Pittsburgh's Rivers and Urban Space: Against Extractive Ways of Thinking

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Abstract

Since British settlers took control over Pittsburgh, the rivers were utilized to maximize economic growth. This historical and ongoing commodification can be analyzed through the lens of the hydrosocial cycle, which claims that water and society constantly reshape each other. From indigenous stewardship to frontier expansion, industrialization, and postindustrial redevelopment, the river has been appropriated to serve shifting economic goals–first as an artery of transportation, later as an engine of industry, and today as a lure for consumption and raised rents. The paper argues that the river's material and cultural meanings have been suppressed in favor of extractive spatial logics. Water's agency should be acknowledged and integrated into a decommodified and equitable relationship between people, the built environment, and Pittsburgh's rivers.

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Introduction

"From the beginning of time the rivers quenched man's thirst, furnished him food, made his body clean and made him his first free transportation on the raft or in his canoe, they served him as barriers or fortifications, and made a greater contribution to mankind, than any other of nature's gifts."

— Charles C. McGovern, 1940[1]

Rivers' flow and depth accommodate people's mobility. Water nourishes humans and their food. The characteristics of rivers have great potential for collaboration with society. Indigenous people often recognize the rivers' role in their collective benefit and accordingly preserve and steward it.[2] Settler-colonial societies have historically commoditized the river, abstracting it from its inexorable relationship to society.

The significance of this epigraph lies in McGovern's subsequent celebration of the "great adventure of the colonial period" where the river became a distributor of goods westward,[3] marking a shift in the river's use involving frontier mythology. Charles C. McGovern was a prominent military officer and politician in Pittsburgh during the twentieth century. In this radio broadcast on the early settler's use of the rivers, McGovern describes the rivers' transition from being integral to daily rituals for indigenous people and early settlers, to facilitating the construction of a nation's identity. Management of water has become increasingly utilitarian through Pittsburgh's industrial period. Today, experiences that pertain to water are spatially and meaningfully separated from the river, whose use has been rigorously tied to capital accumulation.

Framework

Reducing water to its material composition–an engineering problem to be solved–obscures the co-constitutive relationship between bodies of water and society. Water is consistently diverted towards hubs of capital accumulation due to extractive economic and infrastructural strategies.[4] While the hydrological cycle describes water's natural circulation through the earth's systems, it fails to recognize social and economic factors interrelated to water.[5] Geographic scholars Jessica Budd and Jamie Linton criticize this limitation in their hydrosocial cycle model, theorizing that water and society constantly reshape each other. This

[1]McGovern, Charles C. "#138: The Use of the Local Rivers by the 1st Settlers." Transcribed radio broadcast. University of Pittsburgh Digital Collections, March 24, 1940, 2.
[2]For a piece covering how indigenous culture and traditions are successful in preserving the ecological health of lands, see: Marchland, Michael. *The River of Life: Sustainable Practices of Native Americans and Indigenous Peoples*. University of Washington, 2013.
[3]McGovern, 2.
[4]Linton, Jamie, and Jessica Budds. "The Hydrosocial Cycle: Defining and Mobilizing a Relational-Dialectical Approach to Water." *Geoforum* 57 (2014): 173.
[5]Linton and Budds, 171-172.

reveals diverse approaches to water's stewardship, challenging the water-society dualism that promotes rivers' technocratic management.

Veronica Strang argues contemporary hydraulic management disregards the idea that experiences with water create cultural meaning and value.[6] This meaning is embedded through engagement with water during acts such as "ingestion and expulsion, contact and immersion". Since this engagement is essential and shared within communities, water plays a role in creating identity and cultural landscapes.[7] Contrarily, the settler colonial mentality sees water as utilitarian–a perspective that has been embedded in policy-making that concerns Pittsburgh's rivers.

This paper will use the hydrosocial cycle as a framework to analyze the relationship between Pittsburgh's rivers and various modes of production throughout the city's history. Pittsburgh's early settlers changed water's role from an essential, experienced entity to a utilitarian transporter of goods. This involved a series of acts with increasing attempts to divert water and maximize commerce including clearing the river's obstructions, deepening its channel, and building locks and dams. This commoditization continues today through a different mode, as water's characteristics are used to attract consumers. This paper will discuss scales of hydrosocial and spatial topics ranging from regional development to water's relationship with the body, arguing that commoditizing water backgrounds its cultural meaning and social agency. How the city's economic strategy appropriates the river will be analyzed through multiple periods and contrasted with water's contributions to the reproduction of society and space.

The River's Economic Potential and Social Agency

Agrarian Mode of Production: River as Gateway

Indigenous and settler-colonial societies in Pittsburgh used water for trade. A prominent people in the vicinity of the three rivers before European colonization was the Monongahela. Their name describes a physical feature of the river, meaning "falling banks" in Lenape. This sedentary society revolved around the river, later named after them, which connected them to trade markets and helped them grow crops. For strategic and horticultural reasons, their villages were placed along rivers and flats while smaller villages were located along inner streams.[8] They relied on the river's natural location and behavior for commerce rather than constructed irrigation systems. By the Monongahela's "late period", their markets reached Mexico and they grew maize and beans in high amounts.[9] The properties of water helped define the peoples' social identity and development. The river also shaped the spatial expansion of their villages and connection to their

[6]Strang, Veronica. *The Meaning of Water*. 1st ed. London: Routledge, 2004.
[7]Strang, 4-5.
[8]Pennsylvania Historical and Museum Commission, 'Monongahela River Basin,' *Pennsylvania Archaeology*, 10 September 2015.
[9]Hyles, Joshua. "Monongahela Culture." In *Race and Ethnicity in America: From Pre-Contact to the Present*, edited by Russell M. Lawson and Benjamin A. Lawson, 131–34. London: Bloomsbury Publishing, 2004, 131.

contemporary tribes through its natural potential to grow and move crops. Besides using the rivers as a corridor for land and source for growing, at this time it was used to drink from and bathe.[10] The river's material properties were used for nourishment and preservation–aspects of daily life. Contrarily, for eighteenth-century settlers, water was abstracted to a gateway. After winning the French and Indian war, the British immediately began creating hydraulic maps and surveys, specifically on the Ohio River (*See Figure 1).* This act demonstrates their understanding of this river's importance for their imperial ambitions.[11] This river penetrated the extensive and untapped land settlers believed was crucial in the formation of the United States as a sovereign nation. Frederick Jackson Turner's frontier thesis argues the development of this vast land into "city life" distinguishes the nation from others.[12] The Ohio River became a gateway to the frontier and, thus, a facilitator of this expansive system of urbanization. In this, water becomes a device that symbolically injects ideas westward, as it physically transports people. This is the first instance of the river being appropriated by those in power with fundamentally economic aspirations for expansion and maximization.

Agrarian River's Agency

Through the process of colonization, water acted both as an essential axis of life and constructor of The United States' cultural identity. Cultural connection to a body of water is different when it is used to bathe, for example.[13] In modern society, a consciousness of where the water from our drains comes from is not required. Hydraulic grids strip bathing from a meaningful daily task to a practical one. The Monongahela people–besides through name–had an unyielding connection to the Monongahela River because of their bodily connection to it. This embodied ownership does not align with European settler-colonial notions of property rights. So, the rivers' potential played a role in constituting Monongahela society as sedentary and agricultural. This society treated the rivers as an essential axis of life, as shown through their lack of technological interference with the rivers relative to the following three centuries.

Moreover, the European settler's perception of the river was fundamentally different from the Monongahela. Its natural properties were not for communal, beneficial use. The river was exploited to distribute settlers across a vast land they could extract from. Water was abstracted from its potable, tangible, agricultural, and thermal qualities. It was solely recognized for its quality of movement. In the case of the first settlers, water that was the axis of their lives through engagement such as drinking, growing, and bathing became an artery in the vast physical and ideological formation of a nation state. Water shaped the United States, as settlers recognized its potential to expedite the manifest destiny. It was reshaped and abstracted to suit settlers' goals, demonstrating a contrast between indigenous and European ontology.

[10]McGovern, 2.
[11]Moxley, Shera A. *From Rivers to Lakes: Engineering Pittsburgh's Three Rivers.* Pittsburgh: The Studio for Creative Inquiry, Carnegie Mellon University, 2001), 3.
[12]Turner, Frederick Jackson. *The Significance of the Frontier in American History*. Madison: State Historical Society of Wisconsin, 1894.
[13]Strang, 1.

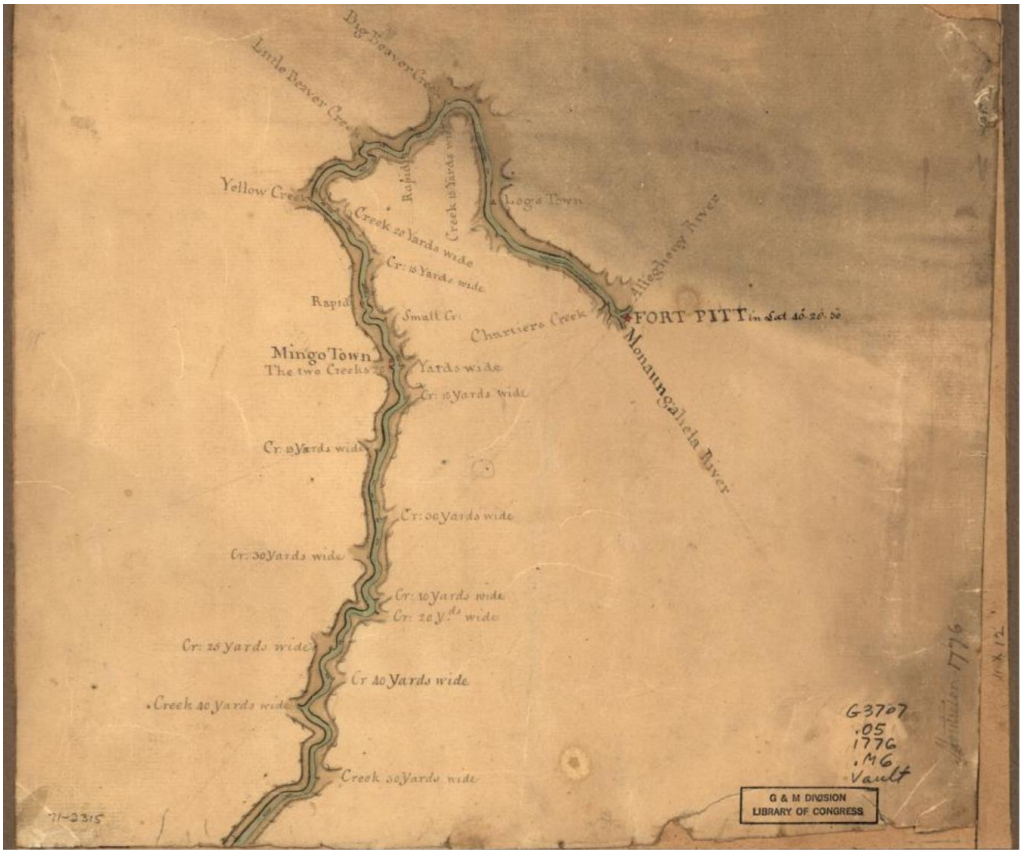

Figure 1 | Map of the Ohio River, beginning at Fort Pitt by British Cartographer John Montrésor[14]

Pre Industrial Mode of Production: River as Transporter

Despite the Pittsburgh grid strategy's consideration of the rivers, planners were unsatisfied and would later make significant alterations to the landscape for greater control of its flow. The river's natural potential to aid in movement shaped the legislature and engineering that sought to capitalize on this potential. Which, in turn, reshaped the rivers into a "chain of lakes" that were fully removed from their hydraulic behavior before high-technological intervention.[15] While frontier mythology defined the river as an abstract symbol of movement towards unclaimed property, this technological interference embeds it into sophisticated systems of production. This intervention further develops the divide between settler and indigenous mentality. In this period, the river is seen as an abiotic entity that works for humans.

In the late eighteenth-century, boulders, fish dams, and snags that disrupted commercial routes were cleared. This did not sufficiently facilitate commerce and led to the 1824 Civil Works Act, granting authority to the Army Corps of Engineers to undertake projects to improve navigation on the rivers.[16] The river continuing its natural, hydraulic flow despite the clearing of

[14]Montrésor, John. *Map of the Ohio River from Fort Pitt*. 1776. *Library of Congress*. https://www.loc.gov/item/gm71002315/.
[15]Moxley, 32.
[16]Moxley, 9-10.

obstructions–its acting in resistance to control–led to a new law that allowed for more comprehensive projects. By the twentieth century, the rivers had been fully controlled through slackwater navigation systems and the implementation of locks and dams, advancing water's systemic exploitation.

Preindustrial River's Agency

While the three rivers expedited urbanization across the United States, they also shaped the grid system of Pittsburgh itself. This is an extraordinary instance of water shaping urbanization and urban life in an American city. When the British claimed Pittsburgh's point (the area of land near the intersection of the Monongahela and Allegheny rivers) in their defeat of the French, an organic grid of 200 homes facing the Monongahela existed because of the river's importance for the trade markets of settlers.[17] Urban planners in Pittsburgh followed Philadelphia's grid model but oriented the axis towards the Monongahela river–as the French settlers organically did–because of water's commercial potential. A second grid, rotated to face the Allegheny River, was also planned. Pittsburgh's urban layout is water's appropriation of the traditional American city grid (*see Figure 2*).

This street planning typology is meant to arrange streets to achieve maximally efficient mobility and traffic patterns that can be generally plotted into environments. However, Pittsburgh's is shaped by the characteristics of the form and flow of rivers at the expense of internal traffic.[18] Negotiation between water's flow and human desire to extract has shaped Pittsburgh's peculiar urban life and its involvement with rivers. Namely, urban life involves increased traffic near the angled streets downtown. Also, the river–through its visual and proximal access–is an everyday landmark to the pedestrian.

[17]Reps explores the forces and motivations that shaped urban America and the transition from settler to urban societies in places such as the Ohio River Valley. See Reps, John W. *Town Planning in Frontier America*. Princeton: Princeton University Press, 1969, 261.

[18]Muller, Edward K. "River City." In *Devastation and Renewal: An Environmental History of Pittsburgh and Its Region*, edited by Joel A. Tarr, 45–58. Pittsburgh: University of Pittsburgh Press, 2003, 45.

Figure 2 | 1787 Plan of Pittsburgh and the dual-grid system oriented towards rivers. See Reps, 263.

The river's natural flow and behavior was restrained, and this changed the way people interacted with, and thus, its meaning. The history of rowing in Pittsburgh's nineteenth century exemplifies this. Rowing and its spectation was a popular activity in nineteenth-century Pittsburgh, vitally connective for urban life. Competitions were popular amongst the working class since races were an expressive outlet from laboral tension and involved communal bonding. Rowing organizations were even affiliated with political and cultural institutions throughout the city.[19] The essence of this activity–once having great socio-cultural significance–is enmeshed with water's natural behavior and the surrounding topographic landscape.

Rowing's became a common activity because of the industrial mode of production and the sport's fundamental intertwinement with water. The activity was primarily popular with the industrial working-class who had the strength and stamina that it called for.[20] This strength and stamina was especially necessary given the period preceded the twentieth-century canalization of the river. The river became an active player of the sport which the rower had an intimate relationship with, as they reflexively responded to water's unpredictable behavior. A rower's relationship with the canal, however, was more standardized because its water was predictable and controlled. Rowing has been restored in Pittsburgh since the late twentieth-century with the

[19]For an in-depth account of rowing's historical role in the urban life of working-class Pittsburgh and the sport's fall during the industrial period, see: Kudlick, John J. "You Couldn't Keep an Iron Man Down: Rowing in Nineteenth Century Pittsburgh." *Pittsburgh History* 73 (1990): 51–63.
[20]Kudlick, 53.

resurgence of clubs and organizations including the Three Rivers Rowing Association. However, the community consists of hobbyists rather than a broad swath of the population. Rowing and water do not carry the same cultural meaning as in nineteenth century Pittsburgh.

Besides the sport itself, rowing involved people gathering in a common space to spectate competitions. The sloped riverbanks formed "natural stadiums" for this purpose.[21] Today, this can be considered a differential way of watching sports given the industrial period brought the flattening of many riverbanks.[22] At the starting point of many former rowing competitions along the Allegheny River now exists PNC Park.[23] The spectating experience here first consists of purchasing a ticket and locating the associated number out of nearly 38,000 gridded seats. This standardizes spatial behavior compared to the former ritual of spontaneous gathering at the riverbank. Being in contact with irregular topography or being close enough to the river to feel its thermal effect are conditions that induced an inexorable recognition of the river's ecology for rowing spectators.

The contemporary stadium can be perceived as the architectural containment of bodies. Architect and writer Léopold Lambert argues that organizing bodies through a paid ticket is inherently carceral. In this, space is designed to physically contain people and their social relationships.[24] PNC Park, especially compared to the natural riverbank stadium, additionally demonstrates containing people's physical relationship to land. Where people once gathered to find camaraderie in a setting connected to the land's ecological behavior, an immense structure has been erected. PNC Park is the activity's exchange value extracted at the loss of social and environmental connection.

From this spatial activity, rowers and rowing spectators developed an inexorable relationship with water. Through water's role within the sport, it had meaning associated with working-class culture that was synesthetically experienced. In the twentieth century, engineers and industrialists attempted to shape water into a maximally efficient transporter of capital, abstracting it from its physically and culturally experienced meaning.

Industrial Mode of Production | River as Engine

Also in the nineteenth-century, water was embedded within industrial processes like manufacturing. The negotiation between society and river in the controlled movement of goods continued as industry acquired coal and coke this way. This, combined with the river's potential to supply the production of steel and refining of oil, caused industrial sites to conglomerate along the riverfronts.[25]

[21]Kudlick, 57.
[22]Muller, 53.
[23]Located near The Sixth Street Bridge was once a start point in rowing competitions along the Allegheny River that went upstream to Herr's Island and back downstream. See Kudlick, 60.
[24]Lambert, Léopold. "The Stadium, an Architecture that Concentrates and Controls Bodies: 2015 Kos, 2005 New Orleans, 1942 Paris." *The Funambulist*, 2016. https://thefunambulist.net/editorials/the-stadium-an-architecture-that-concentrates-and-controls-bodies-2015-kos-2005-new-orleans-1942-paris. Accessed June 10, 2025.
[25]Muller, 52.

The rivers were polluted due to their proximity to industry and improper disposal of waste. Access to river engagement was barred; the river was wholly reduced to an engine that generates capital. This is evident, as the only people whose daily life involved water were the lower-class laborers subject to its contamination.[26] As a gateway and transporter, the river still carried meaning generated through its access and engagement. The spatial division between people and the river sheared this meaning, as it became a signifier of production. Water became deeply entrenched in society's extractive economic systems, its simultaneous role in cultural life faded.

Industrial River's Agency

This society's relentless vision to maximize capital and water's potential to transport and produce, together defined the city's spatial growth and development. By the twentieth-century, the edge of rivers and valleys were occupied with industrial plants, and suburban growth occurred in the hillsides next to them resulting in a "starfish spatial pattern".[27] The location of industry along the river led to outward growth from multiple industrial hubs rather than a more typical, radial growth from one center. The central business district settling at the point and suburbanization moving away from the rivers demonstrate water's recreational and daily use shifting to one that is functionally and symbolically reduced to production.

For early Pittsburghers the river's use would change based on season, as water was low during the summer and winter. During this time, the river hosted recreational activities while the fall and summer consisted of traveling and commerce.[28] The river's ecological calendar profoundly shaped the city's patterns of urban life until the commercial and industrial mode of production standardized and eventually separated public engagement with the river. The rivers hosted boating, fishing, hunting, and swimming among other activities. These actions all involved a spatial engagement with the bodies of water that shaped the city and provided essentials of life.[29] Landscape architect Frederick Law Olmstead Jr. advocated a partial approach towards river development. Rather than a river that was devoid of recreation, he believed it could be integrated into life while still being economically "useful"[30]. It seems this approach was followed during the post-industrial period.

Postindustrial Mode of Production | River as Lure

The presentation of Pittsburgh rivers in the twenty-first century has revived its recreational role in public consciousness. There are various trails, restaurants, shops, and apartments located along riverfronts. Despite seeing a turn from ecologically harming the rivers in the service of capital, they are still used for accumulation. Further, environmental restoration often occurs for the purpose of capital growth, and the rivers have been treated under the same

[26]Burnett, Steve. *History of Public Access*. Pittsburgh: The Studio for Creative Inquiry, Carnegie Mellon University, 2001, 7-8.
[27]Muller, 54.
[28]Burnett, 5.
[29]Muller, 50-51.
[30]Burnett, 11.

logical framework as during the industrial period with variances to accommodate the new mode of production.

A sign on the Three Rivers Heritage Trail acknowledges the river's negative industrial connotation before celebrating the contemporary restoration of its "scenic and recreational" value. (*see Figure 3*).[31] This trail's purpose is to provide information along the riverfront about the river's heritage as an asset of the city. These signs are part of organization Friends of the Riverfront's broader goal since 1991-to reclaim the riverfronts for public use after the industrial period.[32] The trail and its sequential interpretive signage stretch along all three of the city's rivers.

Information found in this signage has significant historical value. However, the narrative of the river's heritage found along the trail is fundamentally different from that which is laid out in this paper. The signs exist as separate pieces of history that occurred along the riverfront rather than a co-constitutive development shaped, in part, by water's agency. For example, a sign regarding the Native Americans (*see Figure 4*)[33] is simply a recounting of their land boundaries that fails to mention their modes of stewardship and ontological notions of water. Perhaps why this ontological difference is forgone is the trail's active continuation of it. The signage acts to distort public perception of the river, continuing the settler's abstractive methods. The signs artificially construct the river's meaning, reducing it to selective nostalgia and visual beauty rather than interactive, experienced meaning. This serves to hide environmental violence of the past and economic inequities of the past and present.

Friends of the Riverfront's valid and successful goal of increasing public access does not dismiss the river's economically utilitarian management from continuing through the post-industrial period. Further, it is possible the trail would not exist had it not proved its viability to private landowners through economic analysis.[34] Rather than being a communal resource, physical access to water in certain locations was owned by private individuals or entities, and this access was only returned under the condition that water's exchange value would be proven to increase. The trail must continue to justify itself economically, as a 2024 economic impact report of the trail celebrates its $22.4 million gained through spending on consumable goods, overnight stays, and durable goods.[35]

Environmental rejuvenation and the river's recreational access is secondary to capital growth. Water becomes integrated within an economic strategy to attract consumers; its properties and ecological behavior remain suppressed. Despite some restoration and aesthetic shifts, the framework in which capital shapes water remains similar through the industrial and postindustrial periods. The economic impact report later mentions a $77.2 million net increase in

[31] For an interactive GIS map that exhibits many signs on the Three Rivers Heritage Trail and marks their location in the city, see Friends of the Riverfront. "Interpreting History Along the Three Rivers Heritage Trail." https://storymaps.arcgis.com/stories/3bfa9d02fc234e2ba7945fb8333cf524. Accessed April 27, 2025.
[32] Forging Connections Book Committee. *Forging Connections: 20th Anniversary Book*. Pittsburgh: Friends of the Riverfront, 2011.
[33] Friends of the Riverfront.
[34] *Forging Connections,* 15.
[35] Fourth Economy. *Three Rivers Heritage Trail: Economic Impact Report 2024*. Pittsburgh: Friends of the Riverfront, 2024, 12.

residential property value.[36] Despite the subsequent argument that this benefits property owners and institutions receiving property taxes, higher land-use and rent values only serve to hurt the well-being of low-income people.

The SouthSide Works, a former site of the Jones and Laughlin Steel Company, existed for years as a brownfield. Groundwater contamination initially prohibited structures from becoming museums, so a pump house became a lookout with signage that is part of the Three Rivers Heritage Trail.[37] The contamination was cleaned to develop a mixed-use town square filled with retail chains and luxury apartments. The SouthSide Works represent two facets of Pittsburgh's postindustrial shaping of the river. The immediate instinct to preserve through a museum and signage represents controlling the city's ecological narrative. Rather than the river itself becoming a cultural signifier through engagement and interaction, the city is inclined to post subjective ways of interpreting it. This aesthetic shift has not removed the river from the capitalist systems that shape its use.

Architectural researcher Elton Chan describes the complexity of the commodification of public space given it cannot be rented or exchanged itself.[38] In the case of Pittsburgh's riverfronts, space is produced by both public and private interests who act to increase land use and consumption. This is exemplified by the SouthSide Works town square which puts public space (i.e. its plaza and the riverfront) near private businesses and rented units. It also exists as a node in the riverfront, which now connects spaces of consumption at the city-scale. Water's scenic quality is shaped for the relentless pursuit of capital accumulation that benefits the owning class. This dynamic continues a perception of the river rooted in early settler colonization.

[36]Fourth Economy, 23.
[37]Davis, Christine. "Jones and Laughlin Steel Works: 130 Years of Industry/25 Years of Archaeology." *The Journal of the Society for Industrial Archeology* 41 (2015): 137.
[38]Chan, Elton. "Public Space as Commodity: Social Production of the Hong Kong Waterfront." *Proceedings of the Institution of Civil Engineers - Urban Design and Planning* 173, no. 4 (2020): 146-155.

Figure 3 | Signage on the Three Rivers Heritage Trail that discusses ecological health. See Friends of the riverfront, "Interpreting History"

Figure 4 | Signage on the Three Rivers Heritage Trail that explains Indigenous land boundaries over time. See Friends of the riverfront, "Interpreting History"

Postindustrial River's Agency

Water's characteristics played a large part in shaping Pittsburgh's contemporary riverfront spaces in collaboration with economic strategy. As discussed, the connection between people and water is inexorable. Water has a meaningful beauty generated through engagement, but it also has a visual beauty. French explorers Alexis de Tocqueville and Zadock Cramer respectively described the Pittsburgh rivers upon first sight as: "the most magnificent river valleys" and "the most beautiful river in the universe". Water's visual quality shaped the Pittsburgh Renaissance period and its postindustrial mode of production. This was a period of urban renewal with the goal of regenerating Pittsburgh's image to a cleaner one which involved shifting the public perception of rivers from their "industrial function".[39] Public projects

[39] Muller, 58.

provided views of the river, utilizing its new signified meaning to shape this way of thinking and ultimately produce profitable space.

Developments on brownfields like the SouthSide Works and upcoming Esplanade project in Pittsburgh's North Side have also been shaped by water's beauty. The CEO of Piatt Companies, the real estate developers of the Esplanade, described the project as "unlocking hundreds of acres for positive economic development". The project is a $740 million dollar development of an entertainment district.

The post-industrial period's treatment of the riverfronts in the 1990s and 2000s has led to increased white households in areas of cleanup and a simultaneous decrease in black households.[40] It is evident that riverfront development that increases property values is correlated to this. The community of Manchester–a majority-black neighborhood that is adjacent to the Esplanade's development– fear an increase in property values will occur.[41] This riverfront development follows the same logic of growth as past historical eras in their river treatment, resulting in spatial inequalities rather than communal benefits.

The enticing visuality of water has potential to shape new spaces that strategists capitalize on. For one, the Pittsburgh Renaissance and new urban development has changed what is signified by rivers and green space. Whereas smoke in the air and industrial riverfront sites once represented economic stability, a shift in aesthetic that embraces the presentation of natural features now signifies ecological health and cleanliness.[42] Water's beauty now induces a pleasant atmosphere that planners exploit by putting spaces of consumption in close proximity. Simultaneously, water's beauty has the potential to hide and rewrite ecological damage of the past, further justifying postindustrial economic and planning strategies.

Conclusion

Patterns of spatial growth and behavior serve as a lens to analyze the relationship between environmental features like water and societal concepts like economic organization. Examining water at the urbanization scale reveals how it facilitates capital accumulation while looking at the body scale highlights its material and ontological significance in everyday life. The hydrosocial cycle, as a mode of thinking, works to foreground the agency of water in shaping society. This is significant in the modern world, where technocratic methods of water management can lead to environmental degradation as in Pittsburgh's industrial period. Contemporarily, cleaning contamination and providing river access can lead to spatial inequalities. Such rethinking is vital for restoring ecological health in an equitable way.

[40]Mitchell, Gregory. "Greening the Steel City: Testing for Environmental Gentrification in Allegheny County." Penn State University Graduate School, 2020. 50-51.
[41]Burdelski, Julia. "Piatt's $740M Esplanade Project Aims to Spur Ohio River Revival." *TribLIVE*, February 2025. https://triblive.com/local/piatts-740m-esplanade-project-aims-to-spur-ohio-river-revival/.
[42]Muller, Edward K., and Joel A. Tarr. "The Interaction of Natural and Built Environments." In *Devastation and Renewal: An Environmental History of Pittsburgh and Its Region*, edited by Joel A. Tarr, 15–35. Pittsburgh: University of Pittsburgh Press, 2003, 33.

Settler's defining of the river has begun a chain reaction of its rigorous commoditization. Water has been abstracted from its material qualities and essential use value and shaped into narratives that benefit the extraction of its exchange value. Despite not being recognized in these narratives, water plays an active role in reshaping society throughout attempts at its control. This dynamic, tracing back to frontier mythology, continues today while the river is reduced to a view that increases consumption. Tom Murphy, the state representative of Friends of the Riverfront, advocated for the riverfront condition that exists today in the 1990s claiming, "The rivers should be the definition of our future destiny, our new mythology waiting to be written".[43]

If the rivers and urban space are to become meaningful and beneficial, there should be a new way of thinking rooted in decommoditization, environmental restoration, and equitable access. The treatment and preservation of rivers ought to follow a logic that recognizes the natural potential of water in providing people with essential qualities of life rather than economic utility. This framework can generate a new relationship between people and water, wherein rivers are collectively owned and managed, and these essential benefits of water are reaped by all people. This shift can be inspired by indigenous tribes like the Monongahela, whose understanding of water does not align with the trajectory Pittsburgh's River management has taken since European colonization.

[43] *Forging Connections,* 18.

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