There and Elsewhere: Architecture and the Political Ecological City

In 2012, Aaron Betsky critiqued not only the newly redesigned One World Trade Center (1WTC), but also the architectural aspirations in contemporary culture at large. His review offered a tepid "meh" in reaction to David Childs's design, calling it "Not bad, not good, but just there."[1] But upon closer inspection, 1WTC is more than "just there." In fact, it is very much there—and, perhaps equally as important, elsewhere. The network of actors mobilized by 1WTC offers a glimpse into a more nuanced understanding of both architecture and the city. In this reading, political ecology offers a theoretical framework for explaining the imbrication of both human and non-human actors in disparate geographies.

BRENT STURLAUGSON
University of Kentucky

THERE

In what *New Yorker* architectural critic Paul Goldberger described as "a careful balance between commemorating the lives lost and reestablishing the life of the site itself," Daniel Libeskind's master plan for the World Trade Center site provided the basis for Childs's 1WTC design.[2] Few features of this design received more criticism than the base, which underwent three redesigns in as many years.

The first round of design changes to the tower base arose two years after Childs began working on the project. In 2005, New York Governor George Pataki responded to NYPD recommendations to move the tower from 25 to 90 feet away from West Street, and include a reinforced concrete blast wall measuring 200 feet high. According to Police Commissioner Ray Kelly, these recommendations were guided by counterterrorism experts who identified vehicle-based bombs as "one of the greatest threats to such iconic structures."[3] Governor Pataki's orders prompted a redesign by Childs, who attempted to soften these counterterrorism measures by enlivening the standoff distance and cladding the blast wall in steel, aluminum, and titanium panels. At the time, Childs insisted the "bold and simple" design would remain a "marker in the sky."[4] As a marker on the ground, however, the design suffered in its reception with architectural critics.

Despite Childs's apparent confidence, the first round of design changes was met with resounding dissatisfaction. Kenneth J. Ringler, Jr., executive director of the Port Authority of New York and New Jersey, relayed these sentiments, saying, "There were a lot of concerns that this was going to look like a fortress."[5] Attempting to assuage these concerns, Childs proposed a second redesign of the tower base. Expressing an unbridled confidence, Ringler trusted in Childs whose "artistic skills should alleviate many of those fears."[6] While the standoff distance from West Street would remain unchanged, the concrete blast wall would be masked in laminated glass panels with prismatic striations carved into the surface. Reacting to Childs's proposal, Governor Pataki expressed his approval, saying, "the building is light and very luminescent and very inviting, and at the same time meets the highest

security standards in the world."[7] Still, some critics were displeased, including a prominent New York City architect who said the design seemed "a little uninspired for a building of this magnitude."[8]

In 2007, *New York Times* architectural critic Nicolai Ouroussoff lambasted the second redesign that had both Ringler and Governor Pataki so impressed. Aside from labeling the entire project as one "tainted by personal hubris and political expediency," Ouroussoff called the tower a "clumsy bloated form" that "vaguely recalls the worst of postmodernist historicism."[9] Focusing his critique on the tower base, Ouroussoff criticized the second redesign as a "failure of ambition," calling it a "barricaded fortress" that "speaks less of resilience and tolerance than of paranoia."[10] For Childs, the modest ambition of the project was to "establish a relationship with the water cascading in the memorial pools."[11] Some critics, however, wanted more.

Not only was the second redesign dismantled by the city's most visible architectural critics, it also failed to withstand required stress tests. After fending off attacks for his decision to have the prismatic striations fabricated abroad, Childs found the laminated glass panels were not performing according to design specifications and was forced to jettison the idea.[12] An estimated $6 to $10 million was spent on the second redesign.[13] In response to these material intolerances and critical upheaval, a third round of design changes began, one that would draw together a host of actors in unsuspecting ways.

Hoping to preserve the lightness and security previously championed by Governor Pataki, Childs's third redesign of the 1WTC base consisted of a combination of the previous two proposals. Behind a vertical array of louvered glass panels, a screen of stainless steel plates was intended to improve the blast performance of the assembly. Another *New York Times* architectural critic, Michael Kimmelman, described the third redesign as a "concrete bunker, only partly disguised behind a butterflylike louvered glass panels."[14] Quoting a New York City architect as saying, "It's not so bad," Kimmelman concludes his critique with a resounding thud: "Not so bad should never be good enough."[15]

ELSEWHERE

The contractors involved in Childs's third redesign, however, were thrilled with what Kimmelman called "not so bad." Construction documents for the base assembly called for type T316 stainless steel to be supplied by a steel distributor in Philadelphia. The 230 tons of product specified in the design originated several hundred miles downstream from Pittsburgh at North American Stainless (NAS) in Carroll County, Kentucky. Situated on the banks of the Ohio River, NAS leads the United States in stainless steel production with an annual yield of 1.2 million tons, after 25 years in operation and a $2.6 billion investment.[16] Commenting on the opportunity to produce material for Childs's third redesign, one NAS worker said, "it's great that a project with such national significance should use American made stainless steel."[17]

The location of NAS along the Ohio River was the calculated result of political, economic, and environmental forces. In 1990, the parent company of NAS, Acerinox, elected to expand operations beyond their base in Spain. Carroll County offered an attractive location for several reasons. According to Cristobal Fuentes, CEO of NAS, the greenfield site enabled Acerinox to "plan the layout of the plant in order to maximize efficiencies."[18] Additionally, the majority of raw material consumed by the NAS facility derives from scrap stainless steel, which also has a thriving market in Carroll County. Moreover, electrical rates in Kentucky are among the lowest in the United States, and the new NAS plant was planned adjacent to one of the region's largest power plants. These factors, among others, are highlighted in Carroll County government publications, proudly advertising low taxes, plentiful space, and no zoning ordinances.

The Ghent Generating Station, owned by Kentucky Utilities (KU), is the coal-fired power plant from which NAS draws its electrical power. With machinery that demands an unprecedented capacity, the relationship between KU and NAS is mutually profitable. Both companies, however, have infringed on federal policy in substantial ways. In 2011, the Supreme Court found NAS in violation of Title VII of the Civil Rights Act for a retaliatory firing, ruling that the defendant was "not an accidental victim of the retaliation—collateral damage, so to speak, of the employer's unlawful act. To the contrary, injuring him was the employer's intended means."[19] In 2013, KU was forced to spend $57 million to "install a sulfuric acid mist emission control system, replace a coal-fired boiler, and pay a civil penalty of $300,000 to resolve alleged Clean Air Act violations."[20] Missing the purpose of regulations geared toward environmental protection, a spokesperson for KU said "the company agreed to the settlement as a way to avoid costly litigation."[21] The infractions of NAS and KU allude to a broader discussion of regulation not to be overlooked, but for the purposes of this paper, the story of "there" and "elsewhere" ends here. Needless to say, Childs's third round of design changes for 1WTC assembled a wide range of actors, challenging assumptions of what architecture involves, how cities are defined, and what constitutes urban environments. Explaining this assemblage, however, requires a historical and theoretical detour through both ecological and political ecological conceptions of the city.

THE ECOLOGICAL CITY

In the early twentieth century, sociologists in the Chicago School developed theories of the city based on ecological models, ideas that would have a lasting impact on subsequent urban theory. At the same time, however, other scholars imagined more complex and contingent models that resisted simplification. While dominant theories from the Chicago School purportedly relied on an ecological understanding, alternative readings from the School of Social Science Administration might better reflect the complexity immanent to ecologies.

In his seminal work, "The City: Suggestions for the Investigation of Human Behavior in the City Environment," Robert E. Park considers the city as an institution, which he defines as "a section of corporate human nature plus the machinery and the instrumentalities through which that human nature operates."[22] In this construction, "human nature" is universal, and "machinery" acts upon it, rendering urban subjects passive. Park continues to explain that "the effect of the urban environment is to intensify all effects of crisis."[23] This underscores the passivity of subjects and activity of the "machinery." Park concludes, "The city, in short, shows the good and evil in human nature in excess," not based on variation among subjects, but due to the "machinery" at work in the urban environment.[24] For these reasons, Park posits the city as "a laboratory or clinic in which human nature and social processes may be most conveniently and profitably studied."[25] Park's theoretical framework emphasizes the influence of non-human actors on social behavior, one that his colleagues would infuse with additional ecological rhetoric.

Several years later, Ernest Burgess's "The Growth of the City: An Introduction to a Research Project" explains how cities grow in terms of metabolic processes, finding mobility as the register of this growth. For Burgess, mobility is "a change of movement in response to a new stimulus or situation" and "may be measured not only by these changes of movement, but also by increase of contacts."[26] He proposes several metrics of mobility, of which land value is determined to be most salient. These observations build on Park's theory of the institutional character of cities, yet rather than foregrounding the influence of the "machinery," Burgess examines the interactivity of human and non-human actors. These he famously diagrams as concentric rings in which social behavior corresponds to its proximity to the center.

Roderick D. McKenzie also examines social processes in cities using an ecological framework, particularly those with spatial and temporal effects. In "The Ecological Approach to the Study

ENDNOTES

1. Aaron Betsky, "One World Trade Center's Descent into 'Meh,'" *Architect*, August 13, 2012, accessed September 23, 2015, http://www.architectmagazine.com/design/one-world-trade-centers-descent-into-meh_o
2. Paul Goldberger, "Shaping the Void," *New Yorker*, September 12, 2011, accessed September 23, 2015, http://www.newyorker.com/magazine/2011/09/12/shaping-the-void
3. Phil Hirschkorn, "New WTC Tower Design Made Public," *CNN*, June 29, 2005
4. Ibid
5. David W. Dunlap and Glenn Collins, "Freedom Tower Sheds the Look of Bulky Armor," *New York Times*, June 29, 2006, accessed September 23, 2015, http://www.nytimes.com/2006/06/29/nyregion/29freedom.html?pagewan
6. Ibid
7. Ibid
8. Ibid
9. Nicolai Ouroussoff, "A Tower That Sends a Message of Anxiety, Not Ambition," *New York Times*, February 19, 2007, accessed September 23, 2015, http://www.nytimes.com/2007/02/19/arts/design/19towe.html
10. Ibid
11. Joann Gonchar, "One World Trade Center," *Architectural Record*, September 2011, accessed September 24, 2015, http://archrecord.construction.com/projects/portfolio/2011/09/one-world-trade-center.asp
12. Charles V. Bagli, "Feature at Trade Center Is Halted After $10 Million," *New York Times*, May 11, 2011, accessed September 23, 2015, http://www.nytimes.com/2011/05/12/nyregion/at-1-world-trade-center-effort-to-cover-base-in-glass-is-dropped.html?_r=1
13. Karen Zraick, "World Trade Center Update: Prismatic Glass Façade For WTC Tower Scrapped," *Huffington Post*, May 12, 2011, accessed September 23, 2015, http://www.huffingtonpost.com/2011/05/12/world-trade-center-update_n_860992.html
14. Michael Kimmelman, "A Soaring Emblem of New York, and Its Upside-Down Priorities," *New York Times*, November 29, 2014, accessed September 23, 2015, http://www.nytimes.com/2014/11/30/nyregion/is-one-world-trade-center-rises-in-lower-manhattan-a-design-success.html?ref=topics
15. Ibid
16. Josh Shepherd, "Stainless Steel's Kentuckys Home," *Lane Report*, July 9, 2015, accessed September 23, 2015, http://www.lanereport.com/51152/2015/07/stainless-steels-kentucky-home/

of the Human Community" he contends that communities remain stable until external stimuli are introduced and reorganize the system. In his words, "The community tends to remain in this condition of balance between population and resources until some new element enters to disturb the *status quo*, such as the introduction of a new system of communication, a new type of industry, or a different form of utilization of the existing economic base."[27] These processes balance in what he calls "natural areas," or "well-defined areas, each having its own peculiar selective and cultural characteristics."[28] Like Park and Burgess, McKenzie subscribes to an ecological model in which human and non-human actors engage in a self-regulating process. For many in the Chicago School, the city is described by measurable input, defined either as "human nature" or "machinery."

Resisting the inheritance of a neatly packaged social science canon, geographer David Sibley explains how ideas from men in the Chicago School overshadowed contemporaneous contributions by women in the School of Social Service Administration. Sibley attributes this historiographical preference to several factors, among them the political compatibility of scientific knowledge purported by sociologists in the Chicago School. In his words, "The ascendancy of masculine over feminine knowledge in Chicago in the 1920s might also be expressed as the ascendancy of conservatism over socialism. It was objective, scientific knowledge which gained legitimacy partly because the political climate was amenable."[29] While not offering an alternative theorization of cities, Sibley reveals how ideas themselves operate within an ecological framework, one that computes more than simply "human nature" and "machinery."

In a related investigation, Elaine Lewinnek documents the spatial analysis of the Chicago School, reaching similar conclusions as Sibley. First, she uses Burgess's diagram to show how maps influenced land use and speculation in twentieth century Chicago. For Lewinnek, the Chicago School asserted that "people compete for space 'on a biotic, subconscious level,'" an observation consistent with Park's sentiments on "human nature."[30] According to this model, "human nature," or land use, responds to "machinery," or in her case, maps. Next, she unsettles Burgess's diagram by uncovering several more complicated analyses done by Burgess's students. In these unpublished studies, "The specific, grounded evidence that all these dissertations explored revealed not natural circular zones but contested corridors, radiating outward and exhibiting deep complexity."[31] Like Sibley, Lewinnek offers an alternative reading of the simplifications made by prominent sociologists in the Chicago School.

While Park, Burgess, and McKenzie developed theories of the city based on a narrow ecological understanding, others embraced complexity and contingency. What remained an equation of "human nature" and "machinery" for some was destabilized by others, preferring instead a more nuanced reading. If not identifiably ecological in their approaches, alternative theories to the Chicago School reflected more accurately the dynamism inherent to cities. However, explaining the relationship between the 1WTC and NAS in strictly ecological terms leaves several variables unresolved.

THE POLITICAL ECOLOGICAL CITY

Among the manifold definitions of political ecology—an accommodating, if not ambiguous research framework—Bruno Latour's *Politics of Nature: How to Bring the Sciences into Democracy* stands out for its philosophical clarity. For Latour, "Political ecology is said to have to do with 'nature in its links with society.'"[32] However, Latour problematizes this definition, writing, "But this nature becomes knowable through the intermediary of the sciences; it has been formed through networks of instruments; it is defined through the interventions of professions, disciplines, and protocols; it is distributed via data bases; it is provided with arguments through the intermediary of learned societies."[33] Like many of Latour's contributions, he asks, quite simply: how does it work? With this problematization, Latour offers a guide by

which other theories of political ecology might be evaluated. Alongside Latour, contributions from Eric Swyngedouw, Roger Keil, Bruce Braun, and Hillary Angelo and David Wachsmuth help explain how urban political ecology works.

In "The City as a Hybrid: On Nature, Society, and Cyborg Urbanization," Swyngedouw opens with epigraphs from Henri Lefebvre, David Harvey, Donna Haraway, and Bruno Latour, situating his intervention within a field of thinkers broadly considering the intersection of nature and society. Swyngedouw's contribution to this already mature discourse includes, among other concepts, the idea of the "city as a cyborg," which "opens up a new arena for thinking and acting on the city, an arena that is neither local nor global, but that weaves a network that is always simultaneously deeply localized and extends its reach over a certain scale, a certain spatial surface."[34] Like Lefebvre and Harvey, Swyngedouw proposes blurring the distinction between nature and society, and like Haraway and Latour, Swyngedouw urges a research methodology based on networks, not sites.

Keil, in "Progress Report: Urban Political Ecology," introduces a research framework for integrating political ecology with urban studies. He calls this, quite simply, urban political ecology, which he defines as "the regulation of our relationships with nature in cities."[35] Keil's apparent contribution to existing literature lies in the emphasis of seemingly unnatural, or urban, processes in political ecological analyses. Urbanization, for Keil, "is not merely a linear distancing of human life from nature, but rather a process by which new and more complex relationships of society and nature are created."[36] In this preliminary report, Keil offers a reorientation for political ecology to focus on urban processes.

In "Environmental Issues: Writing a More-Than-Human Geography," Braun reviews relevant literature in political ecology and urban studies. In this review, Braun emphasizes the necessarily spatial qualities of these discourses. For Braun, one shortcoming of these analyses is that "cities are understood as spatially bounded and homogeneous, eliding the networks that link local places and actors with others elsewhere, and the vast disparities that exist within cities."[37]

Angelo and Wachsmuth, in "Urbanizing Political Ecology: A Critique of Methodological Cityism," extend research on urban political ecology to include global environmental concerns. Following Lefebvre's idea of urban society, which describes the inescapable urbanization of the world, Angelo and Wachsmuth propose an expanded conception of urban political ecology that obliterates the site-specific analyses characteristic of many urban political ecological studies.[38]

Latour's problematization of political ecology calls for definitions that articulate its mechanisms. Those of Swyngedouw, Keil, Braun, and Angelo and Wachsmuth respond to this call, and contribute to understanding how political ecology actually works. Swyngedouw describes political ecology as the "process of the production of networks and socio-nature to refer to the product, the hybrid, the quasi-object."[39] Keil defines it as an "approach rooted in political economy and cultural studies and critically branching out to understand relationships between society and the natural world."[40] Braun identifies the characteristics of political ecology as "access to resources, marginalization of certain social groups, the local/global economic context of environmental conflicts, the role of the state as an environmental manager, the power-laden practice of environmental science, the significance of local community institutions."[41] Angelo and Wachsmuth define it via Blaikie and Brookfield, for whom it describes "the constantly shifting dialectic between society and land-based resources, and also within classes and groups within society itself."[42] According to these theorists, political ecology works as a process, approach, mediation, and dialectic. Together, political ecology offers a productive framework for understanding the entangled geographies of New York City and Carroll County.

17. North American Stainless, "NAS Stainless Steel to be Used in New York's 'Freedom Tower,'" issued July 6, 2011, accessed September 23, 2015, http://www.northamericanstainless.com/2011/07/06/nas-stainless-steel-to-be-used-in-new-york%E2%80%99s-%E2%80%9Cfreedom-tower%E2%80%9D/

18. North American Stainless, "NAS: A Reference in the Stainless Steel Industry," November 8, 2011 (presentation), accessed September 24, 2015

19. Supreme Court of the United States, *Thompson v. North American Stainless, LP*, No. 09-291, argued December 7, 2010, decided January 24, 2011

20. Jason McDonald, "Kentucky Utilities to Spend Millions in Settlement to Resolve Clean Air Act Violations in Environmental Justice Community," EPA, January 2, 2013, accessed September 24, 2015, http://yosemite.epa.gov/opa/admpress.nsf/0c0affede4f840bc8525781f00436213/8e1970012b47f45085257ae7006d1b97!OpenDocument

21. James Bruggers, "KU Agrees to Power Plant Penalties," *Courier-Journal*, January 2, 2013, accessed September 23, 2015, http://blogs.courier-journal.com/watchdogearth/2013/01/02/ku-agrees-to-power-plant-penalties/

22. Robert E. Park, "The City: Suggestions for the Investigation of Behavior in the City Environment," *American Journal of Sociology* 20 (1915): 577

23. Ibid, 596

24. Ibid, 612

25. Ibid, 612

26. Ernest Burgess, "The Growth of the City: An Introduction to a Research Project," in *The City*, Robert E. Park, Ernest Burgess, and Roderick D. McKenzie, eds. (Chicago: University of Chicago Press, 1925), 58, 60

27. Roderick D. McKenzie, "The Ecological Approach to the Study of the Human Community," *American Journal of Sociology* 30 (1924): 292

28. Ibid, 300

29. David Sibley, "Gender, Science, Politics, and Geographies of the City," *Gender, Place, and Culture: A Journal of Feminist Geography* 2, no. 1 (1995): 46

30. Elaine Lewinnek, "Mapping Chicago, Imagining Metropolises: Reconsidering the Zonal Model of Urban Growth," *Journal of Urban History* 36 (March 2010): 211

31. Ibid, 214

32. Bruno Latour, *Politics of Nature: How to Bring the Sciences into Democracy* (Cambridge: Harvard University Press, 2004), 4

33. Ibid, 4

34. Eric Swyngedouw, "The City as a Hybrid: on Nature, Society, and Cyborg Urbanization," *Capitalism Nature Socialism* 7, no. 2 (1996): 80

35. Roger Keil, "Urban Political Ecology," *Urban Geography* 24, no. 8 (2003): 729

36. Ibid, 729

37. Bruce Braun, "Environmental Issues: Writing a More-than-human Urban Geography," *Progress in Human Geography* 29, no. 5 (2005): 636

38. Hillary Angelo and David Wachsmuth, "Urbanizing Urban Political Ecology: A Critique of Methodological Cityism," *International Journal of Urban and Regional Research* (2014), 16-27

39. Latour, *Politics of Nature*, 70

40. Keil, "Urban Political Ecology," 728

41. Braun, "Environmental Issues," 644

42. Angelo and Wachsmuth, "Urbanizing Urban Political Ecology," 17

43. Kimmelman, "A Soaring Emblem of New York, and Its Upside-Down Priorities"

CONCLUSION

David Childs's redesigns for the base of 1WTC received an exceptional amount of press. Politicians appreciated its dutiful adherence to counterterrorism measures, and critics relished in the opportunity to sink their teeth into what one admitted was "a nearly impossible task: devising a tower at once somber and soaring, open and unassailable, dignified but not dull."[43] In these discussions, few details received more attention than the tower base. The resulting design mobilized a network of distant actors in shaping one of the world's most visible constructions. Understanding the role of architecture within this network, however, requires a more complex understanding of the city than those conventionally available to design disciplines. Political ecology, drawing from a diverse set of disciplines, provides a critical lens for seeing how architecture mobilizes a network of seemingly discordant actors.

Architectural education can draw on political ecology in three ways. First, analyses that consider a multitude of actors—both human and non-human—in the construction of sites, structures, and practices infuse projects with political, environmental, and historical depth. For example, a supply chain analysis at the outset of a design project stimulates thinking beyond the immediate context, and encourages a holistic approach. Second, representations that grapple with diverse geographies offer a critical lens for interpreting cities. For example, a section drawing that shows the quantity and quality of labor and materials introduces a spatial perspective to complex relations often drawn in plan. Third, designs that challenge disciplinary domains and venture into the realm of human geography, science and technology studies, and political theory create opportunities for meaningful interdisciplinary discussions rooted in spatial practices. Combined, political ecological approaches to architectural education open many possibilities for critical engagement with urban discourses. Despite Betsky's critique of 1WTC as being "a beacon in a landscape of meh," the political ecology of architecture renders the landscape—both there and elsewhere—charged for critical inquiry into what constitutes the city.