



ISSN(Print) 2799-8118
ISSN(Online) 2799-8509

Mobility Humanities

Volume 3 Number 1
January 2024

Academy of Mobility Humanities
Konkuk University, Seoul

SPECIAL ISSUE

Infrastructural Followings—A Triptych Visual Politics of Subsurface Phnom Penh

Harriet Hawkins and Laurie Parsons



- **Published online:** 31 Jan. 2024
- **To cite this article:** Hawkins, Harriet, and Laurie Parsons. "Infrastructural Followings—A Triptych: Visual Politics of Subsurface Phnom Penh." *Mobility Humanities*, vol. 3, no. 1, Jan. 2024, pp. 115-132, DOI: 10.23090/MH.2024.01.3.1.008
- **To link to this article:** <https://doi.org/10.23090/MH.2024.01.3.1.008>

Submit your article to this journal

Full Terms & Conditions of access and use can be found at journal-mobilityhumanities.com

SPECIAL ISSUE

Infrastructural Followings—A Triptych A Visual Politics of Subsurface Phnom Penh

Harriet Hawkins^a and Laurie Parsons^b

Abstract

What might critical accounts of infrastructure look like? What role might the visual play in critical attentiveness to and accountings for infrastructure, especially that which is underground? Stemming from the challenges posed in trying to research subsurface infrastructures in Phnom Penh, Cambodia, what follows is an experiment with creatively responding to geographer Deborah Cowen's invitation to "follow" infrastructures as means to produce a more engaged infrastructural politics. Beginning from the spatial-temporal problematics framed by Cowen's proposal for infrastructural following, the essay explores the possibilities and limitations of visual and textual forms for building accounts of colonial infrastructures and their afterlives. Tracking between the here and there, the then and now and the intimate and the imperials, the essay comes to realise that what started as following the subsurface infrastructures of Phnom Penh, become inevitably the entanglement of three sets of infrastructures; the multiple colonial legacies of Phnom Penh's subsurface water systems; the colonial pasts and presents of the archives and the production of the images of the subsurface that sit within them; as well as a set of questions around or a performance of a politics of academic infrastructure in the form of the visual essay.

Keywords

Infrastructure, Subsurface, Aesthetics, Visual, Creative Methods

CONTACT

^aHarriet Hawkins harriet.hawkins@rhul.ac.uk

Professor, Department of Geography, Queens Building, Royal Holloway, University of London, Egham, UK

^bLaurie Parsons Laurie.Parsons@rhul.ac.uk

Senior Lecturer, Department of Geography, Royal Holloway University of London, Egham, UK



Articles in this journal are licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License (CC BY-NC-ND 4.0). © 2024. The author(s).

Infrastructural Followings



What might critical accounts of infrastructure “look” like? What role might the visual play in critical attentiveness to and accountings of infrastructure, especially that which is underground? What follows is an experiment with a creative response to geographer Deborah Cowen’s invitation to “follow” infrastructures as means to produce more engaged infrastructural politics (“Following the Infrastructures”; “Investigating Infrastructures III”). Cowen begins from the entangled circulations of the imperial and the infrastructural, situating these as not just integral to the making of colonial spaces, but also to tracking the afterlives of infrastructures, and their ongoing role in the making and unmaking of space. It is by now a truism to observe the intersection of imperial and infrastructural projects. In other words, the production of infrastructures—whether it be railways, power lines, or sewers—are thoroughly understood as entangled within the process of state formation, whether “at home” or as ideas circulate in the dispersed production of colonial space. As Matthew Gandy argues, the “construction of a functional infrastructure system forms a clear element of the building of political legitimacy for the modern state, and especially the colonial state” (116). What emerges importantly from Cowen’s particular entanglement of infrastructural and imperial is a sense of infrastructure as not only an object of study but also as a mobile method. Following infrastructures across space, time and struggle produce, she contends, “a different politics of infrastructure that holds together longer and larger imperial contexts of infrastructure with the intimate engagements of often distinct struggles for life and freedom” (“Following the Infrastructures” 482).

We turned to Cowen's "followings" and related work, principally Ann Laura Stoler's ongoing reflections on the multiple historical tenses of imperialism, as we were grappling with the subsurface infrastructures of Phnom Penh, the capital of Cambodia. As Michelle Kooy and Karen Bakker observe of Jakarta, the colonial imprints are literally and metaphorically deep in Phnom Penh, where inherited "formal" infrastructures layer up with informal networks and practices. Phnom Penh, in common with many cities around the world, lacks a comprehensive map of its subsurface infrastructure. As Ben Kiernan demonstrates however, unlike many cities, Phnom Penh, together with Cambodia as a whole, also lacks significant historical documentation. The usual challenges of "knowing" the urban underground discussed by scholars such as Yevheniya Volchko and colleagues, are layered with the effects of centuries of political upheaval, including the Khmer Rouge era (1975-1979) and the ensuing decade of civil war. This has impacted on both the subsurface infrastructure and the archive where its histories might be found.

As scholars interested in the critical potential of creative practices for geographical research, encountering ideas of infrastructural followings and imperial temporalities, and the spatio-temporal problematics they pose suggested to us openings for creative methods. In other words, we were interested in how creative practices—both in the field and in research presentation—might engage those tensions Cowen identifies between the "here and there," the "now and then(s)," and the "intimate and the imperial" ("Following the Infrastructures" 471). Such problematics sit helpfully within the wider critical frame for imperial histories offered by Stoler's long-standing reflection on the "rot that remains" from colonialism and its myriad afterlives; in "the corroded hollows of landscapes, in the gutted infrastructures of segregated cityscapes and in the micro-ecologies of matter and mind" (*Imperial Debris* 10). Across her decades of scholarship Stoler presses us towards the epistemic uncertainties of imperial formations with their demand to think differently about how we "capture the tenacious hold of imperial effects and their tangible if elusive forms" (*Imperial Debris* 2). She urges the disruption of "facile distinctions between political history and poetic form" and presses us to seize "the challenges of writing new colonial histories which press on the present" (*Duress* 8). Inspired, this essay combines this imperative for new approaches to imperial afterlives with Geographical thinking on the critical imperatives of creative research practices. We might think of AM Kanngieser's arguments around sonic colonialities; Sarah De Leeuw, Emilie Cameron and others writings on the complex intersections of poetry, story and colonial exploitation, alongside Sage Brice's discussion of colonial legacies of field sketching. Each directs us to the culturally embedded practices of medium and genre, and the challenges of intersecting form, materiality and affect to do critical work in the context of questions of people, place and power.

Seen through Cowen's and Stoler's ideas, the subsurface watery infrastructures of Phnom Penh that were this essay's start point turn out to be only one of the three (a triptych) of infrastructures at stake. Pipes, sluices, causeways and dams—material and affective remnants of colonialities past and present—become necessarily entangled as following

proceeds on the surface and in the archive with other infrastructures of coloniality; those of the archive and its visual contents.¹ As we walked the streets and tracked infrastructures in archives in Cambodia and online, we assembled a collection of images comprising those from the archive, those found online and our own photographs. The National Archive of Cambodia is itself a colonial infrastructure founded by the French in 1924, during their colonial presence in the country from 1863-1954. Photographs and rumours abound on the internet of the combination of neglect and wilful destruction that, as Peter Arfanis and Helen Jarvis explore, was the archive's fate during the Khmer Rouge era. As we amassed plans, maps, sketches and documents, some mouldy, crumpled or nibbled, fascination with these picturings of infrastructural past, presents and possible futures, mingled with an intense discomfort at the ease at which we had delinked them from their more sinister status as themselves infrastructures of colonialism. As Stoler observes "colonial archives can impede the task: they have a way of drawing our attention to their own scripted temporal and spatial designations of what is 'colonial' and what is no longer, making it difficult to stretch beyond their guarded frames" (*Duress* 5). It was a case of querying how to work critically with materials that do not just evidence the "designs" of coloniality, but which are themselves infrastructures of colonialism. We might consider these materials as part and parcel of what, after Bruce Braun and James Scott, we can think of as the colonial optic often integral to the making of colonial place and power.

To work with our "created" visual collection to both piece together in the field and to present on the page a "following" of Phnom Penh's subsurface infrastructures, necessitated a negotiation of the images' role in constituting spatial practices of power and their ongoing effects and afterlives. This brings us to the third of this essay's triptych of infrastructural followings; academic infrastructure, here principally (but not solely) the form visual essay (see Heng for a discussion of its histories and possibilities). Through demonstration in the body of the essay and explicit critical reflection on the coda, we explore how this form might offer openings onto the identified spatio-temporal complexities of infrastructural following, namely tensions between the "here and there," the "then and now" and the "intimate and Imperial." These tensions are necessary if we are to consider not only "how it was" and "what could have been," but also to make sense of "how it is," and, important, as LaDuke and Cowen observe, how it could be. In short, to ask, what is needed to do infrastructure otherwise?

In what follows then the triptych works on several levels. On one hand, each of the three sections follows a distinct hydraulic infrastructure through the streets of Phnom Penh

1 This included walking routes on the surface that tracked contemporary and historical subsurface infrastructures during fieldtrips in September 2022; January 2023; June 2023 and September 2023. The first trip tracked the experiences of people living and working around the infrastructure. Other trips including "following" on the surface key historical infrastructure as well as contemporary systems, including the open sewers. We pieced together the routes of older subsurface water courses from archival documents and tracked contemporary ones using maps and satellite images. Images were taken both at random when something caught my attention and when significant changes in the route, e.g., land-use, visible waste, signage were present. We also kept a field diary. The images included here come from a collection of almost 500 amassed from our own photographs and archival sources, including online documents. Of special note was the website *City of Water*.

and into the archives; grates, lakes and open sewers. On the other hand, each section attempts to draw together three forms of infrastructural following at work here; subsurface infrastructures; those of the colonial archive; and academic infrastructures. The latter manifests as a series of different relations between words and images that attempt to open up the spatio-temporal problematics and epistemic uncertainties of infrastructural followings. The included images have been digitally manipulated, with practices attempting to render aesthetically some of the concepts at work, including mottling. The images also sit alongside a cross-section of different genres of text including, field description, analysis, conceptual ideas, asides found on archival documents, and policy assessments. In composing visual and textual sources from across the centuries and across forms, clarity and certainty is occluded and absence emerges as a locus for generative thought. Through such mechanisms we seek the means to sit with, rather than foreclose, the epistemic challenges and uncertainties of following infrastructures, especially subsurface ones. In turn then; blocked grates offer portals into the complexity of imperial debris that following infrastructures demands; idle swamps invite consideration of infrastructure's multiple temporal horizons—long histories and durable afterlives; whilst open sewers press at the intersections of the intimate and imperial and the ways the sensory regimes of Empire shape the sensibilities of the present (Stoler, *Imperial Debris*). The coda draws together conceptual threads to reflect, after Cowen and Stoler, on how the reformation and deformation of the visualities and texts of colonial governance might offer forms of critical-creative infrastructural followings that are “keenly attentive to the occluded, unexpected sites in which earlier imperial formations carve their embedded marks and in which contemporary inequalities work their way through them” (Stoler, *Duress* 340).

The Infrastructural Debris of Mottled Imperialisms



It was rainy season for Harriet's first visit to Phnom Penh and it offered a useful introduction to what the city's most famous architect, Vann Molyvann (1926-2017)—architect of Cambodia's urban Modernity—has called "its hydraulic history." As she began to learn to read the rain she became fixated with grates as portals enabling or preventing passage into the infrastructural underworlds. It was hard not to be, when so often monsoonal afternoon down-pours result in murky calf-deep water collecting in the streets, temporarily turning roads and pavements-cum-markets into shallow waterways, creating almost daily blurrings of distinctions between land and water.

Phnom Penh's grates are not only portals to the subsurface, they are also portals to the city's imperial formations. Many of the grates in the north of the city date from the period of the French protectorate (1864-1953) offering access to pipes from that era as well as more recent Soviet funded ones. Together these drain towards a ring canal, often attributed in recent histories, such as that by Thomas Kolnberger, to French attempts to "discipline and drain" the city. Yet Molyvann dates this to a much earlier hydraulic imagination when what is now known as Phnom Penh emerged as a trading hub at the confluence of four rivers: The Mekong, Bassac, Tonle Sap and Chaktomuk. Founded in the early 1400s after the Khmer Kings abandoned Angkor and in the midst of a succession of foreign invasions, Phnom Penh's location on what is known as the Four-Faced Plain required its inhabitants to work with the seasonal water flows, cutting dykes and creating causeways and ponds to enable inhabitation of this amphibious realm.

Wandering the flooded streets, water flows not only into those grates (when it can) but also into the blue PVC pipes that break the surface of many curbs, where residents have

augmented failed formal systems with their own informal drainage. Kooy and Bakker describe similar augmentation practices in Jakarta. While elsewhere, channelised and covered rivers, pumping plants and vast underground storage chambers built in the last decade entangle symbols of geopolitical friendship with Japan or the US, with projects financed through global aid and Sino-Cambodian expressions of the Belt and Road Initiative. Mingling with these layered forms of imperial debris are the ordinary curations of everyday life; the collections of detritus—sand, plastic bags, masks and bottles that amass around the grates, assembled by monsoon rains, the aging and insufficient drainage system, and garbage problems. This is a city where 42% of daily plastic waste (or nine plastic bottles for each of its 2.3 million inhabitants) finds its way into the waterways where it chokes grates, sluices and pumping stations.² As urban materialities shift—from lake, marsh and wetlands, to glass, metal and tarmac—flooded streets are ordinary infrastructural failures in one of the fastest growing cities in South-East Asia (Percival). The waters recede almost as quickly as they appear, leaving strand-lines of sand, sediment and marooned waste.

Writing on the amphibious landscapes of Phnom Penh, Molyvann observed that “Cambodia is a society half-earth, half-water.”³ In his treatise on Cambodia’s Urban Futures *Modern Khmer Cities* he decries the loss of the hydraulic vision of Ancient Khmer Cities (a subject of his first monograph). Cities, he observes, “should not be built by landfill but by incorporating water into their design.” Molyvann’s is a hydraulic imagination shaped by multiple imperial visions of the land-water now known as Cambodia, drawing hydraulic lessons from the Khmer Kings of Ancient Angkor into dialogue with contemporary projects led by the French and Japanese.

Following Phnom Penh’s infrastructures requires resisting slotting the city into narratives of infrastructural inequality that situate splintered urbanism as the aftermath what we could describe after Kooy and Bakker as the “collapse of an integrated ideal” ushered in by French colonialism. Phnom Penh has long been characterised by “splintered” access whose roots/routes must be tracked through what Stoler (*Imperial Debris; Duress*) describes as the multiple historical tenses of Imperial effects. The handful of infrastructural stories of Phnom Penh that exist offer invaluable histories of the French colonial projects of “discipline and drain,” but to follow these infrastructures (after Cowen and Stoler) requires a broadening of the temporal horizons of these hydraulic histories. Stoler, a Southeast Asianist, argues that the “Victorian India” model of Empire offers a “distracting and constricted guide to imperial sovereignties of differential breadth and historical depth” (*Along the Archival Grain* 7).⁴ Another prominent Southeast Asianist, Benedict Anderson offers us a spatial aesthetic

2 <https://vodenglish.news/trash-on-the-surface-microplastics-below-hundreds-of-tons-of-plastic-carried-daily-by-phnom-penh-rivers-research-finds/>, 2021; last accessed 26/6/2023; <https://asiafoundation.org/wp-content/uploads/2016/06/Working-Politically-and-Flexibly-to-Reform-Solid-Waste-Management-in-Phnom-Penh.pdf>.

3 Cambodia’s origin story also reinforces this relationship between water and land. It was drained from the sea by the naga king when his daughter falls in love with a foreign prince. See Khongphanthum.

4 Another set of academic infrastructures to follow might include the geopolitical drivers behind the mid-20th century growth of Southeast Asian studies in the USA and the forms of scholarship and political relations it supported.

when he urges us to take seriously Southeast Asia's "strange history of mottled imperialism" (5). Anderson attributes such Imperial patternings to heterogenous geographies and successive centuries of colonialism; "from the Dutch in the Mercantilist 17th century and British in the Enlightened 18th century, the French in the Industrialised 19th century and the Americans in the Motorized 20th century" (5). Yet infrastructural following in Phnom Penh after Vann Molyvann requires a much longer temporal horizon reaching back beyond the recent colonial pasts of French Indochina, to the Khmer Empire (which ruled what is now Cambodia from AD 802-1431). But it also requires, reaching forward to consider how these Imperial histories intersect with neo-colonial forms of geopolitical intervention and investment practices—the "then and now" and the "here and there."

For centuries many who travelled across the Four-Face Plain to Tonle Sap (upstream or downstream depending on the time of year) fixed their eyes on the "recognised" ruins of Empire in the form of Angkor Wat. What, after Stoler, does it mean to refuse sight shaped by European colonialism, to turn away from the melancholic gaze fixed on the privileged ruins of Empire, and to turn our attention instead to the more diffuse, wider structures that imperial formations sustain? (*Along the Archival Grain; Imperial Debris; Interior Frontiers*). To do so is not simply to turn away from Angkor Wat but is rather to reground its infrastructural legacies as part of millennia long Cambodian water-scapes. Recent Lidar scanning technologies (including by Damian Evans and colleagues) have visualised the hydraulic urbanism long understood by Vann Molyvann and others as the organising principal of Angkorian space. Archaeological analysis describes a vast network of man-made dykes, preks (canals) and bungs (ponds) which surrounded the Tonle Sap spreading south. These ghostly traces of a vast water management system, which for centuries channelled and stored monsoonal rains via thousands of kilometres of canals and reservoir, witness intersections of drainage and power informed by an hydraulic imagination other than a French imagination of "discipline and drain." Histories of colonialism and modernity in the Mekong region have often written of nature-culture relations in terms of Modernity's failure. As David Biggs describes in his book *Quagmire*, European colonial projects based on disciplining distinctions between water and land often met significant challenges in this amorphous, amphibious region's suspension of such distinctions. Here, as Biggs describes, histories of modernity and its infrastructures are those of slippage, erasure and rupture, of sweeping floods and always permeable surfaces often resistant to permeant structures (Biggs).

Idle Swamps and Lost Lakes

What is commonly known as the city of Phnom Penh is currently such a cesspool that building land is very scarce ... it is not for ten years that the plateau of the city inclined on the side of the river, equipped with its sewer and its channel of belt will be finished and by then, I repeat, the grounds that might be suitable for the European Settlements will be excessively rare. (A 1884 note appended to a draft plan for a decree on the alienation of land in Cambodia, sent from the

Resident General of Cambodia, to the Governor of Indochina)



In a note to the Governor of Indochina, an aside appended to the 1884 draft of a formal decree to seize land in Phnom Penh, the Resident General of Cambodia worried over the lack of suitable land and the time taken for engineering works to secure more space for colonial society. Histories of the region by David Biggs and Thomas Kolnberger detail a colonial power plagued with geographic anxiety about the management of the “Indochinese Swamps” and their threat to the French “la mission civilisatrice.” The result was the French instigation of a decades-long plan of “hydraulic modernisation.” Similar to projects in France and around the world, this “discipline and drain” campaign was intended to capitalise on common land *les biens communaux*, so called “idle swamps” and ensure the sanitation and health of the city.

A miserable conglomeration of straw huts or brick hovels planted around infected swamps whose emanations in the dry season decimate the population. (Agostini, 1891, *Voyage au Cambodge, 1893-1894*)⁵

The elemental discipline the French protectorate attempted to impose was tightly bound up with corporeal control. As histories such as Molyvanns and Kolnberger demonstrate, key to the wider aquatic organisation of the city was a pair of canals that “dewatered the surface” and contained colonial society, setting the spatial formation of institutional and diplomatic activities that still exists today. The first was completed in 1894 (apparently following the route of earlier Khmer workings) encircling what was the emerging colonial heartland to the city’s north. The second enclosed Central Market, key to the mercantile city’s expanding

5 <https://www.aefek.fr/premiersregardscoloniaux.html> last accessed 12/1/24.

commercial activities and the mixed society of Cambodians, Sino-Khmers and Chinese merchants who were drawn to it. Beyond was the un-embanked land which flooded during rainy season becoming navigable only by boat, and which was for many in colonial society and the Royal Court, the source of disease, immorality and disorder.

The project highly contributed to the improvement of the lives of the people in Phnom Penh as an overall goal. It prevented interruption of economic and commercial activities, and social activities such as school closure. As an indirect impact, it alleviated health damages caused by water-borne diseases such as diarrhoea and dengue fever, and bad odours . . . Meanwhile, illegal dumping of waste into the drainage channels is forcing administrative bodies to implement frequent clean-up operations. Illegal dumping is caused by the low environmental awareness and the immoral behaviour of the people living in the vicinity. (JICA Evaluation document, 2008)⁶

Following infrastructures through their multiple historical tenses upends French discourses of land-water relations and reframes “idle swamps”—sources of literal and moral pestilence and a waste of good land—as integral parts of the city’s hydraulic infrastructure. Far from “idle” these wetlands were, are and will be for as long as they still exist, multispecies infrastructures. As Katherine Brickell recounts these areas offer homes, food and livelihoods for many thousands of families, as well as purifying runoff and storing and regulating monsoon rains. What remains of Boeung Tompun—an “idle swamp” lying to the south of the city—still fulfills some of these functions. Indeed, as Tiev Visoth and his colleagues estimate, it swells by a third during rainy season collecting around 70% of the city’s rain and waste-water. The carpets of Morning Glory and other vegetables not only fill the bellies, markets and restaurants of Phnom Penh, they perform purification, reducing E-coli levels by 99% and phosphorous and nitrogen levels by 70%. Yet, this remaining natural hydraulic infrastructure is still undervalued. In their “Lost Lakes Report (2019),” local NGO Sahnakum Teang Tnaut observed that since 2003 over 60% of Phnom Penh’s lakes and more than 40% of its wetlands have been in-filled with sand.⁷

6 Evaluation document by JICA, accessed at https://www2.jica.go.jp/en/evaluation/pdf/2008_0205700_4_f.pdf (7/8/2023).

7 https://teangtnaut.org/wp-content/uploads/2019/12/STT-Facts-and-Figures-40-Last-lakes-ENG_Final.pdf (last accessed 30/12/2023).



Large-scale ruin-making takes, as Stoler observes, “resources and planning that may involve forced removal of populations and new zones of uninhabitable space, reassigning inhabitable spaces and reassigning how people are supposed to live in them” (*Imperial Debris* 21). Infrastructural ruin-making endeavours are typically state projects, often strategic, nation building and politically charged. Archived satellite images suggest that twenty years ago you could still walk a north-south transect seven kilometres through Phnom Penh from one wetland (Boeung Kak) to another (Boeung Tompun). For most of the transect you would be within sight of a river, walking the river-bank, raised wooden walkways or winding through narrow passages between houses and shops. Now you can still navigate the transect, but the Boeung Kak natural storage and purification plant that offered many thousands homes and livelihoods has been colonised by empty lots of reedy grass, advertising hoardings, vacant glass buildings, lonely cranes, and busy intersections, where Tuk Tuks mix with Aston Martins and a Lamborghini garage. To the south, Boeung Tompun continues to shrink, its territory threatened most recently by a mega mall complete with a Starbucks. Just south of Boeung Kak near Street 230 a river rises to the surface flowing south to the ironically named Boeung Tompun Pumping Station. Since 2004, its banks have been (mostly) encased in concrete as part of the multi-million dollar “Master Plan for Drainage Improvement and Flood Control,” a collaboration between the city and engineers and urban planners from the Japan International Cooperation Agency (JICA) that has cost over \$100 million to date. Monsoon rains, no longer moderated by those idle swamps, press at the channel edges, overtopping its banks and flooding homes and streets with polluted water.

Mid-way through the transect from one ghost wetland to another nearly ghost wetland, things get clogged up. Sluices fill with carpets of rubbish before disappearing beneath towering overpasses. Stagnant water and rubbish pool against a retaining wall, rebar

and rusty pipes and metal work litter the half-finished concrete cover of the canal. This is less the afterlife of crumbling infrastructure than a failure to ever finish, leaving residents living on amidst a rusting and decaying building site, making do and getting by amidst the odd temporality of the ruination of infrastructure apparently permanently on pause. If we would usually expect documents to render visible otherwise invisible infrastructure, something else is at work here. Accounts of the “Master Plan” and formal assessments of its success for the global aid and financial worlds are readily available online, yet this space of infrastructural abandonment mid-way down the river is absent. Encountering the formal assessment documents is to find only the absence of this after-life of unfinished ruins, a bureaucratic invisibility, a space of suspension that does not seem to formally exist.

Blocked sluices offer-up present-day “idle swamps,” whose miasmatic and malarial forces continue centuries later to offer the powers-that-be metaphors for what they perceive as the problematic moralities of the local populace (see also Saulnier et al. on contemporary health impacts of flooding). Ignoring their own unfinished project, city authorities blame blocked overflows and rubbish strewn waters on residents, despite reports of up to 40% of the population being under-served by the waste collection services they pay for.⁸ Discipline and drain in the colonial present continues to entangle water, landscape, people and morality; individuals are judged to be living in the wrong place, communities produce too much waste and manage it badly, apparently refusing responsibility for shared infrastructures, infrastructures which have displaced many from their homes often multiple times.

Sensing Intimate Imperialisms

To work at the so-called intimate frontiers of Empire (Stoler, *Interior Frontiers*), to entangle the intimate and imperial, is often to grapple not only with very different scales, but also with very different sources. As Saidiya Hartman’s and Lisa Lowe’s inspiring and innovative research demonstrates, it can be to work imaginatively with everything from institutional ledgers to postcards, built form, decaying photographs and “on the ground” experiences, in search of both infrastructure presence and absence and the lived experiences of them. We need to explore how imperial formations endure as “sensory regime[s] embodied, gouged deep in the sensibilities of the present” (Stoler, *Imperial Debris* 2). To consider the afterlives of imperial debris as sensory as well as material, Stoler urges us to consider the connective tissues that “continue to bind human potential to degraded environments, and degraded personhoods to the material refuse of imperial projects ... at issue is the political lives of imperial debris” (*Imperial Debris* 2).

Infrastructural politics have long been determined by certain sensory regimes; primarily

8 <https://vodenglish.news/trash-on-the-surface-microplastics-below-hundreds-of-tons-of-plastic-carried-daily-by-phnom-penh-rivers-research-finds/>, 2021; last accessed 26/6/2023; <https://asiafoundation.org/wp-content/uploads/2016/06/Working-Politically-and-Flexibly-to-Reform-Solid-Waste-Management-in-Phnom-Penh.pdf>.

their invisibility. Notable, a sense that (like Heidegger's tools) infrastructures are only visible when broken or failing. As Gandy writes, in the Modern "plumbed" city, "the metabolic relations between the body and the city remain largely unseen except in instances of failure, interruptive of containment, or through the mundane geographies of the inconvenient" (6). But this is to assume a European Modernity, which as Arjun Appadurai observes when being interviewed for a film on urban water, should be reconsidered in so-called "horizontal cities" where everything is more "fully available to the gaze," where water infrastructure might "surfaced" through a "jumbled landscape of pipes, open sewers, tankers, water vendors and buckets."⁹ On the one hand, Phnom Penh seems to follow this model, to the north of the city, aside from in times of failures, the aesthetic legacy of Angkor and French colonialism has hidden the infrastructure beneath the surface. However, beyond the boundaries of the French Administration we find this infrastructural visibility, with open sewers, canals and failed drains all available for the gaze and the nose! For, to follow infrastructure is not just to explore the visual—to trace the presence and absence of infrastructure on the surface, it is also to consider a wider sensory politics of infrastructural presence and absence, the availability of infrastructure to the gaze, but also to the nose, as smells seep from open sewers and circulate in the surrounding streets. As Phnom Penh's building boom overloads historical sewerage systems, it is felt through itches and stinks by those who will never see the inside of those developments.

After the rains the grey, gunky water is moving faster in the concrete channel, dotted with foam, leaves and bits of garbage. The other day it was sluggish, sludgy, moving but barely so. Today the flow outpaces us as we walk beside the canal; the Boueng Trabek sewage canal to give the open drain its formal name, or "shit canal" to the local NGOs, in Khmer the *loo teuk sa-ouy*—smelly water canal, or the poetic French *le canal aux mille parfums* (the canal of a thousand fragrances). This is an open concrete channel that cuts through 30 blocks south-east of the city centre, well outside the planned French quarter. It was built sometime between 1943 and 1958, a golden area of growth, during which Phnom Penh became known as the Pearl of Asia, offering model for Singapore's more recent garden city vision.

The intersection of the intimate and the imperial is a common refrain in Cowen's urging of infrastructural following. In line with other challenges to naturalised understandings of scale and power that equate bigger to powerful Stoler (*Duress* 13) argues that "to study the intimate is not to turn away from structures of dominance but to relocate their conditions of possibility and relations and forces of production," relocations that occur into spaces like the body and the household. Following the various intimacies of colonial infrastructures, Cowen draws on geographers and others working within critical race theory to consider how the laying down of the rails of Canadian national railway is "a laying down of racialised logics." In a similar way we might question how the laying down of pipes and the digging of drains

9 Arjun Appadurai interviewed in the documentary film *Liquid City* (2007) last accessed 30/12/2023, <https://www.youtube.com/watch?v=mhAk-E3Jico>.

creates cities as sites of intimate imperialisms. How sewage systems, their presence and absence are a pipeline of embodied racial logics, whose persistent afterlives define centuries of relations between personhood and collective definitions and distributions of life, health, and death. Intimate imperialisms manifest here through the spatial management of water and waste, of access to safe clean spaces, and the abandonment of other spaces through infrastructural absence.

Taking leave from recent feminist work on intimate imperialisms, we might shift scale further, to consider how imperial infrastructures create imbrications of bodies, water and space, through skin and sense organs (Stoler *Interior Frontiers*). In prolonged stormy periods Phnom Penh's open canal can overtop its concrete channel, filling the streets with a toxic cocktail of excrement, urine, rainwater, foodstuffs, petrol, chemicals and other things, causing illness and skin rashes (as well as Salulnier and colleague's account see Casper Jensen's *Sewage Stroll!*). Ensuring the continual flow through this concrete channel has cost millions of dollars, of UN and now Japanese money; money whose need is determined by other international financial flows into real estate, past and present. What money cannot prevent, short of covering the canal, is the diffusion of smell, pervading the surrounding streets and their buildings. A hotel manager tells us that the rooms smell, but the workers who rent them do not seem to mind, and if they keep clean they do not get sick. Sitting at a table outside by the canal in a little garden she has made, the manager offers us bottled water as we talk. She is used to the smell she explains; she shrugs, and flicks through her phone for photos of a recent trip. A coconut seller is similarly dismissive of the smell, it is not so bad she says, she grew up here. No big deal. The story is the same with the proud owner of a new business, a coffee shop. We sit outside, business is good, the owner muses, maybe customers will be put off, not really she supposes, also lots of sales are made through apps now, a moped stands ready. At a fruit stand on one of the road bridges over the canal, we buy Longan. This has been their spot for a while the seller explains, they do not really notice the smell, and anyway, this is a good spot for selling. We ask about the sewer flooding, it can happen a few times a month during rainy seasons, they say. When it is bad they move their cart to high ground for an hour or so, waiting out the flooding, eventually the water goes down and then they come back. Further down, the concrete channel opens out to a wider canal and houses are built out on stilts over the water, the rubbish-covered surface visible through the floor. Here there is little in the way of pipe work, water runs straight into the canal from kitchens, bathrooms and the industrial workshops, mainly furniture-making, that line the canal. Someone tells us they just got the raised road put in, before that it would flood often and become impassable, children often had itchy skin.

Hydraulic and excremental modernities situated sewers as the peak of civilisation and modernity, integral to colonial practices of spatial rationalisation and control. Waste—out of place—and certainly out of civilised place—is to be managed, an intensely aesthetic practice which often means rendering it invisible, or better, insensible to surface dwellers. Phnom Penh's open sewer is a very visible and also olfactory infrastructural failure, a failure

of sensory—of aesthetic—management. For those who live around it gestures of shrugging and practices of adaptation such as moving away and coming back, suggest a sort of infrastructural crisis ordinary, a habituation of senses and practices to the mobilities of water and of smells, and the failure of their containment. The laying down, or rather the failure to lay down, covered sewers and the persistence of the open canal and its flooding, witness the persistence of the unequal logics of colonial urban planning and how its infrastructural afterlives continue to shape lived experiences of Phnom Penh’s urban present.

Coda

What might critical accounts of infrastructure “look” like? Or better still, how might working with complex visualities and relations between image and text offer us the means to evolve more critical accounts of infrastructures? One task, Stoler suggests, of a “renewed colonial studies would be to sharpen our senses, and sense of how to track the intangibilities of empire as effective histories of the present” (*Interior Frontiers* 29). The triptych to which this coda pertains has offered three visual and textual presentations of infrastructural followings, performing attempts to grapple with the spatial-temporal challenges of these followings; the then and now, the here and there and the intimate and imperial. Ostensibly, the primary infrastructures at stake here were the watery infrastructures of subsurface Phnom Penh and their surface expressions, in terms of flooding, smells and the colonial presence and absence of infrastructure from the surface. Yet such followings inevitably required an intersection with the colonial infrastructures of the archive, and the documents of funders, financial capital and treatise of friendship, themselves infrastructures of coloniality, past, present and future. The other infrastructure at stake here has been that of academia and its research. As our research theorisations—like Cowen’s idea of infrastructural following—press into the challenges of the unknown, the complex, the unrepresentable, the not-representation and the non-representational—we find the limits of our methods being reached, and relatedly that we need different forms of output too. Here we find the specificities of the Phnom Penh context together with the broader spatio-temporal challenges of infrastructural followings and imperial afterlives that Cowen and Stoler identify, framing an attempt at critical-creative work.

On considering questions of how to explore the various entangled visibilities and invisibilities of Phnom Penh’s subsurface infrastructures, it felt right to respond in ways that incorporated the visual. But amassing a series of images drew attention to the need to be mindful of the visual politics of a critical-creative practice of infrastructural following when the very resources for such a following are themselves complicit within the making of colonial place and power. As such, and taking into account some of the epistemological challenges that Cowen’s following raises, this essay has tried to create a set of images and text that whilst seeking to tell stories of a form, have also not sought a stable style. So the relations between image and text are not always spelled out, yet hopefully the links are

there. Different genres of text and image, often from across the centuries mingle in ways that sometimes refuse clarity and that often trade on uncertainty, reaching towards these composite forms as a means to evoke the complex geographies and historical tenses of imperial infrastructural formations. As such the visual and textual experiments attempted here owe much to the ways that geographers and others have written of the complex space-times enabled by aesthetics such as collage and montage which of course, as Harriet Hawkins has discussed elsewhere, have their own histories and geographies. Yet, the point of these experiments is less to make grand claims as to the specific aesthetic forms that might “capture” any of these concepts, or which might enable forms of infrastructural following better attuned to say epistemic uncertainties; rather, it could be that each specific set of following practices and its resources requires its own aesthetic form. Furthermore, each reader/viewer will bring to the page their own histories and interpretative frames. Instead, the wider point we wish to make is that infrastructural following as a practice might, given the nature of its sources, its spatio-temporal challenges and epistemic uncertainties benefit from some consideration of critical-creative approaches. Importantly, such approaches might enable us to sit better with the challenges of understanding the pasts, presents and futures of infrastructures, as the foundation for, as Cowen observes, doing infrastructures otherwise (“Following the Infrastructures”).

Such a bringing together of infrastructural politics and critical-creative approaches is however a two-way dialogue, for it pushes us to consider the importance of “following” the sources and forms of our critical-creative approaches. This includes taking care with the colonial origin of plans and maps as part of the infrastructures of colonialism, as well as reflecting on the geographic origins of aesthetic forms, such as collage and montage. Academic word-craft too is part of a sometimes overlooked academic infrastructure—introductions, footnotes, subsections, as well as the types of text and what we expect to see (conceptual development, analysis and so on). We might consider too, how following our academic infrastructures is a cautionary reminder to remain aware of the infrastructures of knowledge—the thinkers, the creative mediums—we might choose to “import” to the places we study. To consider infrastructural followings after Cowen and Stoler therefore presses us not only to consider the multiple historical tenses and geographies of imperial infrastructures—here grates, lakes and sewers—but also to consider the infrastructures that constitute how we conduct these followings and present them on the page. Such an expanded sense of infrastructural followings has the potential not only to tell us new and different stories about the imperial infrastructures we are studying, but also those we use to conduct our research, and importantly, how all these infrastructures might be made otherwise.

Funding

This paper is part of a project that has received funding from the European Research Council (ERC) under the European Union’s Horizon 2020 research and innovation programme (Grant agreement No. 863944 THINK

DEEP).

Acknowledgements

The authors would like to thank the editors, and anonymous referees for their feedback on the paper which has much improved it. Pete Adey offered inspiring reading prompts and audiences at the Academy of Mobility Humanities, Konkuk offered invaluable feedback on spoken versions of this paper; Katherine Brickell and Long Ly Vouch supported the fieldwork in Phnom Penh that shaped this paper.

Competing Interests

The author(s) reported that no competing interests exist.

ORCID

Harriet Hawkins <https://orcid.org/0000-0002-7056-4982>

Laurie Parsons <https://orcid.org/0000-0002-3461-3468>

Works Cited

- Anderson, Benedict. *The Spectre of Comparisons: Nationalism, Southeast Asia, and the World*. Verso, 1998.
- Afanis, Peter, and Helen Jarvis. "Archives in Cambodia: Neglected Institutions." *Archives and Manuscripts*, vol. 21, no. 2, 1993, pp. 252-62.
- Barry, Andrew, and Evelina Gambino. "Pipeline Geopolitics: Subaquatic Materials and the Tactical Point." *Geopolitics*, vol. 25, no. 1, 2020, pp. 109–42, <https://doi.org/10.1080/14650045.2019.1570921>.
- Biggs, David Andrew. *Quagmire. Nation-Building and Nature in the Mekong Delta*. Washington UP, 2010.
- Bosworth, Kai. *Pipeline Populism: Grassroots Environmentalism in the 21st Century*. U of Minnesota P, 2022.
- Braun, Bruce. "Producing Vertical Territory: Geology and Governmentality in Late Victorian Canada." *Ecumene*, vol. 7, no. 1, 2000, pp. 7–46, <https://doi.org/10.1177/096746080000700102>.
- Brice, Sage. "Situating Skill." *Cultural Geographies*, vol. 25, no. 1, 2018, pp. 135–58, <https://doi.org/10.1177/1474474017702513>.
- Brickell, Katherine. *SOS: Gender, Violence and Survival in Crisis Ordinary Cambodia*. Blakckwell, 2020.
- Cameron, Emilie. *Far Off Metal River. Inuit Lands, Settler Stories, and the Making of the Contemporary Arctic*. UBC Press, 2016.
- City of Water*. Directed by Shelby Elizabeth Doyle, <http://cityofwater.wordpress.com>.
- Cowen, Deborah. "Following the Infrastructures of Empire: Notes on Cities, Settler Colonialism, and Method." *Urban Geography*, vol. 41, no. 4, 2020, pp. 469–86, <https://doi.org/10.1080/02723638.2019.1677990>.
- _____. "Investigating Infrastructures III." *Society and Space Forum*, 12 Dec. 2022, <https://www.societyandspace.org/forums/investigating-infrastructures-iii>.
- de Leeuw, Sarah. "Writing as Righting: Truth and Reconciliation, Poetics, and New Geo-Graphing in Colonial Canada." *The Canadian Geographer*, vol. 61, 2017, pp. 306–18, <https://doi.org/10.1111/cag.12395>.
- Denney, Lisa. *Reforming Solid Waste Management in Penom Penh*. The Asia Foundation, 2016, <https://asiafoundation.org/wp-content/uploads/2016/06/Working-Politically-and-Flexibly-to-Reform-Solid-Waste-Management-in-Phnom-Penh.pdf>.
- Edwards, Penny. *Cambodge: The Cultivation of a Nation, 1850-1945*. Hawaii UP, 2007.
- Evans, Damian H., et al. "Uncovering Archaeological Landscapes at Angkor Using Lidar." *Proceedings of the National Academy of Sciences: PNAS*, vol. 110, no. 31, 2013, pp. 12595–600, <https://doi.org/10.1073/pnas.1306539110>.
- Gandy, Matthew. *The Fabric of Space: Water, Modernity, and the Urban Imagination*. The MIT Press, 2014.
- Hartman, Saidiya. *Wayward Lives, Beautiful Experiments: Intimate Histories of Social Upheaval*. W. W. Norton and Company, 2019.

- Hawkins, Harriet. "Creative Geographic Methods." *Cultural Geographies*, vol. 22, no. 2, 2015, pp. 247–68, <https://doi.org/10.1177/1474474015569995>.
- Heng, Terence. "Creating Visual Essays: Narrative and Thematic Approaches." *The Sage Handbook of Visual Research Methods*, edited by Luc Pauwels and Dawn Mannay, Sage, 2020, pp. 617–28.
- Jensen, Casper Bruun. "Pipe Dreams: Sewage Infrastructure and Activity Trails in Phnom Penh." *Ethnos*, vol. 82, no. 4, 2017, pp. 627–47, <https://doi.org/10.1080/00141844.2015.1107608>.
- JICA. *Summary*. 2009, https://www2.jica.go.jp/en/evaluation/pdf/2008_0205700_4_f.pdf.
- Kanngieser, A. M. "Sonic Colonialities: Listening, Dispossession, and the (Re)making of Anglo-European Nature." *Transactions of the Institute of British Geographers*, vol. 48, no. 4, 2023, pp. 690–702, <https://doi.org/10.1111/tran.12602>.
- Kiernan, Ben. "Coming to Terms with the Past: Cambodia." *History Today*, vol. 54, no. 9, 2004, pp. 16–19.
- Khongphianthum, C. "The Concept of the Nāga in Cambodia Society." *World Asian Studies Conference*, vol. 1, 2015, pp. 37–42, <https://doi.org/10.17201/wasc2015-1105>.
- Kolnberger, Thomas. "Between Planning and Spontaneous Order: The 'Equifinal' Production of Urban Space in Colonial Phnom Penh (1860s–1930s)." *Geographische Zeitschrift*, vol. 102, no. 2, 2014, pp. 86–105.
- Kooy, Michelle, and Karen Bakker. "Splintered Networks: The Colonial and Contemporary Waters of Jakarta." *Geoforum*, vol. 39, no. 6, 2008, pp. 1843–58, <https://doi.org/10.1016/j.geoforum.2008.07.012>.
- LaDuke, Winona, and Deborah Cowen. "Beyond Wiindigo Infrastructure." *South Atlantic Quarterly*, vol. 119, no. 2, 2020, pp. 243–69, <https://doi.org/10.1215/00382876-8177747>.
- "Liquid City Water Politics in Mumbai with English Subtitles." *YouTube*, uploaded by Paul Manning, 21 Mar. 2017, <https://www.youtube.com/watch?v=mhAk-E3Jico>.
- Low, Kelvin E.Y. "The Sensuous City." *Ethnography*, vol. 16, no. 3, 2015, pp. 295–312, <https://doi.org/10.1177/1466138114552938>.
- Lowe, Lisa. *The Intimacies of Four Continents*. Duke UP, 2015.
- Molyvann, Vann. *Modern Khmer Cities*. Reyum Institute of Arts and Culture, 2005.
- Nou, Chanrachna, and Sasima Charoenkit. "The Potential of Green Infrastructure (GI) for Reducing Stormwater Runoff in a Phnom Penh Neighborhood." *Geographia Technica*, vol. 15, no. 1, 2020, pp. 112–23, https://doi.org/10.21163/GT_2020.151.10.
- Pervical, Thomas. "Urban Megaprojects and City Planning in Phnom Penh." *The Handbook of Contemporary Cambodia*, edited by Katherine Brickell and Simon Springer, Routledge, 2016, pp. 181–90.
- Parsons, Meg, and Karen Fisher. "Historical Smellscapes in Aotearoa New Zealand: Intersections between Colonial Knowledges of Smell, Race, and Wetlands." *Journal of Historical Geography*, vol. 74, 2021, pp. 28–43, <https://doi.org/10.1013/j.jhg.2021.08.006>.
- Sahmakum Teang Tnaut. *The Last Lakes*. Dec. 2019, https://teangtnaut.org/wp-content/uploads/2019/12/STT-Factsand-Figures-40-Last-lakes-ENG_Final.pdf.
- Saulnier, Dell D., et al. "The Effect of Seasonal Floods on Health: Analysis of Six Years of National Health Data and Flood Maps." *International Journal of Environmental Research and Public Health*, vol. 15, no. 4, 2018, p. 665, <https://doi.org/10.3390/ijerph15040665>.
- Scott, James C. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. Yale UP, 1998.
- Sreypitch, Mao, and Michael Dickinson. "Fishing for Plastic." *VOD*, 17 Sep. 2021, <https://vodenglish.news/trash-on-the-surface-microplastics-below-hundreds-of-tons-of-plastic-carried-daily-by-phnom-penh-rivers-research-finds/>.
- Smallwood, Stephanie E. *Saltwater Slavery: A Middle Passage from Africa to American Diaspora*. Harvard UP, 2007.
- Stoler, Ann Laura. *Along the Archival Grain: Epistemic Anxieties and Colonial Common Sense*. Princeton UP, 2009.
- _____. *Duress: Imperial Durabilities in Our Times*. Duke UP, 2016.
- _____. *Imperial Debris: On Ruins and Ruination*. Duke UP, 2013.
- _____. *Interior Frontiers: Essays on the Entrails of Inequality*. Oxford UP, 2022.
- _____. "Intimidations of Empire: Predicaments of the Hostile and Unseen." *Haunted by Empire: Geographies of Intimacy in North American History*, edited by Ann Laura Stoler, Duke UP, 2006, pp. 1–22.
- Visoth, Tiev, et al. "Efficiency of Phnom Penh's Natural Wetlands in Treating Wastewater Discharges." *Asian Journal of Water, Environment, and Pollution*, vol. 7, no. 3, 2010, pp. 39–48.
- Volchko, Yevheniya, et al. "Subsurface Planning: Towards a Common Understanding of the Subsurface as a Multifunctional Resource." *Land Use Policy*, vol. 90, 2020, p. 104316, <https://doi.org/doi:10.1016/j.landusepol.2019.104316>.