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**Water-Centric Architectural Design Meets the Now of Environmental Futures**

“A work of architecture is not an object sitting in isolation but a confluence of nature and culture, a nexus of visual and functional linkages. People inhabit architecture as ecological infrastructure” (p. 59). In _Blue Architecture: Water, Design, and Environmental Futures_, Brook Muller builds from this characterization of twenty-first-century architecture, proposing that water and watershed hold the key to more environmentally stable architectural and urban futures. Current-day “green” values—“resilience, equity, ecological responsiveness, and sufficient and suitable quality water for all”—prompt Muller to pair water-minded architectural design cases with interdisciplinary humanities reasoning as he “teases out the profound architectural and cultural complexity [of] hydrological problems” (p. 1). He prioritizes “blue” over “green,” calling on architects and planners to lead together by valuing “an approach to design that reverses what is typical in architecture,” making _water and larger watershed contexts_ primal partners. His proposal transforms the very relationship between built environments and the terrains that situate them (p. 59). For Muller, this integration must take place _with_ the watershed, not discretely _upon_ or _within_ it. A basic analogy might be a confluence of two rivers, where two waterways slow and spread, comingling with and resculpting their terrains. Led by this idea of watershed, where natural waters meander inseparably _with_ the terrains _through which_ they flow, Muller argues that “hydro-minded” designs, when grounded in humanities-based cultural thinking and language, can redefine “urban architectures as ecological infrastructures,” total ecosystems where natural and built environments comingle (p. 99). A career design practitioner, author, and dean of the College of Arts and Architecture at the University of North Carolina at Charlotte, Muller urges the architecture professions to initiate col-
laborations with urban planners and with each other, led by water.

Since 1994, architecture's environmental sustainability has been defined by the US Green Building Council, with LEED (Leadership in Energy and Environmental Design) certification targeting designs, materials, and methods as criteria for "green building." The aim, ultimately toward "net-zero" internal energy use, challenges designers to create independent sustainable buildings. Muller goes beyond LEED adjustments in procedures, materials, and energy use, arguing persuasively that, to effectively work toward lasting environmental change, architectural proposals must begin with and be defined by water within the context of a larger watershed. This approach defines an area that fans out organically from a building site, extending the idea of "site" to involve the broad flows that situate architectural "environments."

Muller honors the agency of waters, that is, waters' own preferred movements within their watersheds.[1] Starting here requires overhauls of social and cultural values that define landscape, earth, terrain, ownership. Here, architecture associates itself with unbounded terrains in situated watershed contexts and is guided by a "hydrologic," an identity of belonging inseparable from the total watershed. "Water," Muller writes, "once seen as the great liability that the architect and engineer are trained to get rid of as quickly as possible, settles and becomes integral to building and landscape performance and design expression" (p. 69).

In the process of this "reversal" in thinking about architecture, all of Muller's hydro-strategies rely on "devising common languages" (p. 83). A hydro-centric language, both discursive and visualization, must articulate, model, and standardize hydrologic processes to unlock change in planning and practice. Muller builds on two kinds of sources for his scenario: first, the field standard of case studies in architectural design, and second, a long-overdue correlative, the language and historiography of the humanities. He draws from such humanists as John Dewey, Le Corbusier, Jacques Derrida, Paul Ricoeur, T. S. Eliot, Ursula Le Guin, and others. He cites ideas from environmental studies and cultural ecology in the 1970s, writings on global warming into and beyond the 1990s, and thinkers on sustainability in the current century. By this millennium's second decade, critical directions in the new subdiscipline of the environmental humanities,[2] urban design studies, and environmental justice have turned the compass toward water as cultural place-maker for sustainable change.[3]

This interdisciplinary, humanities-focused water discourse, where water takes primacy in broadening conversations about climate futures, has most recently been termed the "hydrohumanities," as the key idea in the book Hydrohumanities: Water Discourse and Environmental Futures.[4] Here, interdisciplinary environmental humanists and water scholars, varying in perspective from critical race and gender studies to political science, photography history, landscape design, agricultural labor studies, comparative literature, and environmental philosophy, posit water as the prime mover in any nature-culture discourse. The nearly concurrent publication of Hydrohumanities (December 2021) with Blue Architecture (April 2022), each book under way independently, signals an emergent environmental humanities discourse centered on water. I disclose this connection with my own Hydrohumanities work as a relevant companion to Muller’s, where "thinking with water" opens the transformational cultural thinking Muller advocates.[5] Soon, hydro-architectural design problems resolved with total-watershed hydrohumanities approaches will become a cultural commonplace as "hydrologically responsive urban architectures" lead to more stable urbanisms (p. 65).

Muller acknowledges that “blue architecture” is in its infancy. He contributes new vocabulary to
A growing humanities discourse deeply informed by water: “water-centric,” “hydro-architectural,” “hydro-logical,” “hydro-social,” “hydro-urban,” “hydro-humanistic,” “hydro-minded.” Watershed-centered language, argues Miller, ensures that “the temporal dimension assumes a heightened design role and involves a willingness to invite water as a shaping force and dynamic medium” in human-water-earth interactions, so that figurations like “collection, flow and overflow, inundation, suspension, and concentration—terms that tell of lastingness, latency, and span—assume importance in the emergent nomenclature of hydro-architecture” (p. 63).

As I consider Muller’s full proposal, I wonder if the term “hydro-architecture” might more dynamically activate the complexities the author claims for watershed-minded design than his term “blue architecture.” Indeed, even though the color-based takeoff from “green” and “gray” to “blue” is a natural one (engaging ecology, pollution, and water, respectively), to my mind the term does not quite convey the complexity or the depth of Muller’s conceptualization. One might argue, for example, that a LEED building could be described as “blue architecture” and as “green building,” yet it might still be site-based and self-referencing, discrete from the watershed. By contrast, the idea “hydro-architecture” engages the eco-complexity of Muller’s proposition, much as the term “hydro-humanities” encompasses a more nuanced totality than “blue humanities.” I mention these ideas as cornerstones for continued discussion.

Muller initiates discussion of “constructive tensions” in his introduction and in chapter 1, “Hydraulic or Hydrologic?” (p. 103). He differentiates between the two terms, where “hydraulic” describes systems of water extraction that create a “natural resource” using aggressive industrial infrastructures that alter water’s role, the watershed, and the geosphere, and where “hydrologic” describes holistic processes of thinking that aim for interdependency, integration, and regeneration among water, watershed, terrains, architecture, and city planning.

In chapter 2, Muller successfully “redraws” the breadth of the watershed in relation to site-based architecture, showing ways that waters and their vastly dimensional land flows can be reimagined in partnership with architecture. Diagrams, schematics, and case studies show how watershed-architecture enmeshments in contemporary designs can create stronger lives for water, for architecture, and for planetary eco-stability.

Muller’s chapter 3 presents his discussion of language as the crucial element of hydro-design thinking. It is an argument in the making, leaving space to deepen this humanistic proposal. He offers a “water budget” concept to reinterpret how water systems and building demands can work together within aquatic contexts to reconfigure material, political, economic, and cultural variables (p. 47).

Following from this, chapter 4 proposes revamping conventional practices of ridding sites of “wastewater” by considering contaminants and gray waters as design drivers. Decentralized infrastructures become “living machines” within a total urban context (p. 81). Several models propose biologically driven ecologies that adapt to chemistries of pollutants, using “portfolio approaches” grounded in water-user-builder-regulator collaborations (p. 52).

An important thought experiment, chapter 5 examines the concept of “horizon” to model how this embedded cultural idea can transform into future thinking about water, architecture, and watershed. Muller exposes “the construct of the horizon” (p. 83) and its co-construct “landscape” as habits of cultural thinking (p. 98). The traditional “horizon,” Muller advances, is an imaginary, ever-distant, and never-knowable “line” where land meets sky. As environmental crises multiply, planetary thinking enlarges and moves above and beyond that spatial horizon line to envision total watersheds as the topography of a spherical body.
with its own needs and wants. Muller draws on a “watershed mind” (p. 93) idea from political ecology, and on concepts like temporality, scale, extent, function, form, surface, and depth from art and architectural history, literary criticism, philosophy, and cultural anthropology. Watersheds are situated, too, Muller shows, within changing mechanisms of the planet and its climate, and within changing societies and cultures. Muller sees an erasure of the conventional “horizon” replaced by entire expanses of earth shaped by water flows and undulating terrains, a “practical horizon” that will be the clay that shapes hydro-architectural conceptualization (p. 93).

Chapter 6 and the epilogue examine ways to reform “habitual practices, traditional delegation of roles, and norms of communication” that hinder water-centric change (p. 101). The author discusses tools for studying watershed-and-city, citing topographic mapping conventions and eco-geographical historiography in tandem with current international design cases whose hydro-architectures “pair with the parent environment,” conjoining into watershed-urban extents (p. 113). Muller’s ideal projects (from dozens cited) include community development water planning by Re-code in Portland, Oregon; adaptive ecology projects by Hyphae Design Laboratory of Oakland, California; inclusive hydro-decision-making at the Center for Sustainable Infrastructure in Washington, DC; “hydrologically poetic” (p. 54) architectures by Glenn Murcutt in New South Wales; and Melbourne, Australia’s source-to-sea trajectories that feed water-centric urban visions.

For Muller, “water infrastructure becomes an urban design asset” (p. 77), an “enabling hinge” (p. 61) for a discourse leading to changed orientations toward water and architecture. As to the implied educational aspect, Muller’s important if brief introduction of “didactic” (p. 77) infrastructure and hydro-design pedagogy await fuller development. One essential point Muller’s book leaves for others is that of hierarchical power relations as a driver of hydro-urban space design. As hydro-architecture and hydrohumanities discourses grow, scholars and practitioners must incorporate critical discussions of architecture’s and water’s relation to status, influence, belonging, and access for social, racial, labor, urban, and environmental equity, in the spirit of Blue Architecture’s call for hydro-inclusivity.[6]

For millennia, hydraulic systems have colonized waters and watersheds, canalizing and pipelining them to death. Muller’s model pulls planners, designers, and scholars into a growing conversation that calls on water first to guide future populations away from isolated resource extraction, industrial conveyance, and erasure schemes whose ethics and economies are becoming outmoded, and toward our era’s urgency for more inclusive human-nature approaches. Brook Muller’s Blue Architecture rightly looks to water and watersheds as integrative designer-builders in “the hydrological city” (p. 103).

Notes


[3]. In addition to Muller’s sources, see, for example: Cecilia Chen, Janine McLeod, and Astrida Neimanis, eds., Thinking with Water (Montreal: McGill-Queen's University Press, 2013); Anuradha Mathur and Dilip Da Cunha et al., eds., Design in


[5]. Chen, MacLeod, and Neimanis, eds., Thinking with Water.


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