- **Response** -

UNDERSTANDING WATERY INFRASTRUCTURE

The UK's canals as an interior aquapelago?

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Philip Hayward's and Francesco Visentin's notion of "interior aquapelagos" offers us a novel – and promising – lens for conceptualising waterscapes. In their extended dialogue, based on a discussion on and reflections from the First International Conference on Inland Waterscapes, 'Nature, Society and Culture in Hydrography,' held at the University of Udine, Italy between 22-25 May 2024, as well as their considerations of the waterscapes of Udine and the broader Friuli-Venezia Giulia region, they propose "the concept of interior aquapelagality to comprehend the assemblage of liquid and material elements… and their changing social function and character over an extended duration" (p. 8). This response paper engages with their proposed framework by examining aquapelagality through both a historical and contemporary lens of the waterways in North-West England, United Kingdom. In applying this concept to the UK's inland (or – as the authors propose, *interior*) waterways, I will seek to determine whether the notion of aquapelagality can help us to tease out some of the complex interrelations of the UK's canals as socio-natural-material entities.

The canals and rivers in the UK are indeed complex infrastructural assemblage(s). In these sometimes-liminal spaces between public and private, various historical narratives and embodied experiences of contemporary rural and urban life are woven together. The canal and river network covers thousands of kilometres of rural, urban and wild areas across the UK and, as such, they are liquid linear places, simultaneously relational and material, constantly changing socio-natural hybrids (Kaaristo, 2020). They are also palimpsests, comprising of elements from different periods over the history, and featuring remnants of its various periods since their construction. Canals and canalised rivers are furthermore "hybrid, part social/part natural – yet deeply historical and thus produced – objects/subjects are intermediaries that embody and express nature and society and weave networks of infinite liminal spaces" (Swyngedouw, 1999, p. 445).

As an industrial city, Manchester was heavily reliant on the construction and usage of canals for both transportation as well as water supply for the various mills and factories since the Industrial Revolution. The waterways facilitated transport, industry, and urban development, with water functioning as a key actant. Following their historical transformation from vital transport routes to obsolete infrastructure to spaces of dwelling, leisure and wellbeing, and shaping 'rurban' life between ongoing tensions of development and preservation, the UK's canals present an excellent case study to think *with* aquapelagality. I will also take an anthropological view of infrastructure (Larkin, 2013; Buier, 2023), focusing on the waterways

as sites of socio-material interaction, memory, and political contestation, exploring how these fluid spaces mediate human relationships, historical narratives, and contemporary identities. In order to do that, I will take the readers on a short walk around the Castlefield Basin in Manchester, UK (Figure 1).

Castlefield basin is where the Bridgewater Canal meets the Rochdale Canal. The Bridgewater Canal, opened in 1761, represents the first UK canal built independent of rivers, inspired by Francis Egerton, the Duke of Bridgewater, seeing the Canal du Midi in France during his Grand Tour. Whether it can be assigned the status of the UK's 'first' canal or not (there are other contenders such as the Sankey or the Fossdyke Navigation), the construction of this waterway nevertheless symbolises Britain's transition from a laggard in inland waterway infrastructure development to spearheading industrial revolution, which integrated varied watery agencies into the very fabric of the society.

Figure 1 - City Centre Cruises' trip boat *Emmeline Pankhurst* in Castlefield Junction, Manchester, UK. Diverse materialities, including water, historic railway viaducts (both used and disused) and the built environment are key actants in this infrastructural assemblage where the interplay between its more fluid and solid elements reflects the evolving relationship between industrial heritage, contemporary urban regeneration, and everyday practices. (Author's photo, 2017.)

"Infrastructure, as a material force and ideological tool, has been a key avenue for the reorganization of territory" (Buier, 2023, p. 56). The canals were colloquially known as 'The Cut' in the UK since they were literally cut into the landscape: carved into the textures of the land. They are "bundles of interwoven lines of growth and movement, together constituting a meshwork in fluid space" (Ingold, 2008, p. 1796). They were built by workers in the 18th and the 19th century who often had migrant background, and who moved along with the canal as

its construction progressed to live where the work was. The canals also created a new community, the boatpeople, who lived onboard of cargo boats and often operated as a husband-and-wife crew. They lived their whole lives on boats with their families, in perpetual mobility, carrying the cargo, and showing a possibility for a very different way of life, a mobile life that was not fully controlled by the state and thus challenging the notions of Britishness, identity and gender roles (Matthews, 2015; 2023). The decline of the canals started in the 1830s with the arrival of the railways and most of the boatpeople left the canals by 1960s. Some canals were filled in, but many remained, even if some of them were now derelict, unruly and increasingly obsolete infrastructure.

"Water moves continually both through the natural water cycle and through the complex infrastructures by which we have colonised it. In practice, water moves due to natural and artificial factors, and these factors do not necessarily coincide, indeed they often occur in opposition, or in combination, to build mitigation effects" (Hayward & Visentin, 2025). Indeed, Manchester's waterscapes were manipulated extensively to serve the city's burgeoning industries, notably textiles and engineering, eventually transforming it from a township of about 25,000 in the 1770s into a major city, the 'Cottonopolis' with a population of 450,000 by the end of the 19th Century. About 20 years after the opening of the Bridgewater Canal, James Ogden, author of the first ever published guidebook to Manchester, publishing under the pen name "A Native of the Town" (1783, p. 3) starts by drawing attention to the city's canals:

> *The large and populous town of Manchester, has now excited the attention and curiosity of strangers, on account of its extensive trade, and the rapid increase of its buildings, with the enlargement of its streets; being also the first theatre whereon the indefatigable [John] Gilbert and ingenious [James] Brindley exhibited their amazing talents for the establishment of Canals and subterraneous Navigations.*

Castlefield Basin as a place is therefore central to understanding this aquatic assemblage, a dynamic interplay between water, land, human actors and non-human actants. Initially serving primarily as a coal yard before the canal opened trade further ahead, it eventually connected Manchester with Liverpool, integrating canals to rivers (e.g. the Mersey) to the Irish Sea and Atlantic Ocean. This created a transnational aquapelagic realm, embedding Manchester firmly within global networks of commerce, colonial trade, and industrial, social and cultural exchange. As Hayward and Visentin argue, the 'interior' is not an opposition or a juxtaposition to marine or oceanic spaces, neither to something else, e.g., the land. Instead, we should strive for "a deeper comprehension of our relationship with the water-world [that] allows us to project ourselves beyond the opposing dimensions of land and water into an amphibious landscape in which the *longue durée* of geomorphological models, the evolution of societies and everyday actions coexist (in acts of precarious balance)" (Hayward and Visentin, 2025, p. 16).

As mentioned, within a short period of time after being constructed, the basin and canal became an important attraction in itself: "[we] begin with a perambulation of the town from Castle-Field and the canal of which we have been speaking, as these are the first objects which attract the notice of strangers and antiquarians" (Ogden, 1783, p.7). Here, in Castlefield, the Bridgewater junctions with the Rochdale Canal (completed in 1804), along which the city's significant cotton mills and mechanical engineering plants, such as those run by Adam & George Murray and McConnel & Co, were built. These industries, heavily reliant on canal water, significantly shaped local physical, cultural and economic landscapes, generating both extreme wealth and poverty as well as profound environmental pollution. George Head, an

army officer, noted in his memoir *A home tour through the manufacturing districts of England in the Summer of 1835*, that although making the journey with a packet boat on the Bridgewater Canal gave him the opportunity to "glide tranquilly onwards through a continuous panorama of cows, cottages and green fields," there was a drawback "to the comfort of the traveller, — namely, that within a dozen miles of Manchester, the water of the canal is as black as the Styx, and absolutely pestiferous, from the gas and refuse of the manufactories" (Head, 1836, p. 8).

This land-water-space in the city brought together industrial, commercial, natural and socio-cultural elements and the fluid ontology of water invites us to rethink terrestrial primacy. Aquapelagos "arise from human livelihood activities and then subside/dissolve when either these stop… or as global climate situations change" (Hayward & Visentin, 2025, p.16) and this notion aptly describes the historical transformations of Manchester's waterways' industrial rise, subsequent obsoletion, post-industrial decline and contemporary regeneration. Indeed, if we take 'environment as perspective' and examine how histories of resource extraction, colonialism, and imperialism are fundamentally interconnected and how these power relations reflect in the infrastructure, it will also allow us to see how built environment has always been embedded within and an integral part of the "nature" (Hochhäusl et al., 2018, p. 2).

Hayward and Visentin's recognition of water as a critical force shaping the physical and social landscape is clearly exemplified in Manchester, where the waterways directly influenced the spatial organisation of industrial production, determined patterns of urban growth, and facilitated socioeconomic interactions rooted in global trade. The agentive role played by water should not be underestimated here. The mobility of water was essential in developing these landscapes: water for boilers and engines in factories was taken from the canal and then put back again, water enabled boat mobility and provided access to coal and other raw materials, transported finished articles, and carried away waste products. Furthermore, Manchester's cotton mills relied on raw cotton originating from colonial plantations overseas. This meant stark social and environmental consequences, including the reinforcement of exploitative global trade networks stretching across the ocean and tied to exploitation of the labour of the enslaved people (see the report on canals and transatlantic slavery in Matthews, 2020).

Another important point that Hayward and Visentin raise, is the changing perceptions and representations of waterways, emphasising that inland waterways are "often barely acknowledged, and certainly under-valourised, as elements of landscapes" (2025, p. 20). Humans tend to have an affective relationship with the water as "experiences of meditating upon or being immersed in water engender affective responses and a particularly powerful sense of connection" (Strang, 2009, p. 197). Nevertheless, the role and agency of watery materialities in the development of infrastructures within interior waterscapes – and the ways different stakeholders understand, imagine, interpret, represent and experience these – has indeed been much less discussed. There is a substantial body of academic literature in planning studies discussing urban renewal in coastal towns and cities with a particular focus on the bigger port cities (see for instance Kaya, 2020). Much less attention has been paid to the somewhat less iconic inland waterfronts along rivers and canals as is exemplified in the 1990s' developments in the UK such as Brindleyplace in Birmingham (Coulson & Wright, 2013), the Granary Wharf in Leeds's Holbeck Urban Village (Cizler, 2012) and indeed Castlefield in Manchester (Madgin, 2010). One reason for this lack of attention might be that rivers, canals and canalised rivers are often not perceived as attractive bluespaces the way the coastal waterfronts tend to be. On the canals, the "murky, more brown than blue watery

environments demonstrate a complexity and ambiguity of relationships to water, finding it [simultaneously] attractive and repellent, risky and relaxing" (Pitt, 2018, p. 162). However, this perception is changing, as canal-side developments, previously seen as low-value, have increasingly become desirable and expensive locations where whole quarters are redeveloped and previous residents increasingly priced out (Degen, 2008; Kaaristo et al., 2024). As Buier (2023, p. 57) notes:

> *today, capitalism operates in the infrastructural mode. The violence of financial capitalism finds its corollary in the violent rematerialization of surplus capital as infrastructure.*

The rise of infrastructure studies is therefore linked to broader historical and economic shifts, including the post-Keynesian era as well as the Anthropocene (Buier, 2023). As the service and experience-based economies have gradually replaced large parts of the manufacturing economy during the wider urban deindustrialisation processes, the formerly industrial city has now been replaced with a post-industrial one. This process is characterised by the emergence of deindustrialised central business (improvement) districts, cultural industries, creative services with its accompanying socioeconomic restructuring, (im)migration and gentrification processes (Hutton, 2008). Many of the former industrial areas that had become derelict (DeSilvey and Edensor, 2012) have been or are currently undergoing major transformations. Yet, several of these regeneration projects have also been criticised of being too homogenous and of following the established recipe of "just add water" (Brownill, 2013).

Figure 2 - The Merchants' Bridge, also known as Catalan Bridge, connects Slate Wharf to Catalan Square on the right. This pedestrian bridge was completed in 1995 during the basin's regeneration and its designers, Whitby and Bird, acknowledge the influence of Spanish-Swiss architect Santiago Calatrava. (Author's photo, 2023).

After the Second World War, the UK canals also became an object of memory to be imagined, displayed, interpreted, desired and consumed as industrial heritage. They were increasingly promoted for various leisure activities as green and blue corridors for wellbeing and tourism where activities such as boating, walking, running, angling or cycling can be undertaken. Today too, there is a community of liveaboards who live on the boats, mostly contemporary built steel narrowboats that still share similar dimensions to their wooden predecessors. We can see them mooring here in the basin, where some have permanent moorings (payable to The Bridgewater Canal Company), and visitors can moor up temporarily. The lives of the contemporary liveaboard boaters are often characterised by the ideas of slow living, sustainability, self-sufficiency, being "close to nature" and sometimes off-grid. Some of them construct a mental link between their own lives and those of the historical working boatmen and women as part of their identities (Bowles, 2024). Today's boaters knowingly embody this past as they carry on boating as practice: for instance, the activity of going through the lock, which involves the embodied activity of winding the paddles up and down and pushing the lock gates open and closed has stayed essentially the same from the time when these canals were constructed. In order to get into the basin from the Rochdale Canal, the boaters will have had to come through the infamous 'Rochdale 9' – a particularly difficult stretch of nine locks on the Rochdale Canal in central Manchester. Other practices of course will have changed, as for instance, horse drawn boats have been replaced with the powered boats.

The contemporary regeneration of Castlefield – designated as the UK's first Urban Heritage Park in 1982 and completely transformed in the 1990s – highlights efforts to revalue these waterscapes both culturally and economically. The successful local campaign against the development plans for the Wharf pub site underscores the renewed public recognition of water heritage and watery placemaking. Similarly, the historical Merchants' Warehouse, a survivor from the early 19th century, embodies the concept of aquapelagality through its adaptive re-use over time, representing shifting social functions from industrial logistics to contemporary cultural industries. The built environment around the canals today – such as the Wharf building, a newbuild but architecturally echoing historical warehouse designs, or the Castlefield Viaduct, a Grade II-listed former railway viaduct recently redeveloped into a 'sky park' with over 3,000 plants and trees – embodies the idea that water-related infrastructure remains central to place-making even when original industrial functions cease to exist. This location also hosted numerous canal rallies organised by the Inland Waterways Association, including regular annual gatherings. Notably, it was the venue for significant boater events such as the National Boat Rally in 1988, the International Waterways Festival in 1993, and the jubilee celebration, 'Waterways for All' in 1996. Castlefield's water-landscape is therefore inherently temporal, a palimpsest with its multiple layers, as it moves through history and changes its shape, defined by land, water and infrastructure.

However, we need to keep in mind that urban waterways are not just sites for waterfront regeneration and development: they also contribute to water supply, purification and transfer, drainage and flood management and urban cooling. They are places for dwelling and work, resources for tourism, leisure, sport, wellbeing and recreation; heritage landscapes (Canal and River Trust is the 3rd largest owner of listed buildings in the UK); green and blue urban and rural spaces, ecological resources and wildlife habitats. They can provide routes for sustainable modes of transport with less CO_2 emissions that could help to reduce road congestion as well as routes for telecommunication (more than 800 kilometres of fibre-optic cables run in the UK canal towpaths). These inland hydro-infrastructural landscapes are therefore "both a material thing and a conceptual framing of the world" (Vallerani, 2018, p. 3), shaped by and actively shaping the social and material fabric of the contemporary cities.

Figure 3 - A residential narrowboat moored in front of the site of the former Grocers' Warehouse in Castlefield basin. The Grocers' Warehouse is believed to have been the first warehouse in the UK designed to unload boats directly inside the building, using an innovative water-powered crane system to efficiently lift coal from the canal basin up to street level. The landscape palimpsest also features the Beetham Tower, the UK's first skyscraper outside London and Manchester's tallest building until 2018, in the background. (Author's photo, 2022).

Hayward and Visentin's proposal therefore offers valuable insights into understanding these transformations, particularly their assertion that contemporary interior aquapelagos are often about adaptation rather than planning. The redevelopment initiatives around Castlefield basin, such as Catalan Square and Barca Bar, exemplify their argument for European influences and contemporary placemaking processes, emphasising the enduring interconnectedness of social, cultural, and hydrological dynamics. Their call for a shift towards a "hydrologic imagination," moving beyond terrestrial paradigms to a water-focused framework, aligns compellingly with what we have seen in our walk around the Castlefield basin. These historically vital waterways, though transformed by modern urban landscapes and declining industrial use, continue to influence urban identity, heritage narratives, and regeneration strategies, reflecting ongoing negotiations of water-land relationships.

Figure 4 - The Author co-leading a guided walk in the Castlefield basin in front of the Merchants' warehouse, the oldest surviving warehouse in the basin. (Photo by Chris Chambers, 2022.).

I have shown in this response essay how the concept of aquapelagos helps us to capture the historical depth and contemporary complexity of Manchester's waterways. Nevertheless, the concept could benefit from greater explicit recognition of some of the contested historical dynamics inherent to these assemblages in the future, particularly regarding colonial and industrial exploitations. Integrating critical historical perspectives into this aquapelagic framework would further enhance its analytical power, ensuring fuller representation of our complex socio-environmental histories. As Natalia Buier (2023, p. 6) reminds us, infrastructure should not merely be viewed as somehow neutral material structures or things in themselves but rather as "material forms that carry and convey social and political imaginaries, shaping and being shaped by relations of power", thus demanding our continuous critical reflection. Indeed, we must remember that infrastructures are also shaped by how we interpret and narrate their histories, they are carriers of meaning, embedded within broader social systems. The concept of "interior aquapelagos" certainly provides us with one possible lens through which to critically explore these fluid and watery relationships.

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