiadis shared some of these concerns and expressed them in his writing, but remained agnostic about the ultimate carrying capacity of the planet, placing his faith in human ingenuity and the potential to create a more harmonious relationship between man and Earth through scientific planning.

### NO-STOP CITY

The ecumenopolis project was thoroughly technocratic in form and rhetoric, but its expansive, totalizing tendencies were also found in the more radical urban proposals of the era, particularly "No-Stop City" by Archizoom. The project, published in *Domus* in 1971, was developed as a critique of the limitless replication of contemporary urban space, but also as an exploration of its potential for creating new forms of human settlement. In imagining the growth of cities, it went far beyond Doxiadis's relative restraint, spreading constructed space in a "bleak, infinite grid of featureless structures extending to the vanishing point and beyond." In many representations, No-Stop City was shown with no exterior space, often with the plan filling the entire frame (fig. 2). This gave the impression that perhaps the whole planet had been converted to an amorphous interior, marked only by technical equipment supplying artificial light, air, and water—a space "made uniform by a system of micro-acclimatisation and optimal circulation." No-Stop City thus resisted architectural form making, defining the polis not by the shapes of its blocks and buildings but by the infrastructure that enables its existence.

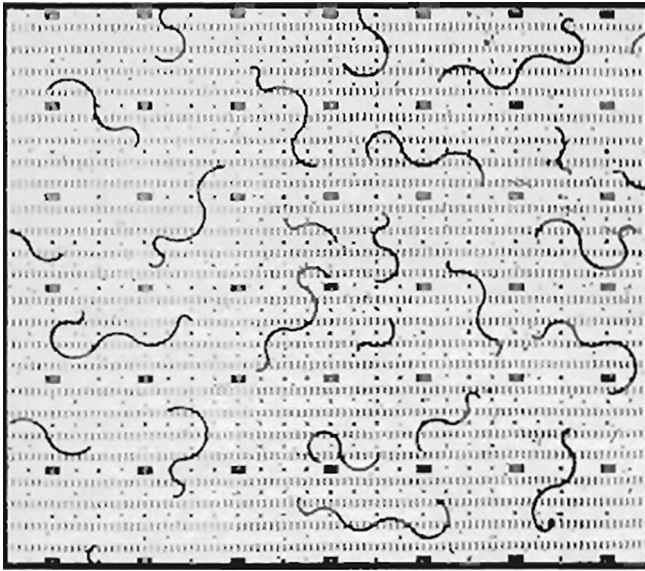


Figure 2. *Example of Continuous Habitation Plan.* Taken From Archizoom Associates, “No-Stop City: Residential Parkings, Climatic Universal Sistem.” *Domus*, no. 496 (March 1971).

It was an endless urbanism made entirely of figure, with no ground. An image of nude human bodies pitching their tents on carpet under the fluorescent daylighting suggested that even the state of nature had been brought within the boundaries of the high-tech city. But nowhere in the project was there a hint of the world’s resources from which this superstructure would be built. Where were the mines to supply the materials? How would the electricity be generated? Could the air be oxygenated without plant life? How could a system so infinite possibly be maintained? The sprawling, homogenous interior gives no answers to these questions. To an even greater degree than the Ecumenopolis, they are treated as externalities to the more central concerns of twentieth century urbanism: supplying growing populations with a particular standard of living through a well-designed, constructed system of distribution and control.

### STOP CITY

Externalities became harder to ignore in the decades that followed. Amid the 2007-2008 financial crisis, Dogma—the practice founded by Pier Vittorio Aureli and Martino Tattara—created a related radical urban project, entitled Stop City (fig. 3). This “urban theoretical model” was both a play on the imaginary endlessness of Archizoom’s proposal, and a reaction to the very real unchecked growth of the built environment that had come to characterize neoliberal urbanism. The project embraces No-Stop City’s generic vision of urban space, but sharply constrains it within “a basic unit—a 25m-thick slab, measuring 500 x 500m.” Eight of these enormous blank towers, “each housing 500,000 inhabitants” are located at the edge of a three-kilometer square, which is referred to variously as “green space,” “planted,” “canopy,” “forest,” and “empty.” This extreme plan, in which four million people would live along the edges of just nine square

kilometers of land, would give it a population density ten times that of Manila. If such a system could somehow proliferate, its huge populations would make the Ecumenopolis seem modest by comparison, but what it shares with the Ekistic proposal is a belief in the possibility of leaving much of the world *unbuilt*. While the words climate, ecology, and resources are notably absent from the text that describes Stop City, a certain concept of “nature” lies at the heart of its representations. The designers’ insistence on the power of architecture to create boundaries implies that the proper relationship between man and nature should be one of complete separation. While this repeats Doxiadis’s ignorance of the inescapable ecological implications of construction and energy use, the patch of wilderness framed at the center of the project suggests some sense of environmental consciousness. Indeed, the project could be read as an illustration of popular ideas about how to regenerate ecological systems and naturally sequester carbon. The isolated white towers around the big green square could be visualizations of ecological urbanism, or a scheme for urban rewilding, or even of biologist E. O. Wilson’s proposal to declare half of the Earth’s surface completely off-limits to human activity in order to restore biodiversity.

However, if this vision is compelling from an ecological perspective, it is only because of what it conceals. What Stop City, No-Stop City, and the Ecumenopolis all have in common is a reliance upon the invisibility of their ecological infrastructures. Each project is focused on spaces of human habitation—on the *polis* as distinct from the land beneath it—and thus they largely ignore the natural systems, conduits, flows and sources that are preconditions for all settlement patterns. Kiel Moe has called these often-ignored phenomena the “incorporeal” element of architecture, with each modern building accounting for a vast but invisible material and energetic empire. The forest preserve at the center of Stop City is a seductive patch of green, but the towers imply enormous fields of extraction that presumably lie elsewhere, and some energy-intensive means of shuttling things back and forth. None of this is hinted at in the projects. All of it remains buried or subliminal at best, which is typical for infrastructure, whose Latin prefix *infra* means “below.” In American urbanism, these supports have always been hidden beneath conscious experience. Despite each city’s reliance upon these systems, they remain unseen, ignored, or taken for granted.

### IMPERMANENT URBANISM

So much of what we consider urban today is taken for granted, but humanity’s recent ability to live in dense, energy-rich cities can in fact prove very fragile. Set in the twenty-year period after a pandemic-induced global collapse, Emily St. John Mandel’s 2014 novel *Station Eleven* follows a nomadic group of Shakespearean actors and musicians as they travel by foot on an annual circuit around Lake Michigan. One character lives in an airport that has been partially repurposed as a “Museum of Civilization,” with shelves filled with obsolete objects like a passport, credit cards, a blank-screened computer, and high-heeled shoes. He reflects on

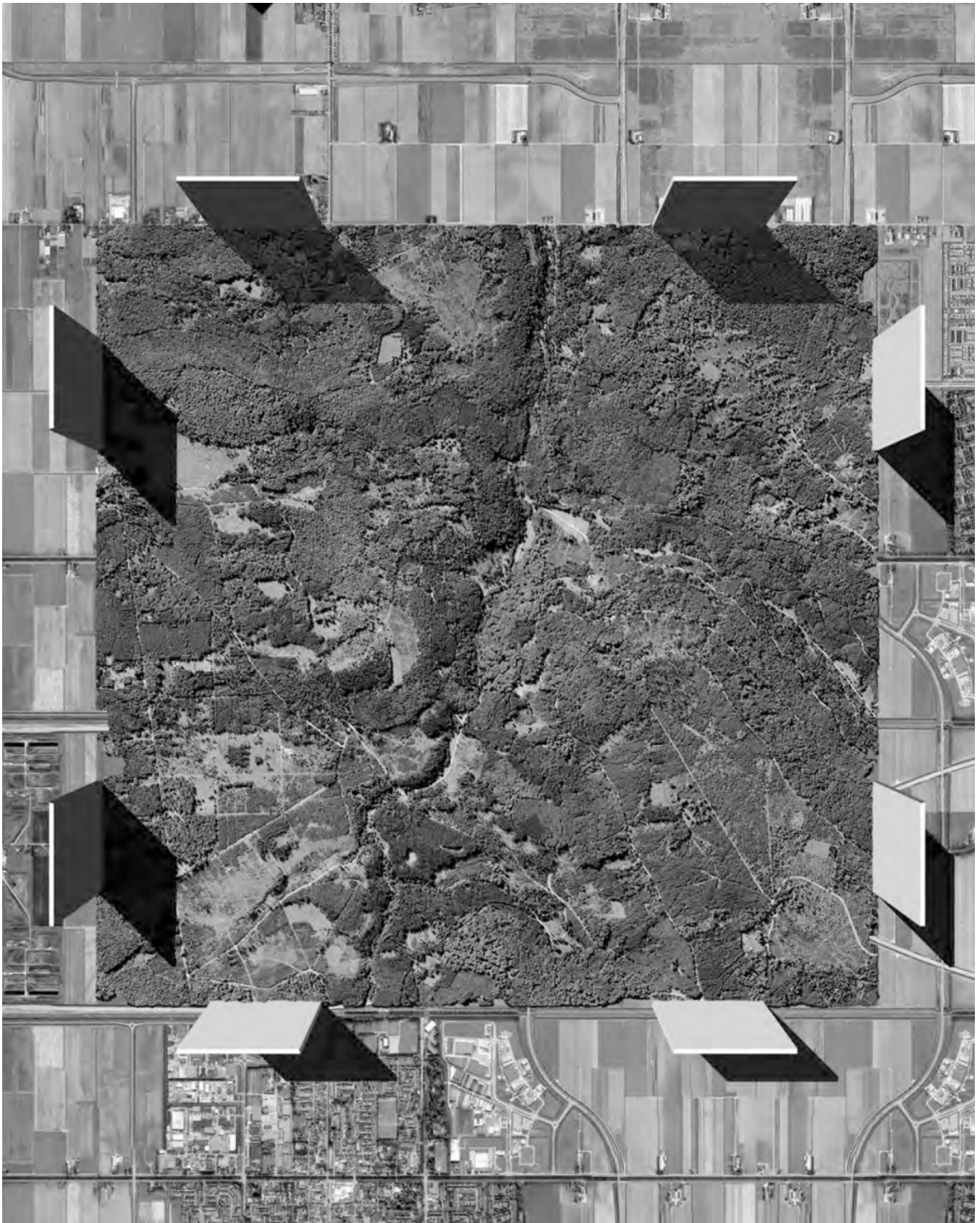


Figure 3. *Stop City. Dogma*, Pier Vittorio Aureli, and Martino Tattara. *Dogma: 11 Projects*. London: AA Publications, 2013.

the pre-pandemic era and how it was “incredible in retrospect, all of it...These taken for granted miracles that had persisted all around them.” While many of these miracles—wastewater treatment, electrical grids, air travel, supply chains—have today become prerequisites when planning for “sustainable development,” they are extremely recent phenomena in human history. Civilizations thrived for millennia without them, and as of 2023 their persistence into the future seems uncertain at best. As landscape architect Pierre Bélanger has observed, “If the singular continuity of centralized infrastructure has provided the path for Western urbanization, then the gloss of contemporary urban life—safe, stable, accessible—is maintained by the illusion of permanence that infrastructure outwardly projects.” This sense of urban permanence is an illusion to the same degree that it is dependent on artificially created infrastructure. The inconvenient truth is that these systems are unstable and contingent, because they rely upon the continued cooperation of human beings and the long-term success of the systems we’ve designed.

Bélanger calls for a reevaluation of these systems, suggesting that we begin to think of landscape as a form of infrastructure itself. To take this statement even further, we might say that ecology *is* infrastructure—what the Club of Rome called Earth’s carrying capacity—it is the ability to support life. Viewed this way, global ecological systems might be considered *infra* not because they are buried or concealed, but because they are foundational to human existence. Ecological systems sit “below” because they are the first building blocks that must be in place to support anything we would hope to create on top of them. This newly understood form of infrastructure is therefore not the same as sewers, roads, or communication networks. Ecological systems are much more necessary.

They are also more robust. Or at least they can be. Under non-industrial conditions, Earth’s ecology proved more resilient than the infrastructure that serves our cities. This is not to say it has been more constant, as the planet’s systems tend to follow what ecologist Howard T. Odum called a “pulsing paradigm”—a tendency to ebb and flow that is more successful over time than systems which attempt to sustain a “climax” state. The past century of human interference notwithstanding, global ecosystems have generally been successful in providing for the basic needs of human life: vegetation produces and distributes resources; waterways connect communities; fungi and microorganisms remove waste. These systems perform their own maintenance, they have built-in redundancies, they are self-propagating, they are self-limiting, and their design has been optimized through millions of years of testing and prototyping. In short, they can exist without us.

Through this lens, current proposals by city governments to manage environmental crisis through geoengineering projects or terraforming seem absurd. Such practices of scientific management cannot help but reinforce the ontological separation between human and natural systems that sits at the heart of 150

years of urban planning and 500 years of colonial exploitation. If the radical urban projects considered here are any indication, continuing these divisions is destined to transform half the globe into wastelands of economic exploitation, or vast areas we decide to isolate and abandon.

The Earth is not a problem to be solved, but a home to be lived in and alongside. Its systems should be understood and accepted as fundamentally in flux and beyond human control, but at the same time impossible to separate from human activity. Indeed, we remain dependent on the Earth because we are products of it, and therefore everything we make or do—from an imagined state of nature to the most complex megalopolis—remains part of its system. To understand urbanism in this relational context means giving up the design disciplines’ desire for permanence and certainty. Maintaining inherently changeable infrastructure instead requires building relationships of care, obligation, and respect, all values that are characteristic of the Anishinaabe worldview that has connected humans to the land and waters of the Great Lakes for centuries. Kyle Whyte, a professor of philosophy and environmental justice at the University of Michigan and a member of the Citizen Potawatomi Nation describes how a sense of continuity can exist alongside acceptance of change:

Anishinaabe philosophies often involve migratory themes such as constant motion, change, transformation, mobility, and adjustment...Migration suggests that relationships of interdependence and systems of responsibility are not grounded on stable or static relationships with the environment. Rather, these relationships arise from contexts of constant change and transformation. A key idea is that relationships that are constantly shifting do not sacrifice the possibility of continuity.

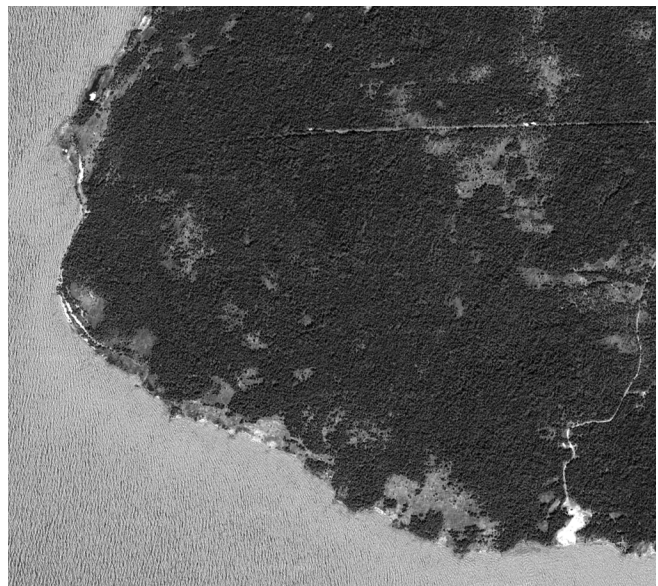


Figure 4. *No City: Urbanism for the Great Lakes*. Illustration by Author.

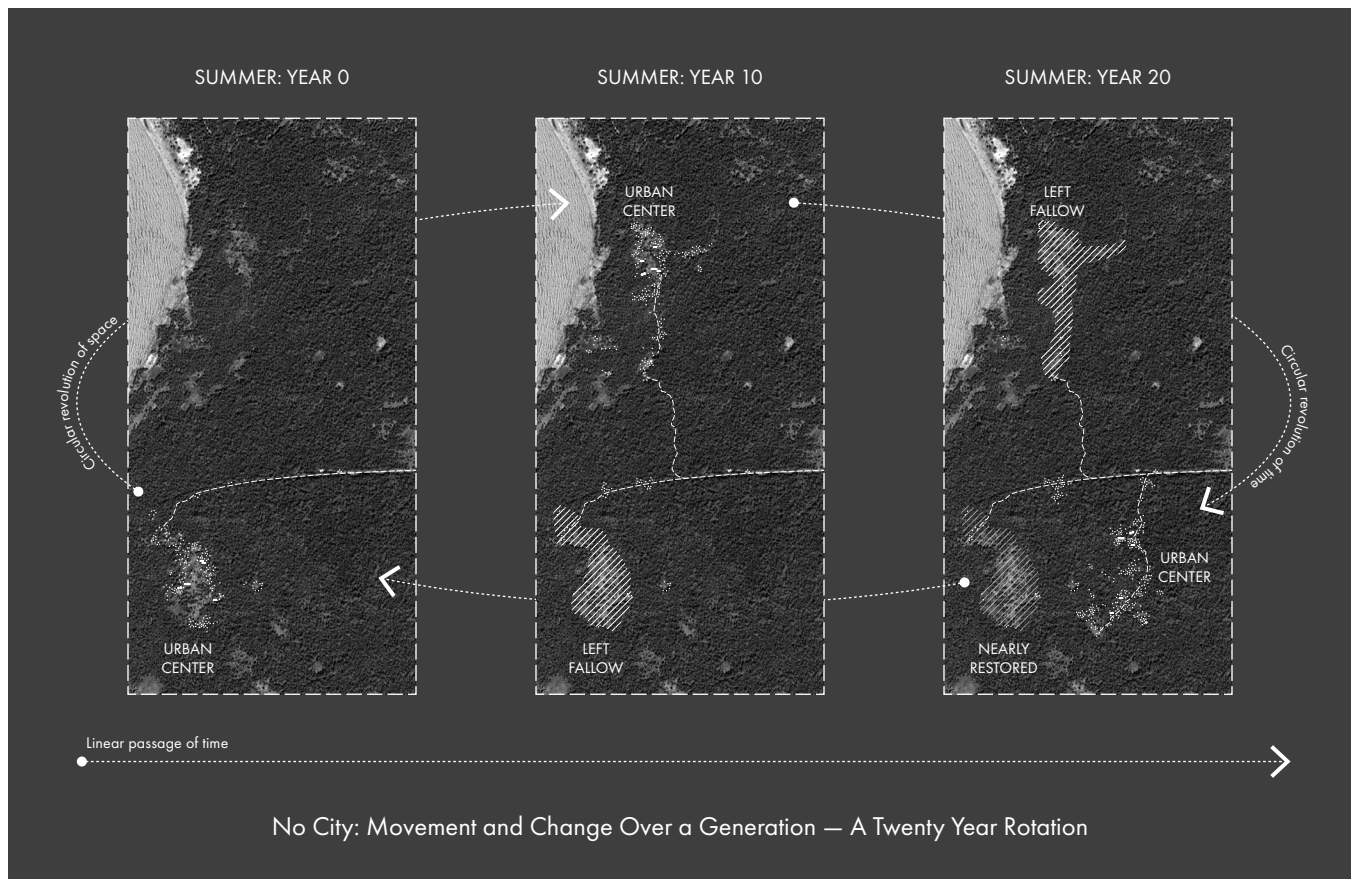


Figure 5. *No City: Movement and Change Over a Generation*. Illustration by Author.

Most anxieties about the future of the Great Lakes, and about the future of the planet more generally stem from uncertainties about transformation—from a fear of the coming change. As Whyte describes, the impending migration is nothing new to the Anishinaabeg, whose viewpoint accepts change, mobility, and adaptation as central to what it means to live in relation to other people, species, and the land and water. This lies at the heart of what Whyte calls “collective continuance,” the idea that living by relationships, instead of by structures assumed to be fixed and stable, is ultimately a better proposition for adaptation. When those structures inevitably change, a community that lives in relation can change with them.

### NO CITY

Many skeptics of techno-utopian schemes for a global energy transition argue that “degrowth” is the only way forward. While this concept has been sketched out in economic terms, it is not clear what it might look like for cities. Some propositions suggest that human endeavors should abandon patterns of accumulation and production and instead focus on “human flourishing,” but it is not yet obvious what urban form it would take.<sup>6</sup> O. M. Ungers’ Green Archipelago designed for Berlin and experiments with land banking in places like Youngstown and Detroit give some hint at what shrinking cities might do,<sup>7</sup> but they don’t provide

a clear vision of how to live with weaker economic activity but stronger ecological relationships. Among urbanists at least, it would appear there is no spatial model.

Following the trajectory of the radical projects of Archizoom and Dogma, but turning conclusively away from the tradition of heavy development they represent, “No City” proposes a redefinition of the concept of urbanism in planning for the future of the Great Lakes (fig. 4). This new definition considers unbuilt features of ecology and practices of transient dwelling—two spheres typically considered to be non-urban—as worthy objects of study, and the most promising sites for human persistence into the future.

A precondition of No City is the return of land and waters throughout the Great Lakes to Anishinaabe people as a way to affirm tribal sovereignty and begin the process of reestablishing broader relationships with ecological systems. In 2021 David Treuer, a member of the Leech Lake Band of Ojibwe, argued persuasively in *The Atlantic* for a similar proposal: to return of the land in all of the National Parks to Native people. Traditional cultural, religious, material, and spatial practices of Indigenous people across North America are rooted in respect for, reliance upon, and obligations to the landscapes from which they

originate. In such a worldview, the world that humans construct can never be seen as a world apart. If responsible stewardship of local ecology is the goal, this is the obvious starting point.

Reestablishing ecological relationships means acknowledging the periodic cycles that mark seasons, years, and generations. Living in relationship means understanding that ecosystems, climates, and populations change, and that urban forms should change along with them. Ecological historian William Cronon writes in his book *Changes in the Land* that Indigenous people “had learned to exploit the seasonal diversity of their environment by practicing mobility...villages were not fixed geographical entities: their size and location changed on a seasonal basis, communities breaking up and reassembling as social and ecological needs required.” This flexible urban arrangement that changes form and moves throughout the year is fundamental to No City (fig. 5).

The construction of buildings in No City should be based on Anishinaabe traditions of light, portable structures made from materials immediately at hand, like the bent sapling frames of the *waaginogaan* and the *wanagekogamig*. The use of locally abundant birch, maple, cedar, spruce, pine, and reeds in their construction shows ecology clearly acting as a vital form of infrastructure. These types of small buildings can be made quickly, repaired easily, and at the end of their useful lifetimes simply left to reenter the carbon cycle, relying on ecological processes and organisms to accommodate the death of the buildings just as they contributed to their births. These structures, like many examples of ephemeral urbanism are successful “because they consider the possibility of their own deconstruction in advance.”

No City requires not only a new spatial model but also a dramatic reconfiguration of values: away from outdated ideas about labor, individualism, and private property that were not native to the region in the first place. Cronon describes the arrival of these ideas along with the settlers who believed in them, writing that while native “villages moved from habitat to habitat to find maximum abundance through minimal work, and so reduce their impact on the land...the English believed in and required permanent settlements...here was the central conflict in the ways Indians and colonists interacted with their environments. The struggle was over two ways of living and using the seasons of the year, and it expressed itself in how two peoples conceived of property, wealth, and boundaries on the landscape.” Perhaps then, this form of settlement, of land tenure, of agriculture, of industry, and of urbanism—all of which were imported to the Lakes 400 years ago—are simply not suited to the environment. It’s becoming increasingly clear these obsolete systems may be nearing their disappearance, and what future growth will bring to the watershed remains uncertain. As a model for an expanded sense of urbanism, No City at least gives the region the capacity to adapt.



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