

Archipelagoes of Weak Formed Buildings: Contemporary Ecology Informing Contemporary Architecture

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"Laws control our lives, and they are designed to preserve a model of society based on values learned from mythology. Only after re-imagining our myths can we coherently remodel our lives, and hope to keep our society in a realistic relationship to what is actual."

– William Kittredge (1)

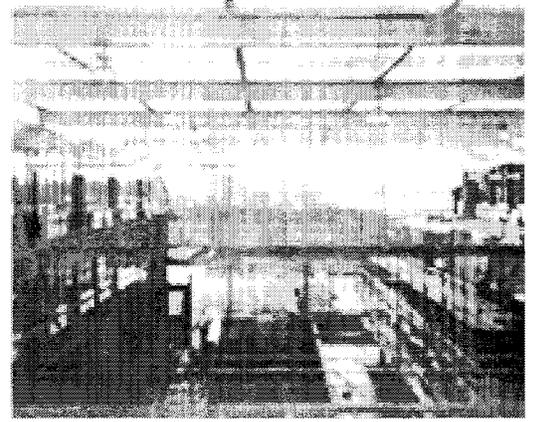
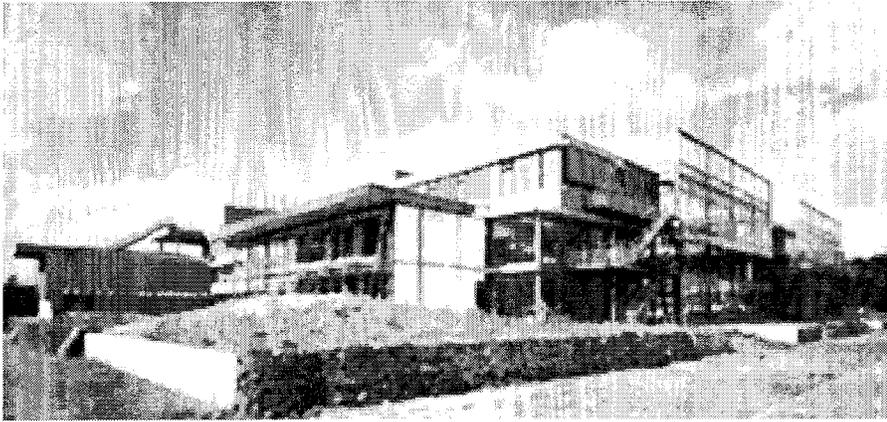
The many-sided critique of modern architecture that emerged in the decades following World War II, issuing from such diverse sources as Heidegger, Aldo van Eyck and the Frankfurt School, coincided with a growing awareness of the human engendered environmental crisis, articulated by well-known figures such as Rachel Carson and Aldo Leopold. These efforts aimed to destabilize the foundations of positivist modernism, to speak critically of its consequences, and to suggest that its powerfully crude language was unfit for a world more complex than it could recognize. The many agendas that followed from these initial undertakings, both in architecture and in the environmental movement, attempted to advocate ways of living, thinking, acting and making that are in greater concert with a richer and more diverse understanding of the nature of our world.

The architectural historian and theorist Ignasi de Sola-Morales has recounted several waves of architectural positions that seek answers to the crisis of modernism (2). Some attempt to mend fissures through a process of purification—a revisiting of modernism's original tenets, while some endeavor to replace this paradigm by reviving and reinterpreting even older traditions and rules. Still other movements recognize the nostalgic futility and potential tyranny of substituting one unified vision with another, and acknowledge an archipelago of perspectives and interpretations that constitute our current relationship to the world. Deconstructivism, for example, declares a fragmentary and subjective reality, and looks to the syntax of language as a signal for architecture, yet so far the

built artifacts born of these efforts seem at best metaphorically superficial translations of original theories of communication.

Recent trends in green building or sustainable design represent yet another vision for architecture that resonates with contemporary conditions. Its advocates claim the enormous potential of green architecture derives from its adherence to realities of ecology, that legitimacy follows upon sensitive recognition of the laws of nature. Yet to date its sources of meaning and consequent methods of organization have not been grounded in a rigorous theoretical context, out of which a more profound and compelling position might emerge. Perhaps ecologically sensitive building can offer more than enhanced energy performance and the utilization of environmentally friendly materials, as important as these developments are. Perhaps strategies for formulating, ordering and representing architecture can germinate from contemporary understandings of ecology and the environment, of the interaction between organisms and their surroundings including human/nature relationships. Through this process we might even rethink the problem of building itself, of the terms and metaphors we use to describe architecture, of what buildings become and how they interface with the landscape.

In this essay I wish to focus on one recent and compelling building example, Behnisch & Partner's IBN Institute for Forestry and Nature (1993-97) in Wageningen, The Netherlands (3). The IBN, a European Union Pilot Project for environmentally friendly building and also fittingly a center for ecological research, is organized around a set of ideas that have led simultaneously to innovations in energy conservation, thermal and spatial richness, and the experience of the building itself *as a landscape*.



Figs. 1 and 2. IBN West Façade and West Atrium in Late Stages of Construction.

WEAK FORMED BUILDINGS

"The order architecture in its highest sense should help establish must have its measure in and be an interpretation of an order that is glimpsed rather than created."
(4) — Karsten Harries

In his essay "Ecological Fragmentation in the Fifties," Michael E. Barbour describes a paradigmatic shift in ecological thinking that took place during this momentous decade: "prior to the 1950's, nature was simplistic and deterministic; after the 1950's nature became complex, fuzzy edged and probabilistic (5)." The Nebraskan Frederic Edward Clements dominated ecological discourse in the first half of the twentieth century. Clements believed that within a particular climate region "sharp-edged" communities of biota could be identified and described. Organisms comprising such a community develop tight interdependence, such that disruptions to one species in the community will impact all. Ultimately, however, all communities progress towards stability and homogeneity, or climax states. The sum of organisms and interactions between organisms within a community is sufficiently orderly, predictable and self-sustaining that we may conceptualize a community as an organism itself.

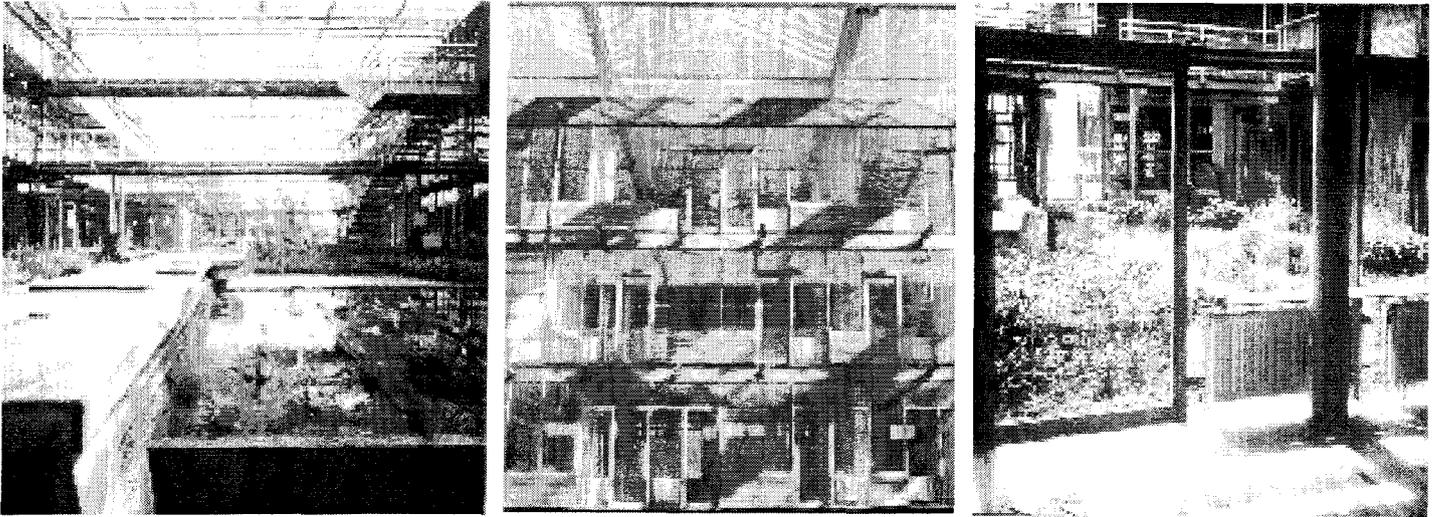
A contemporary of Clements, Henry Gleason, offered a more open-ended description of the lives and interactions of biological organisms. For Gleason, communities are artifacts of the human imagination, born of the compulsion to find order where change, chance and coincidence prevail. No one can predict with certainty how plants in a particular location will tend to be distributed, for "every variation in the environment, whether in space or in time...produces a corresponding variation in the structure of the vegetation." (6) Environmental disturbances even generate subtle yet distinct genetic variation among members of one species, such that we may grant a status of independence or singularity to individuals within the species. Interactions between organisms are dizzyingly intricate, to the point where ecological reality is not only "more complex than we think, it is more complex than we *can* think." (7)

Largely overlooked for decades, Gleason's writings influenced a move away from Clementian orthodoxy and remain germane to our understanding of the natural environment to this day. Even those contemporary ecologists who maintain that a community is a convenient and often dependable model for understanding how organisms spread, reproduce and evolve recognize its limits; that at best we can only hope to glimpse an overarching pattern of organization as opposed to providing a conclusive description.

Barbour argues that these individualistic inclinations among researchers in the field of ecology are to be understood in light of larger cultural and scientific trends gaining popularity at this time, not excluding emerging conceptions in the field of architecture. An incomplete inventory of these developments might include a call for plurality and diversity; an assertion of identity and a resistance to conformity; free associations of spontaneous events or "happenings"; and Thomas Kuhn's paradigmatic conceptualization of science and scientific revolutions.

Recent work by Behnisch & Partner Architects of Stuttgart, Germany, in particular the IBN project, finds metaphorical resonance with these prevailing views of ecology. A building is not to be viewed as a discrete and clear entity (analogous to a describable community or organism) but rather as a continuum of quasi-independent spaces and systems crystallizing at loci of human activity. The architect's role is to employ constellations of elements in such a way as to unbuild preconceived distinctions between one building and another and between a building and the landscape. No building is complete but a fragment that finds "glimpsed" resolution in an acknowledgment of something larger, in linkages to systems and flows that transcend any one site.

architecture Like a walk in the woods, as we proceed through a work of we identify individual elements (columns, for example, akin to trees), singular in location and spirit, at the same time we understand these to be associated with other like individuals (a system of columns, for example, akin to a forest). A project



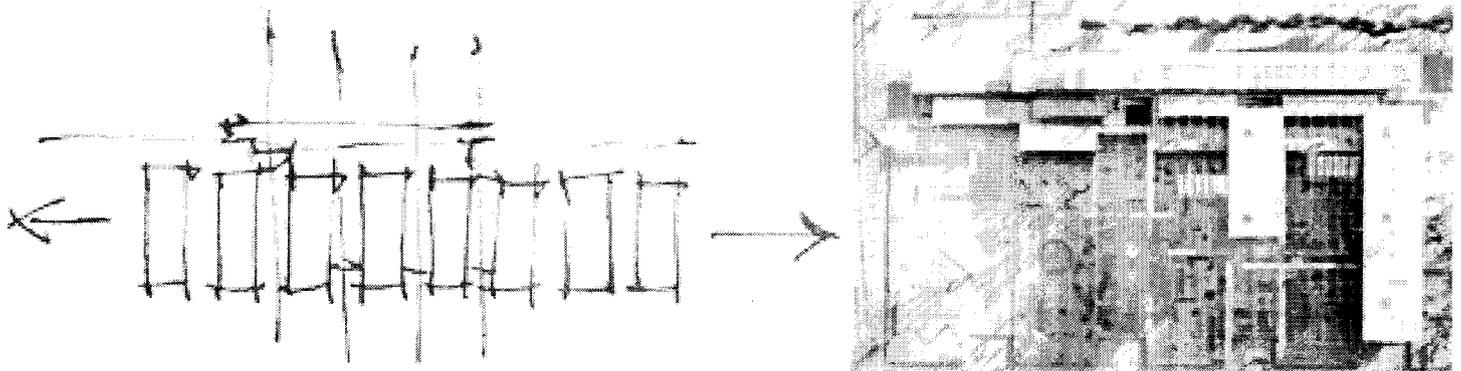
Figs. 3, 4 and 5. IBN East Atrium Garden Looking South From Graywater Storage Pool; Office Façades During Construction; View from Office Looking South to West Atrium Garden.

does not reveal a clear and immediate order; nevertheless, we find our walk to be not chaotic but legible, stimulating, unfolding.

Elements clump at certain locations or events, where at other times and places they disperse, and we come upon relatively expansive, light and transparent spatial landscapes. A diversity of conditions exists - luminous, textural, material, thermal. A quiet complexity reveals itself in Behnisch & Partner's concepts for detailing and deployment of structure. A gridline of columns is typically offset from partition walls so the two systems never come into contact, creating dynamic spatial tension. When elements DO touch, when shelves are hung from a wall for example, there is an intermediate element that serves as the transitional joint - a spatial pause - that preserves the integrity of the elements thus joined. An assemblage of independent space characterizing entities defines the architecture, each with a life of its own, taking root, maturing and blooming. Given the complex set of procedures that constitute the modern building project - procedures that can never be controlled completely - this loose ordering enables graceful and strategic integration of

unforeseen elements that are inevitably called into being - the fire marshal's demand for sprinklers, a client's change of heart.

The thermal richness and diversity of space is most revealing of the "greenness" of the IBN. The project is not a sealed steady-state box but a collage of un-, semi- and fully conditioned spaces, from arrival and threshold to circulation and destination, from exterior to buffer to interior. As a basic organizational idea, the architects separated the laboratories, with demanding requirements for ventilation and temperature and humidity control, from the offices, housing them in a long bar to the north. The offices, where slight variations in temperature and humidity are permissible (and therefore where energy conservation opportunities are great), are grouped in a series of wings running in a north-south axis to the south of - and perpendicular to - the labs. Singled glazed greenhouses span garden spaces between office wings, utilizing "off the shelf" technology, cheap and easily obtainable in The Netherlands. The atria that are created serve as buffers for the offices, helping keep them warm in the winter and cool in the summer, obviating the need for air conditioning and enabling a downsizing of the heating system, leading to rates of energy consumption fifty percent of



Figs. 6 and 7. Competition Diagram "The Building Grows Between the Gardens": Plan View of Competition Model.

that of conventional office buildings. More importantly, because the greenhouse roofs provide a first layer of protection against the elements, the office facades are relatively simple, open and “porous” in detail. Each office has its own set of louvered panels that assist natural ventilation as well as a sliding door opening to a balcony or terrace in an atrium garden. With all offices linked to gardens, the atria become the social heart of the Institute, where scientists gather, conduct research, share lunch and confer.

With the IBN, not only is a looser spatial order recognized, one offering gradients of thermal opportunity, but the dynamic of time as well, an anticipation of the inevitability of growth and decay. A landscape structure of approximately 60' x 100' “postage stamp” shaped gardens organizes the building on the site. The design of each garden is suggestive of a general biotope found in The Netherlands: a grassland garden, a marsh garden, a Woodland garden, etc. Each of the three office wings sit between two of these gardens and are said to “grow between the gardens.” In the likely event that the Institute’s scope of mission enlarges, that it secures grants and hires researchers and finds itself in need of additional space, the garden structure anticipates the location of new wings. The building is incomplete, is never complete but “weak formed,” ever able to evolve in response to changing needs.

REGENERATIVE ARCHIPELAGOES

“The critique of modernism that is one of environmentalism’s most important contributions to the moral and political discourse of our time more often than not appeals, explicitly or implicitly, to wilderness as the standard against which to measure the failings of our human world... But the trouble with wilderness is that it quietly expresses and reproduces the very values it seeks to reject. The flight from history that is very nearly the core of wilderness represents the false hope of an escape from responsibility, the illusion that we can somehow wipe clean the slate of our past and return to the tabula rasa that supposedly existed before we began to leave our marks on the world.” (8) – William Cronon

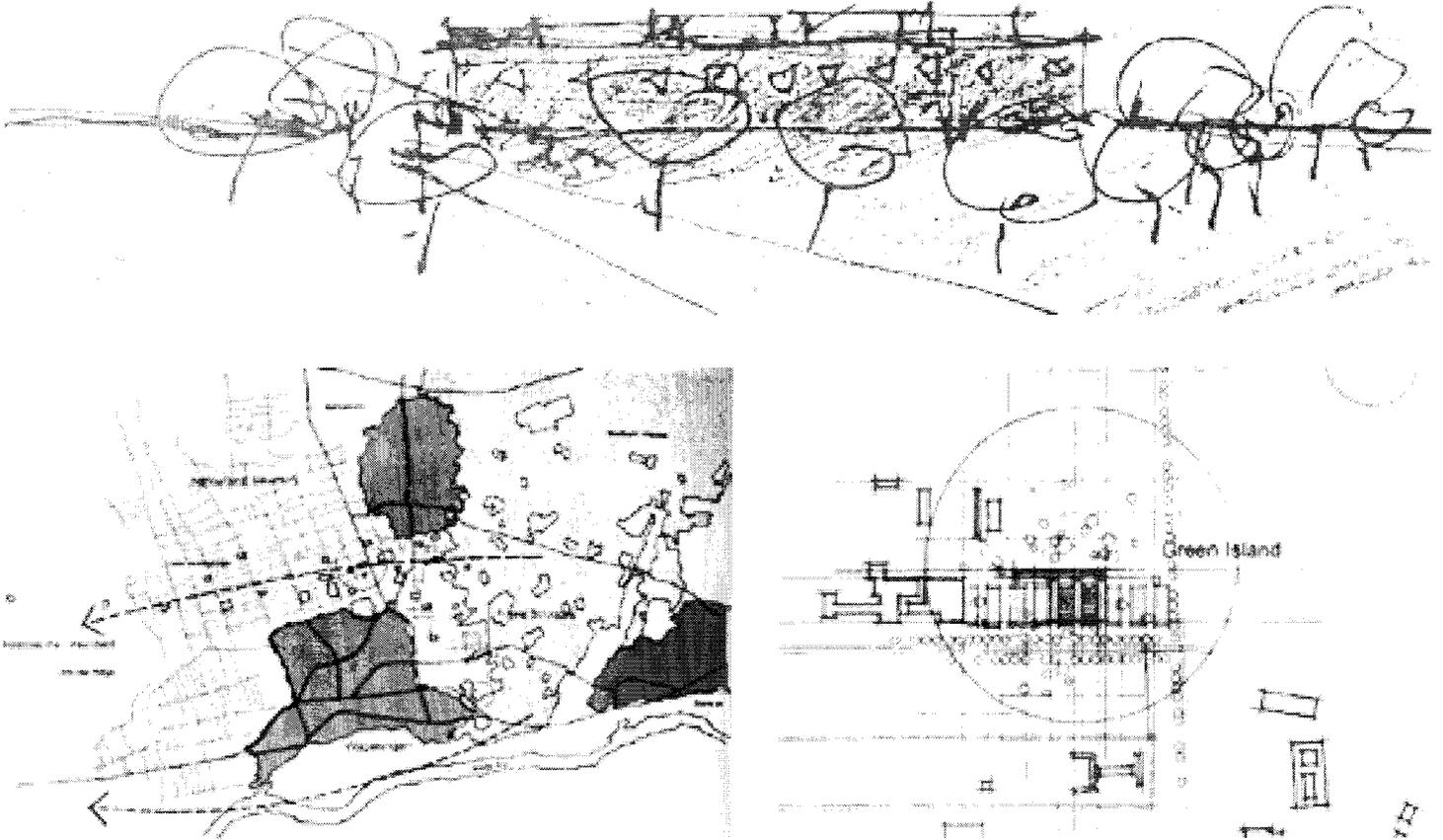
The recent controversy surrounding the environmental historian William Cronon’s essay “The Trouble with Wilderness” cannot be underestimated. He dismantles a cherished belief among the environmental community in arguing that wilderness is not as much a real phenomenon “out there” as a psychological distancing of ourselves from the “other”—the unknown and uncontrollable—that has its origins in the bewilderment first described by Europeans in the middle ages and felt intensely by settlers upon arriving, pioneering and settling the North American Continent. Today, the idea of wilderness is not only unviable (how can a wilderness area or a natural preserve—an island of supposedly pristine biota—be

bounded and managed AND wild?), but also silent to the question of how we are to act in this world in a way that is simultaneously productive and environmentally sensitive. The trouble with wilderness is that it leads to a reassurance that as long as repositories of creatures (and hope) exist “out there”, we can continue to conduct our affairs as we always have without regard to environmental quality and health in our own backyards.

If environmental designers accept Cronon’s argument, we are led to the conclusion that prospects for preventing further ecological destruction and species extinction are bound into the question of how we build our own habitats. We would not only aggressively adopt construction methods that minimize site impacts, but actually realize projects that enhance habitat quality and ecological diversity. We would acknowledge that the sphere of influence of our work extends beyond any one site and would preserve (and where damaged previously, strengthen) linkages to larger natural patterns, corridors, margins and flows.

To the north of the IBN and running parallel to the lab wing stands a living “green wall.” Twenty-five foot tall wooden poles are set into the ground twenty feet on center. Reed mats stretch between the poles and serve as an armature for the growth of vines. Regularly spaced poplars and irregularly spaced shrubs are also planted to fill in the wall over time, as mats deteriorate. Most people visiting the IBN for the first time arrive by car from the north, many coming in taxis from the nearby Ede-Wageningen train station, and the green wall is the first they see of the Institute. The green wall serves human ends, acting as a billboard or identity marker for the IBN. It also extends beyond the building to the east and west, connecting forested margins at the property edges, creating habitat corridors for small mammals and rodents. Ultimately, if neighbors follow suit and create their own green walls, a contiguous network of paths and habitat islands—a “green archipelago”—will be established that connects the Hoge Veluwe (“high forest”) to the east and the forested Utrechtse Ridge to the west. Despite great pressure to build in this formerly agricultural area, if development proceeds in the manner of the IBN, it is hoped, the amount and diversity of wildlife will increase.

It should be noted that the ponds in the gardens and the retention marsh to the north of the green wall as well as the moss-covered roofs of the IBN enhance ecological health and improve microclimates in and around the building. Rainwater run-off from roofs, for example, is directed to the marsh, and is used to irrigate atria garden plantings. The evapotranspiration of this vegetation helps cool the atria spaces, and in turn the offices. These roofs and ponds also provide a diversity of habitat and forage for fish and birds and other creatures. Where possible, something built to fulfill a need for the staff of the IBN also becomes territory for wildlife.



Figs. 8, 9 and 10. Competition Diagram "Green Wall as Immediate Identity of IBN": Region Plan – Linking Forested Areas to the East and West With a Green Corridor; Vicinity Plan – IBN as one "Green Island" in a "Green Archipelago".

DESCRIBING AN ARCHITECTURE OF CONTEMPORARY ECOLOGIES

The most clearly articulated challenges to modernism derive meaning from sources other than our understanding of the physical world—sources such as media, language, previous architectural languages, etc. Those architects who have looked to the physical world as inspiration have made certain claims to legitimize their views, claims such as "everything is connected to everything else," that are accepted by many in the environmental community but are not necessarily substantiated by contemporary ecological thought. Our efforts would be better situated by considering more carefully what ecology and contemporary environmental theory can tell us about building ecologically. Behnisch & Partner's IBN Institute is one outcome of such a consideration, not a tightly ordered edifice but a flexible, open-ended and interactive arrangement of individual entities in space.

With anything we borrow, there are limits to what ecology can tell us about architecture, and as ever there is the necessity of thoughtful interpretation. Such interpretations might erode outdated distinctions and encourage the notion of a building as a set of physical, spatial, functional and ecological relationships in the landscape. The building becomes the landscape, something lively, vibrant and vital. The IBN is a beginning, a volunteer suggesting a more profound ecological constructivism, where roles and methods are inclusive and responsive to a dialogue between what we make and what others, humans and non-humans, make of it.

NOTES

¹ William Kittredge. *Owning It All*. Saint Paul, MN: Graywolf Press, 1987: 64.

² See in particular Ignasi de Sola-Morales' essay "From Autonomy to Untimeliness" for an excellent critique of these subsequent architectural movements

in *Differences: Topographies of Contemporary Architecture*. Cambridge, MA: MIT Press, 1997.

³ The description of the IBN in this paper is a firsthand account. I worked for Behnisch & Partner from 1993-1997 and was a member of the IBN design team from the competition phase through construction.

⁴ Karsten Harries. *The Ethical Function of Architecture*. Cambridge, MA: MIT Press, 1997: 364.

⁵ Michael E. Barbour. "Ecological Fragmentation in the Fifties." *Uncommon Ground: Rethinking the Human Place in Nature*. New York: W.W. Norton & Company, 1995: 233.

⁶ Michael E. Barbour: 237.

⁷ Michael E. Barbour: 247.

⁸ William Cronon. "The Trouble with Wilderness: or, Getting Back to the Wrong Nature." *Uncommon Ground: Rethinking the Human Place in Nature*. New York: W.W. Norton & Company, 1995: 80.

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