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Author
Gaber, Nadia Ahmed Osama

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Life After Water: Detroit, Flint, and the Postindustrial Politics of Health

by
Nadia Gaber

DISSERTATION
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GRADUATE DIVISION

of the

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AND
UNIVERSITY OF CALIFORNIA, BERKELEY

Approved:

DocuSigned by:
_____ Ian Whitmarsh
EA62D765E0414D8...   Chair

DocuSigned by:
Vincanne Adams
_____ Vincanne Adams
DocuSigned by:
Nancy Scheper-Hughes
_____ Nancy Scheper-Hughes
DocuSigned by:
_____ Jovan Scott Lewis
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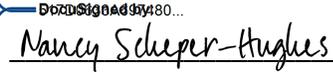
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                                         Committee Members

Life After Water

Detroit, Flint and the Postindustrial Politics of Health

Nadia Ahmed Osama Gaber

This work is dedicated to Nora, for teaching me about living on, and for your gift of life.

And to Emma, for living your truth and fiercely affirming life.

Acknowledgements

It would be impossible for me to acknowledge all those to whom I am indebted, but in this closing phase of writing, I have been especially overwhelmed by my gratitude for the people and experiences that have helped me arrive here, even as here is but a dislocation in an endless arrival, to borrow a phrase.

First, to my family. My parents, who left Egypt for new futures, and faced the finitude of life far too soon – your incredible capacity to take care of everyone around you, your commitment to science for life's sake, and your faithful tenacity continues to inspire me. I know I can always count on your encouragement, love and support. To my siblings – Sherief, for vague but astute advice, always; for late-night edits; and for your uncanny, unassuming brilliance; Yousef – for your creative flourish and flourishing intellect; Lilah – for your maturity, wit and verve, which astound me, even from afar. To Priya and Arhan, for silly, stylish love and support. To Shadow, the most loving companion species of all. And to my aunts and uncles and cousins and 'cousins' and aunties: thank you.

Working with my dissertation committee has been an honor and a pleasure. My deepest thanks go to Ian Whitmarsh, my chair, to Vincanne Adams, to Nancy Scheper-Hughes and to Jovan Scott Lewis. Ian has been a source of patient encouragement and poignant interventions, offering skepticism where needed to sharpen an argument. Always willing to meet in an out-of-the-way place to discuss a barely-formed idea, Ian has gifted me with countless translations of my own thoughts – no small task, if you know me. I also have Ian to thank for finding my way to Michigan after Master's research in the Middle East, and no doubt for finding my way through.

Vincanne has been a constant source of support, in more ways than one. In addition to her teaching and mentorship in the department, she has invited me in to *Medical Anthropology Quarterly* and its intellectual community, and it has been wonderful watching the journal revived under her editorship. As an editor of this dissertation, Vincanne read each word of each draft I sent, with an attention to story and craft that have deftly sharpened the force of the arguments. Her encouragement has been consistent, kind and energetic throughout, including when I've needed it most. Truly, this never would have happened without her.

I am so grateful to have worked with Nancy Scheper-Hughes, both on this dissertation and in the Townsend Center working group, Experiments in Radical Medicine. I have always admired Nancy's way with words, her activist verve and intellectual vigor, but little did I know how generous she would be as an advisor, compatriot and confidant – nor how riveting a storyteller! Whenever my energies, or sentences, start to stray, I see her standing to ask, *"But what is at stake*!?" and am returned to my 'why.' Nancy's passion for, and dedication to, medical anthropology have left their indelible trace on the field, and certainly have helped shape my own 'good-enough ethnography.'

Jovan agreed to come on board for this project with incredible generosity and trusting mentorship at a crucial moment. His close reading and challenges to clarity not only helped the power of the everyday engagements come through the ethnography but also reflect certain commitments to citation as a political act, to which I remain attuned. Jovan's course fostered a kind of intellectual space within the academy I did not know I

My generous welcome into this community does not mean, however, that I share in the same struggles, and I want to acknowledge that. I hope to have emphasized the expertise that resides with those who directly impacted, as I have tried to respectfully relay the stories with which I have been trusted. There are many people I still need to thank but cannot name, who sat with me for an interview, stood beside me at a march, or simply waited in the same room. I hope through this writing to have done some justice to the work. To all those in Michigan, and beyond, who wage love: *asé*!

Declaration

I certify that the dissertation I present is solely my own work. Of course any work of sole authorship is an inheritance of traditions, and ethnography in particular relies on the shared substances of experience, but I have credited and cited the work of others to disciplinary standards and the best of my abilities.

The copyright of this thesis rests with the author. Quotation is permitted, provided that a full acknowledgement is made. This dissertation may not be reproduced in whole or in part without my prior written consent.

I have changed the names of the subjects of research in order to protect their confidence and confidentiality. I use real names of people and organizations if they are public officials, speaking in obviously public forums, or expressly requested that I do so.

Contributions

1. The section, "Without Rights," in the Introduction, includes excerpts of a paper to be published in *Health and Human Rights Journal* in the summer of 2019. I thank Dr. Carmel Williams and the editorial team, as well as two anonymous peer reviewers.

2. The Appendix, "The Psychosocial Impacts of Water Insecurity," is a co-authored paper developed as part of a citizen-led research study, approved by the UCSF Institutional Review Board. I have included it here, with attributions to each co-author. The paper is currently out for review. I thank Andy Silva, Monica Lewis-Patrick, Debra Taylor and Emily Kutil for their permission to include it.

Life After Water: Detroit, Flint and the Postindustrial Politics of Health
Nadia Ahmed Osama Gaber

Abstract

In the United States, the reorganization of municipal services in postindustrial cities threatens to erode foundational infrastructures of public health and safety. This is exemplified by the rapid regression of access to safe and affordable water and sanitation in cities across the state of Michigan, most notably in Detroit and Flint. In a region considered to be one of the most water-secure in the world, longstanding issues with water contamination from industrial toxins are converging with currents of economic crisis, climate-related changes, and contemporary anxieties about the future of cities.

This dissertation explores these emerging forms of water insecurity as a means of examining contemporary transformations in urban biopolitics. It is based on fieldwork conducted intermittently between March 2015 and July 2018, with full-time engagements from June to August 2016 and November 2016 to March 2017. In conjunction with ethnographic research, I participated in two community-led public health studies assessing the impacts of the Detroit water shutoffs.

Drawing on grassroots critique and critical race theory, I show how the legacy of racial residential segregation and regional power are reworked into contemporary urban environment through water in new ways. I extend Michel Foucault's generative theory of biopolitics to consider how contemporary security techniques seek to contain – but often proliferate – the kinds of threats to "life as usual" posed by emerging and endemic water contaminants. I also examine the fear that social security administrations work to 'secure'

the separation of families from water, and each other, as protections of the welfare state are dismantled, making the privatization of water possible in theory and practice.

Social movements and social theorists alike argue that urban water infrastructures have become increasingly important sites for rethinking the ethics and politics of collective living in the aftermath of industrial decline. This dissertation traces how those excluded from the city's water – despite their claims to citizenship, property, and human rights – nevertheless engage in urban water politics, assembling water just as (and precisely where) water overflows the bounds of modern infrastructure ideals and neoliberal governance. These sites of excess and overflow point to spaces of possibility for new socialities and new types of politics, engaged under the oft-made claim that "Water is Life." Attention to the physics and politics of hydrosocial assemblage opens up considerations for how life might be assembled otherwise.

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History is not kind to us

we restitch it with living

past memory   forward

into desire

into the panic   articulation

of want   without having

or even the promise of getting.

And I dream of our coming together

encircled   driven

not only by love

but by lust for a working tomorrow

the flights of this journey

mapless   uncertain

and necessary as water

From Audre Lorde,

"On My Way out I Passed over You and the Verrazano Bridge" (1988)

Detroit to Flint Water Justice
Great Lakes, Shrinking Cities, and Social Movements

This dissertation is an examination of the relation between water insecurity and the politics of health and safety in the United States. I focus in particular on how 'the governance of life at the level of the population' changes under austerity regimes, both in the patterned distribution of water-related risks and illnesses and in the very practices of knowledge production and public administration that make those patterns legible and in turn governable. Austerity measures, often pursued through emergency powers, threaten to upend more than a century of water stability in the region, marking a dramatic retreat of the state's responsibility for public health and safety in the wake of decades of racially-inflected economic decline. I take the challenges and controversies facing public water systems in the so-called 'shrinking cities' of the American Rust Belt as my central cases for study. I show how a re-racialization of the urban environment is achieved through the management and mismanagement of water, as one of the most vital resources for life.

Cities across Michigan have been dramatically rearranged in the postwar and postindustrial periods. Today, the restructuring of public services in the wake of financial collapse poses serious challenges to foundational infrastructures of the public health state, exemplified in water and sanitation. In a region considered to be one of the most water-secure in the world, longstanding issues with water contamination from industrial

and environmental toxins are converging with currents of economic crisis and contemporary anxieties about the changing climate. Consequently, public struggles over the health and safety of the population (over the care of the state) are increasingly articulated through the politics of water.

My inquiry begins in Detroit, Michigan, where hundreds of thousands of very poor, mostly African-American households have been disconnected from water and sewer services since 2014. The escalation of shutoffs began as a condition of the City's exit from the largest municipal bankruptcy case in the country, itself a product of decades of disinvestment and decline in the Motor City. At the time the policy was introduced, Detroit had also shuttered its Department of Health and its Department of Human Services, the two agencies responsible for the health and welfare of residents, for reasons of 'fiscal discipline'. This limited the provision of relief, in the forms of cash aid and medical care, to residents left without water, as well as the capacity of the state to account for, and be accountable to, the impacts of these austerity measures. My investigation followed the water itself outside of Detroit's city limits, finding that Highland Park, Hamtramck, Benton Harbor and Flint were all facing serious, interrelated water insecurities, including the exposure of Flint residents to dangerous levels of lead in their drinking water for more than two years before state institutions of public health and safety intervened (Amirhadji et al. 2013; Howell 2019).

Questions of civil and economic rights intersect concerns with state science and social justice, as residents statewide organized to document and publish their own studies of water quality, water access, and water stress in local communities. In this spirit, the

research for this project includes two community-led participatory research studies in Detroit, one establishing a baseline risk assessment for water insecurity and public health city-wide, and another on the impacts of water insecurity and psychosocial distress in the Brightmoor neighborhood (included as an Appendix). This work emphasizes the degree to which the 'settled' biopolitics of sanitation are unsettled under austerity neoliberalism, compelling and/or coercing residents themselves to produce public health research.

In this dissertation, the residents and activists working to document and defer their water troubles serve as guides for an empirical and analytic exploration of the politics of urban health, state frameworks for regulating the population and planet, the governance of water security, and the social ethics of life and safety. Accordingly, my ethnographic research spans multiple domains, including local water council meetings and public hearings; the offices of elected officials, civil servants, and social workers; community organizing meetings, actions and demonstrations; academic research institutions; archival and media collections; homeless shelters and food pantries; family dinner tables, and more. I ask: How do residents mobilize a new urban politics of water that resists the restructuring of public water and sanitation and the retraction of the welfare state writ large? What kinds of bio-politics are at work in the engineering of austerity, and in community struggles to sustain collective life? Throughout this work, I suggest that water in/security indexes changing social relations of race, class, gender, and power in the postindustrial present.

The Water Walk

Pontiac, Michigan. July 2015.

Two hundred people or so are gathered in a steeped wooden church, dark

overhead and underfoot. It was after sunset, but still muggy. Several people grab paper

fans with plastic handles, printed with a local lawyer's phone number. Many in the room

had walked from Bloomfield Hills that day, the wealthy suburb one town over, just like

we had walked from Ferndale the day before, and from Detroit before that, all along

Woodward Avenue. You don't need the "Welcome to Pontiac" sign to tell you when

you've crossed into town. The cement in the sidewalks is darker, rougher, and hotter in

the summer sun. There's little shade, from little tree cover, and the streets smell like

smog, on account of the tire and auto repair shops left standing.

The town hall marks the halfway point of the Detroit to Flint Water Justice

Journey For Safe and Affordable Water, a march organized by a coalition of racial,

environmental and economic justice groups to connect the water issues facing Michigan

residents. The occasion for such an action emerged from the 2015 International Gathering

of Social Movements on Water, organized by the Michigan Welfare Rights Organization

and People's Water Board Coalition. The event, a forum for bridging social struggles for

water justice around the world, deepened connections among activists across the state

[Figure I.1]. The whole series of events, including the intricate logistics of food and water,

overnight housing, press releases, art making, support cars was organized in just five

weeks – "by the grace of God, strong coffee, and the generosity of many good people," as

one of its main organizers reflected (Redigan 2015) – which presumably also carried her

all 70 miles on injured feet.[1]

Figure I.1: "Free the Water" Graffiti Painted on a Detroit Water Tower. (Raiz Up 2016)

The 7-day walk ends at Flint City Hall, but the journey continues, with

demonstrators traveling by bus on the seventh day to Lansing, the state capitol, to deliver

petitions calling for safe and affordable water for all of Michigan. Public events and media

appearances along the way are organized to address and to protest the ongoing pollution

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[1] Several compelling accounts of the Detroit to Flint Water Justice Journey have been written by participants and supporters; see (Azikiwe 2015; Howell, Doan, & Harbin 2019; Redigan 2015).

and physical neglect of our shared water infrastructures, as well as the possibility of water privatization in the impoverished region. To say that these cities have been impoverished is to explicitly say that they have been *made* poor by a legacy of structural and symbolic violence. Indeed, the poverty wrought by decades of dismantled industrial production and discriminatory urban planning is ever-present as the text and subtext of these stories.

People stood in turn to speak on a variety of troubling water issues, which I can only briefly recount. The Detroit Water and Sewerage Department (DWSD) had just pushed city council to pass yet another rate hike, reversing their earlier 'no' vote. At the same time, DWSD authorized a multi-million dollar contract to hire a private company called Homrich, Inc. to disconnect nearly a hundred thousand households from water and sewer services. Disconnections were ramping up in Highland Park, Pontiac, Hamtramck and Flint as well, with each city attempting to squeeze revenue from its customers, from residents who are already among the nation's most impoverished urban dwellers. Botched billing collections, service interruptions, water quality issues, flooding events and water main breaks were common, even as residents were asked to pay more each month. Flint residents were reporting dramatic and mysterious symptoms: hair loss, stomach upset, skin rashes, dizziness, sick plants and pets. Some brought plastic jugs of discolored and "funky-smelling" water to the event. Highland Park and Hamtramck, cities nested within Detroit's borders, remain at risk of losing their municipal independence over water debt owed to DWSD.

Meanwhile, DWSD itself was at risk of folding, and many fear that state politicians are planning to sell off the public system. For residents, privatization means a loss of

democratic input, transparency, and accountability, and stories from Cochabamba, Bolivia, Atlanta, Georgia, and Venezuela are raised as cautionary tales about the injustices engendered by water privatization.[2] Private pipelines carrying oil and natural gas under the Great Lakes are also a major source of concern and outrage among those gathered at the town hall. The location of Enbridge's Line 5, for example, running directly under the Straits of Mackinac, would mean that a leak or break in the pipe would spread rapidly throughout the entire system, causing major environmental devastation and threatening the water security not only of Michiganders, but of the nearly 35 million Americans and Canadians who depend on the Great Lakes for their drinking water (Michigan Technological University 2018).

At the ecological level, invasive species like Zebra mussels and Asian Carp, introduced into in the Great Lakes by under-regulation of waterway trade, threatening the native ecology. Temperature changes and rising rainfalls wash agricultural fertilizers into the lakes, producing harmful algal blooms. Decades of agricultural and industrial pollution into the watershed – for which DWSD spent 30 years under federal receivership, under the direction of the Environmental Protection Agency – are being compounded by new kinds and excess quantities of chemical contaminants, including personal care products, pharmaceuticals, and a class of heat-resistant molecules called perfluorooctanoic acids (PFAS) causing a wave of panic across the state.

The federal government is currently considering slashing the budget for environmental protection of the Great Lakes by more than 80% (Learner 2019). In the

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[2] For global case studies published, respectively, in popular and scholarly collections; see, for example (Our Water Commons 2019) and (Sultana & Loftus 2013).

past four decades, it has reduced its contributions to public infrastructure maintenance by more than eighty percent (Miles 2016). For its part, the state of Michigan has divested many of its historic fiduciary and regulatory responsibilities. Of greatest concern to those gathered here is the withholding of revenue sharing, by which the state re-allocates tax revenue to cities to bolster those public services managed at the municipal level, including water and sanitation, education and non-interstate roads. Activists at the town hall are particularly outraged that the state of Michigan renewed a permit for Nestlé to extract more than 576,000 gallons of water *each day* from the Great Lakes Basin at no cost to the international conglomerate, while families across the state are denied water that is priced and re-priced above what they can afford. In 2016, when Nestlé applied to renew its permit, the state received 81,000 public comments against the plan – and only 75 in favor (Williams & Roth 2018). Still, the state authorized the permit, defending it as an administrative issue, not a policy question, for which it has no legal power to curtail the French company from extracting Great Lakes water. The company paid only a $200 permit renewal fee.

Partial Answers

As the town hall heated up, so did the church. The crowd was fired up when it came time for the Question and Answer period. A child asked for the microphone, held it with two hands, let out a nervous "um," a gentle "hi" and asked: "My mom is getting sick from drinking the water, and we can't get anywhere although we've been everywhere, uh. I'm wondering: what happens if you keep drinking it?" It had been more than a year since the City of Flint switched its drinking water source, more than a year since it stopped

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treating the water to code, and more than a year of suffering without recognition across the city – in the form of unexplained rashes, hair loss, and dizziness among people forced to pay the nation's most unaffordable water rates. It would take yet another year of organizing and outcry before the Flint water crisis became one of the biggest news stories in the country, in the midst of the 2016 presidential elections no less. But at this point, in this place, the Flint water crisis is a collection of stories, shared in public before strangers, an open secret amongst those who cared to listen, and a rallying cry for the marginalized in Michigan.

A few people give the boy partial answers. One of the activist organizers offers gently that "[We] do not know exactly what's in the water or what it might do, but we do know that it is making people sick, and you know that because of what you're seeing with your mother." A certified nurse's assistant offers a more scientific explanation, detailing the exposures and pathways that could make his mother even sicker. "Well, it *is* toxic," she begins, saying the water is suspected to have very high levels of metals, including copper and lead, which are known to have damaging neurological effects. She adds that there may be exaggerated levels of TTHMs (trihalomethanes), a disinfection byproduct that must be controlled to avoid elevating risk of bladder and kidney cancers. "It could be serious, even life threatening." The room fills with hushed whispers, then a few slow claps.

Then Maureen Taylor takes the stage. Maureen is unmistakable; she wears a string of pearls tied in a knot at the neck and a floral scarf tied like a Boy Scout's over that, with a kind of penetrating voice that comes from a preacher's daughter. "Now wait a minute,"

she says stepping up to the microphone. "Did y'all hear what this young man said? He said, 'my mother is getting sick!' He is not talking about the facts. He is talking about, what are we gonna do to fix this? I *heard* that. I got that! I *understand that*." Maureen is State Chair of the Michigan Welfare Rights Organization and a leader of the National Welfare Rights Organization, whose small-but-mighty membership continues a long struggle against the dismantling of the American welfare state. "You know, [the Detroit water department] tried to reassure us that of the 79,000 people who were eligible for shutoffs, they would only execute about 59,000 of them. Well that don't sound reassuring at all!... So of course the alarm went off. We called our friends at the Sierra Club, we called our friends at Moratorium Now, we called every Methodist, Baptist, Catholic we could find; every religious, non religious, the high, the low, the in, out; the blind, the deaf, people that are crazy; we called everybody. And just like that young man, we said: *This water is not safe! What are we going to do about this? How we going to fix this?*"

What Flows Together

This scene at the church during the water walk offers a revealing glimpse into myriad ways in which disparate social, natural, economic, and political factors intersect around the question of water. Maureen's simple questions turned out to be not so straightforward. Perhaps because it was early on in my fieldwork, or perhaps it was that I found no simply answers, these straightforward but unsimple questions began to guide my inquiry. This research explores the struggle for safe and affordable water in postindustrial environments, considering the operations of power, race and space in the

constitution of the city and the uneven distribution of life chances for those who dwell within it.

I pay particular attention to the tactics and frameworks of activists organized for water justice. The water justice movement, even within the state of Michigan, is heterogeneous, incorporating elements from the U.S. civil rights, anti-poverty, women's liberation, and environmental justice organizing, Indigenous ecologies, and faith-based organizing, including Catholic liberation theology and local Protestant charities. It also draws on and makes connections to anti-globalization campaigns, labor movements, climate activism, and worldwide struggles for social justice in the city. Resonances of these relationships are evident throughout the following chapters, as they come through these local actors' connections, as well as through a growing international and interdisciplinary body of scholarship on urban water and sanitation.

I engaged with members of this community as they tried to make their water troubles seen by the state. I came to the project with an interest in urban inequality and the politics of public health, particularly as health is mobilized in movements for social and economic justice. I had been working in the Middle East when two United Nations rapporteurs published a report on violations of the human right to water and sanitation in Detroit. As it became clear that I couldn't continue to work in the Middle East for safety reasons, it became clearer that 'global health' issues were emerging at home, in the heartland of the United States. The same themes – of segregated access to infrastructure, the withholding of vital state resources, dramas of democracy, and of human rights mobilization against neoliberal management of poverty – were all here. I noticed the

postcolonial resonances in postindustrial life, and felt that the line between here and there, First and Third World, local and global was shifting anew. I admit I did not expect to study water, but it as it quite literally permeated questions of racial, environmental and urban justice throughout the region, it shows how inequalities are engendered, sedimented, studied and managed in contemporary America. Beyond that, as my interlocutor, friend and mentor Monica Lewis-Patrick says, "We didn't choose water – water chose us." In the same way, water chose this project.

Through research and organizing, it became clear to me, as it had already become clear to the community, that these water issues flow together, traversing not only the geography and jurisdiction of cities, but carrying historical currents of racial oppression into warming oceans of ecological change. I realized too that addressing them would require a fluid analytics of power. What emerged is an ethnographic study of drinking water security in these cities, as case studies examining the changing politics of urban public health under conditions of contemporary capitalism. Accordingly, my dissertation examines the problem of water from the perspectives of race, history, politics, and economics.

Notes from the Field

As rapid urbanization on the world's most populous continents puts new demands on old water systems, a renewed anthropological attention has turned to water as a medium through which social form is produced and reproduced. The development diagnosis of a general water crisis and its gloomy prognoses frame contemporary thinking about imbalances in water power as a major driver of inequality worldwide. Of course,

this attention is not only scholarly: journalists around the world report on water scarcities and failures of development as film and television series dramatize these stories and bottled water has become a multi-billion dollar industry. At the same time that water appears as a cause of crisis by droughts, floods, and disease, it is simultaneously reinforced as symbol of purity, cleanliness and clarity (Kaplan 2007). In this dualism, it strikes a chord across the symbolic divides of purity and danger that the anthropologist Mary Douglas powerfully describes as organizing systems of social and moral life (Douglas 2003 [1966]).

Water is a solution in which many registers of purity and danger are dissolved and often rendered invisible. In this, water is typifies a central property as an infrastructure, one that is rendered visible in moments of glitch or failure. At the same time, water acts as a prism that refracts and reflects these issues, when the right light is cast on it. This is the sense in which water is both an object and a method of inquiry in this study.

I formally interviewed more than forty people, not including those who were contacted and consented as part of the canvassing and other survey efforts, run under separate institutionally reviewed studies. If people were willing to have another conversation for this project, they were contacted and consented into this study separately. The people I interviewed fall into six categories, though these sometimes overlap: directly-impacted residents, activists, experts (science, law, and economics), social workers and managers, government officials, and nonprofit workers.

During the course of my fieldwork, the Flint water crisis became national news. Within days, reporters and photographers from every major media outlet appeared in the

small town of Flint, and coverage only intensified over the many months to come. Rapidly, small community meetings where ten or fifteen people gathered were under the watch of camera lenses and reporters. Even the final action of the Detroit to Flint Water Justice Journey, a rally on the lawn of Flint City Hall's steps, had no more than 100 people there – and that was two years into the crisis. Aside from ethical reservations about being part of the rush of the reporting and research that followed the breaking news, what struck me most was my own surprise at how much attention and outrage the issue generated. Thankful to have some of my cynicism shattered by the outpouring of support and concern, nonetheless there are endemic issues of environmental justice that routinely go ignored, relegated to 'life as usual' for communities whose value the state and capital have written off.

Today two-thirds of Detroit's public schools have toxic levels of lead in the drinking water, and more than 70 sites across Michigan have lead levels higher than Flint (Fonger 2017). Historical accounts remind us that lead is one of the oldest known human neurotoxins, and that this fact was well-established and widely accepted when decisions about using the material for public water infrastructure, gasoline, and house paint were made (Levin et al. 2008; Rabin 2008; Troesken 2006). Remnants of decades of unregulated use, despite the evidence, have made lead dust in older homes and urban soil the most significant source of lead exposure in the United States (Papanikolaou, Hatzidaki, Belivanis, Tzanakakis, & Tsatsakis 2005).

The Centers for Disease Control has long debated exposure limits to lead; in 1999, when the tolerance level for children was set at 6 micrograms of lead per day, the mass of

lead potentially available to children in America's urban environments was 19 orders of

magnitude (10^{19}) larger than "safe levels" (Mielke 1999) p. 69). Today we know, and the

CDC has advised, that there is no safe level of lead exposure, revising the guidelines down

to zero. Drinking water mediates only a portion of lead exposure across the country,

estimated at 10-20% (Levin et al. 2008), while lead dust is endemic in the infrastructure of

public schools and houses, as well as the air and soil in postindustrial neighborhoods,

affecting poor people of color and their children most of all (Morello-Frosch & Lopez

2006; Pulido 1996). Much of this flies under the radar because it does not appear as a

catastrophe, but is a condition of the ordinary, for some much more than others. The

Flint water crisis has certainly changed that, making water a central matter of concern,

though its exceptionality may obscure the ongoing, everyday 'crises' of contamination in

our urban environments.

Figure I.2: Activists & supporters on the Detroit to Flint Water Justice Journey, Flint MI, Screenshot from *YouTube* (Public D 2015)

On Water

Every city has been formed and informed by the politics of water, but those on our route, Detroit and Flint, are in the midst of severe storms. Both cities' troubles emerge from a long history of spatial and racial inequality whose hydraulic dynamics have largely been overlooked. The precipitation of water crisis out of the solution of urban life renders those dynamics visible in new ways. This dissertation then offers a fresh take on the politics of urban austerity and the challenges of postindustrial public health by following water as an object and a method of inquiry. Alongside a critical analysis of the hydraulics of oppression making and unmaking these Rust Belt cities, I explore the veritable hydra of actors who struggle to sustain social life against the rising tides of social suffering.

Water as Total Social Fact

Water has emerged as a problem of, and for, the contemporary – and a central problem for this inquiry. In sociological terms, it is what Emile Durkheim and Marcel Mauss may have called a "total social fact" (Orlove & Caton 2010). For Durkheim, a social fact is a representation or action that has an existence of its own beyond an individual iteration and that endures of its own in society at large. Language, marriage, kinship – these are social facts in the form of social institutions that hold form across generations (Durkheim 1982). For Mauss, *un fait social total* is an "activity [that] has implications throughout society, in the economic, political and legal spheres" (Mauss 2002 [1925]). In other words, it is an object or practice animated by social norms and beliefs which reveals

and reproduces certain normative orders in society. Mauss dedicated his inquiry to an object form, the gift, where gifts are social facts that express social form, carrying customs of belief, value, gender, time, and more through performances of exchange and relations of reciprocity (see also Bourdieu 1997; Osteen 2013; Strathern 1990). Gift exchange expresses a system of obligations and a structure of value that precedes (in Mauss' analyses of pre capitalist societies) and still exceeds the logics of value guiding currency-based market exchange.

Water and Paradox of Value

Indeed, water has always resisted commodification, and poses a fundamental problem for the labor theory of value, which reigned in classical economic thinking, both capitalist and communist. Adam Smith described a problem known in economic thinking as the diamond-water paradox: "Nothing is more useful than water; but it will purchase scarce any thing; scarce any thing can be had in exchange for it. A diamond, on the contrary, has scarce any value in use; but a very great quantity of other goods many frequently be had in exchange for it" (Smith 2019 [1776], p. 12). More than 100 years later, Karl Marx puzzled over this same paradox, drawing out the distinction between exchange and use value: "So far no chemist has ever discovered exchange value either in a pearl or a diamond. The economic discoverers of this chemical element... find however that the use value of objects belongs to them independently of their material properties, while their [exchange] value, on the other hand, forms a part of them as objects" (Marx 1906 [1867], p. 95). But water is not this type of object – a commodity – for Marx. Rather, water (alongside as soil, virgin timber, and wind) is "the universal subject of human labor...

spontaneously provided by Nature" (Marx 1906 [1867], pp. 198-199). If it becomes

"filtered" through human labor – "that is, by means of a social process" – it becomes a raw

material, for which an exchange value can be generated. Marx would thus make a

distinction between water "in situ" and drinking water, which is channeled, treated and

distributed by human labor power, sometimes directly and sometimes through a built

infrastructure. Marx, however, published *Capital* just as modern sewer systems were

introduced in the major cities of Europe in the late nineteenth century.

Both Smith and Marx argued that the value of commodities was related to the

amount of human labor required to produce them, and for this reason the exchange

value, rather than the use value, was deterministic of price. However, writing just after

Marx, several economists solved the puzzle at once by proposing what is called the

'marginal theory of value'. This theory emphasizes the mental (subjective) roots of all

human value, not any objective or quantifiable input such as labor alone. The economist

Carl Menger, for example, writes: "value is the importance that individual goods or

quantities of goods attain for us because we are conscious of being dependent on

command of them for the satisfaction of our needs" (Menger 2007 [1976], p. 115). Menger

notes that no one chooses between "all of the water" and "all of the diamonds", but that

people make marginal choices about the amount of satisfaction of needs or wants gained

by each additional unit of the commodity. When water is tainted or withheld, then, the

exchange value of safe water rises – an economic fact that surely bottled water

'manufacturers' count on.

In its overriding conception as valuable through use, rather than exchange, water mirrors another central character in this story: the city. Geographers and political economists since Marx, particularly following the writings of the French intellectual Henri Lefebvre, have theorized the city as what Lefebvre called an *oeuvre* – an object or system produced through *work*. Though the distinction made by modernists between the city and its environment, as between society and nature, depends on a distinction between 'raw material' and built infrastructure, studies of urban water show that these ideals are inseparable, co-constituting, and porous. That is, the distinction between 'natural' and 'man-made' is one of epistemology, or the production of knowledge, rather than of ontology, or essence. Chapter 2 explores this dualism in the apprehension of and response to disasters, which are often classified as either natural or man-made, but whose distinction is – ontologically – without a difference. Scholars, policymakers and publics have indeed had to grapple with the reality (or the revelation) that the various 'disasters' portended by global climate change are, in fact, man-made. Scientists have proposed that humans' collective impact on the planet's ecosystem is now the dominant influence on climate and the environment, producing a new geological age called *the Anthropocene.*

Modern Water

In a remarkable book, *What is Water?* (2010), the critical geographer Jamie Linton traces twentieth-century thinking about water in the West alongside practices of science, engineering and state-building through which water has been governed. "Water is what we make of it," Linton argues, provoking extended thinking about how the multiplicity of forms and meanings associated with water in premodern societies have been abstracted

and essentialized by modern Western science into the singular form, as H2O or a "resource" (Linton 2010). As the book's forward, by Graeme Wynn describes, Linton draws on an insight by the critic and philosopher, Ivan Illich, who argued the disenchantment of water is a marker of modern society (see Illich 1986). In Wynn's words, Linton identifies "an epistemological revolution in the way that people knew and represented water, a revolution that presumed and established a fundamental separation between the natural and social realms and thus, sometime in the nineteenth century, robbed water of its social nature" (Wynn 2010).

A Water-Rich Region

The central cities of southeast Michigan are water rich and capital poor. The Great Lakes system holds twenty percent of the world's freshwater supply, and the extensive infrastructure of the Detroit Water and Sewerage System (DWSD) has supplied the region with water for domestic, agricultural, industrial and municipal growth since its founding in 1890 (Daisy 2002). While the system has struggled at times to meet standards for human and environmental safety – most notably resulting in thirty-years of court oversight, from 1984 to 2014 – the infrastructure has long been held in high esteem as one of the largest networks for urban water and wastewater services in the world. Yet just as the system was set to exit its three decades of federal environmental oversight, the promise of public control was fatefully deferred by a state-imposed system of economic receivership and the potential for privatization under a regional authority (Rossi 2015a). At the nexus of economic and environmental administration, nested within local, state, federal and global regimes of human rights and regulations, and flowing through the

material and social spaces of homes, streets, factories and farms, water and sanitation systems hold tremendous weight as a site of power in the production and reproduction of urban life. Under the auspices of neoliberal governance, state actors have abused this power, exercising extreme authority to usurp this public good for private gain.

The sudden emergence of water troubles in the region is especially striking in global perspective, as these are among the most visible cases of *regression* in water security, offering a kind of referendum on the modern progress narratives through which the U.S. has asserted its hegemony. The Flint and Detroit water crises share structural origins, including the imposition of emergency financial managers given broad powers to reregulate political economy and political ecology of cities without public input or accountability. Water insecurity in this historical center of the capitalist world therefore offers a generative site for this anthropological investigation into the politics and forms of knowledge shaping urban public health in a climate of austerity governance.

The majority of the reduction in morbidity and mortality worldwide since the nineteenth century has been attributed to urban water and sanitation systems, though water security remains a major challenge for global health and development. Little attention has been paid to U.S. water security by contrast because the country has historically enjoyed near-universal access in urban areas. This research, building on evidence generated by community members, academicians, nonprofit groups, think tanks and state agencies, suggests that unfortunately the tide of water insecurity is rising in segregated cities across the United States.

Without Rights

      It was not until 2010 that the United Nations (UN) established the human right to water and sanitation, despite the centrality of water to the realization of all human rights, and to sustaining life itself. Previously, the human right to water was encompassed within two rights outlined by the International Bill of Human Rights: the right to life and the right to health (UN 2002). The right to life requires states to support "appropriate means of subsistence," ensuring a bare minimum quantity and quality of water as necessary to survival. Under the right to health, defined as the obligation to promote and protect the "highest attainable standard of health," the right to water could be interpreted more expansively, raising safety standards and including water for domestic and hygienic use (Bluemel 2004). This was further clarified in General Comment 15, a non-binding statement affirming the relationship of a right to water to existing economic, social, and cultural human rights, and outlining its dimensions: "The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses" (UN 2002). These five normative criteria each have specific standards established by the United Nations and World Health Organization (WHO).

      With the passage of resolution 64/292 in 2010, the UN established a binding framework that clarified the specific obligations of states and entitlements of all persons with respect to water and sanitation as an independent human right (UN 2010). The framework also created an international mechanism of accountability for states that violate the human right to water. In practice, the ability of the UN Human Rights Council to compel states to comply with their human rights obligations varies widely. Delivering

water and sanitation is an intensive infrastructural project, and many nations struggle to

synchronize the political, economic, and social capital needed to respect, protect, and

fulfill those obligations (De Albuquerque 2014).

The human rights framework allows for the "progressive realization" of the right to

water, although some fear this may serve as a loophole that developing nations can use to

evade making material gains in securing water for all (Acey 2016). The corollary to

progressive realization is the principle of "non-retrogression," which prohibits nations

from moving backwards in their realization of the human right to water. Detroit's mass

disconnections offer one of the most striking examples of retrogression in the right to

water. Caterina de Albuquerque, UN Special Rapporteur on the right to safe drinking

water and sanitation, visited Detroit in 2014 and found the shutoffs to be in violation of

the human right to water. At a press conference, she explained:

> I've been to rich countries like Japan and Slovenia where basically 99
> percent of population have access to water, and I've been to poor countries
> where half the population doesn't have access to water … but this large-
> scale retrogression or backwards steps is new for me. (cited in Gottesdiener
> 2014)

The United States abstained from voting on UN Resolution 64/292 and has not

ratified the International Covenant on Economic Social and Cultural Rights (ICESCR),

from which the human right to water and sanitation is derived, thus refusing to be legally

bound by the terms of the human right to water.

Domestically, the United States does not recognize a right to water for its citizens

or residents. No such right exists in the US Constitution, nor is it justiciable in the courts

(Thor 2013). Though there are several local and federal civil rights statutes under which

water terminations could be challenged, the standards of proof are very high, requiring that a demonstration of discriminatory intent or impacts rests on "a tight causal connection between *statistical proof* of racially disparate impacts and the government policies" (Davis 2015). Citing the situation in Detroit, legal scholar Sharmila Murthy has argued that the fundamental necessity of water to "life, liberty and the pursuit of happiness" justifies that access to water be considered what legal scholar Cass Sunstein calls a "constitutive commitment," worthy of constitutional protections through legislation (Muthy 2016). Only California has passed a law affirming the human right to water, in 2012 (California Water Code § 106.3 2012). Two others, Massachusetts and Pennsylvania, mention the right to water in their state constitutions (See Constitution of the Commonwealth of Massachusetts art. XCVII; Constitution of the Pennsylvania Art. 1 sec. 27). In Michigan, no such legal provisions exist, leaving drinking water rights in abeyance as state-appointed officials orchestrate fundamental changes to the provision of water and wastewater services.

Only one of the five aspects of the human right to water—safety—is protected under US law. The United States has two primary federal regulations in place to protect residents (and wildlife) from contaminated water—the 1972 Federal Water Pollution Control Act (amended in 1977 and renamed the Clean Water Act) and the 1974 Safe Drinking Water Act. The Clean Water Act is designed to limit pollution of the nation's waters by regulating discharges, setting wastewater treatment standards, overseeing permits and licensing, and monitoring water quality compliance (The Clean Water Act 1972). The Safe Drinking Water Act regulates drinking water quality for all public water

systems in the United States, with the lead and copper rule issued pursuant to the SDWA in 1991 (The Safe Drinking Water Act 1974; Gurian & Tarr 2011).

Notably, these laws protect water access through 'negative' rights—freedom *from* toxic exposure to harmful contaminants—but does not commit the US or any state or local government to any 'positive' right *to* safe water. However, they remain the strongest legal protections for drinking water in the US, in large part because they are quantifiable and have justiciable legal avenues for redress (Gaber 2019). This enforcement is dependent on consistent regulation and good data—state responsibilities that were betrayed to disastrous effect in Michigan, as I explore in detail in Chapter 2.

The human right to water and sanitation has not only been jeopardized in Flint and Detroit, but across the United States. Affordability is a "burgeoning crisis," and economists estimate that within the next three years (by 2022), more than 35% of Americans will be unable to afford water service (up from 10% in 2017) – and that is based on double the global human rights standard for affordability (Mack & Wrase 2017).[3]

The State and Neoliberalism

Hydraulic States

In *Rivers of Empire*, Donald Worster shows how the expansion of the American West, particularly after the New Deal, was enabled principally by the installation of large-

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[3] Several reports on the Detroit & Flint water crises have been written by academic, nonprofit, philanthropic, and faith-based organizations. I cannot cite them all but note several exemplary works, many of which are referenced throughout the dissertation: (Barlow, MWRO, & PWBC 2014; We the People of Detroit 2016; Amirhadji et al. 2013; Haas Institute 2018; Unitarian Universalist Service Committee. 2016; Mascarenhas 2016; Hammer 2016; Food & Water Watch 2018).

scale irrigation projects capable of harnessing the regions' scarce water supply. Hydraulic

engineering, he argues, "had more to do with making the modern West than all the fur

trappers and cowboys and sheepherders there ever were." Not only did water become an

enabling substance for the state, but the state became "an agency for [the] conquest" of

water (Worster 1992). That the state is supported, materially and meaningfully, by the

control and distribution of water is a relation that precedes the modern state. Karl

Wittfogel's *Oriental Despotism* famously argues that early empire-building in China,

Egypt, India and Mesopotamia was pursued, and in turn bolstered, by hydraulic control.

Centralized water systems are large-scale enterprises that encourage a centralization of

control to the point, in his estimation, of monopoly authoritarianism (Wittfogel 1957).

Though this grand narrative has been nuanced by successive studies, water infrastructure

is indeed considered a "natural monopoly" in economic and political terms: the scale and

cost of building distribution systems, particularly urban systems, resist duplication and

therefore competition in provision (Bakker 2010). For this reason, water has a legacy of

being controlled by state agencies, even as authority is meted out sub-national and

international levels.

Under conditions of contemporary capitalism, however, this monopoly power is

reorganizing, restructuring this public good under private models. This can include

adopting market-based water sector reforms, including markets valuing water as a

commodity, privatizing rights to water, and employing commercial strategies for operating

supply and treatment systems. Since the 1990s, many of the world's largest multinationals

began expanding operation and ownership of water supply systems. As Karen Bakker notes

in her study of worldwide water privatization, wholesale privatization of physical assets as well as operations and management contracts for municipal systems is rare (Bakker 2010). More often, "hybrid" structures of ownership and governance converge in what are broadly referred to as public-private partnerships, with most of the world's water still distributed through municipally-owned and operated systems for those networked into them, and with small-scale private vendors distributing much of the rest by pushcarts. The patchwork nature of many urban distribution systems create what she calls "archipelagos of access" (Bakker 2003a). Many geographers, historians and ethnographers have worked to detail these uneven terrains of isolation or integration into public life through the study of water infrastructures (Acey 2016; Anand 2011; Budds & Loftus 2014; Loftus & McDonald 2001; McDonald & Ruiters 2005; Wutich et al. 2014).

The stakes could not be higher: as of 2017, 2.1 billion people lack access to safely managed water, with 844 million of these without even basic water service. For sanitation, those worldwide figures estimate that 4.5 billion people do not have access to safely managed sanitation, including 2.3 billion without even the most basic services (WHO 2017). With dramatic rates of urbanization in the late twentieth century, watered with great agricultural subsidies, it has become clear have meant that mankind globally has not outstripped our food supply, as Malthus predicted, nor the supply of water per se, but their water supply systems — the complex of technological, natural, regulatory, and financial structures that scaffold collective living. My concern is with how this crisis has crafted a rescripting of the state's responsibility to provide basic resources and services to its citizens, in which water reflects the most elemental measure of that commitment.

Privatization / Market Environmentalism

The entry of private corporations on the world stage nonetheless creates enormous concern among those who see its connection to the shrinking of public services, from healthcare to housing, as part of neoliberal trends in global governance. Bakker suggests that because it is essential for life and nonsubstitutable, water may represent "a final frontier for capitalism" (Bakker 2014). Bakker's work shifts conventional debates beyond the public/private binary by contending that privatization is not simply the deregulation of water, but "a process of socio-economic and socio-environmental re-regulation" (Bakker 2010).

In her earlier book, *An Uncooperative Commodity* (2003), Bakker contrasts the 'state hydraulic' paradigm of the nineteenth century water governance to the 'market environmentalist' paradigm of the late-twentieth century. Under the former, the state acts as "network manager," exercising command-and-control power to deliver water as a service aimed at universal provision and adequate quantity per user. Raw water pricing is typically subsidized or free, given a state's resource rights, while water supply pricing is determined by ability to pay under principles of social equity. The "market environmentalist" model, by contrast, uses the market as its network manager, and is thus demand-led and scarcity-responsive, aiming for efficient delivery of high-quality water to paying customers, who are metered. The 'state hydraulic' model succeeded on justifications that market failures were intrinsic to water supply provision: instances where "Water refuses to cooperate with the standard behavior of commodities" (Bakker 2003a, p. 22), and it is here that water supply's

constitutive role in the welfare state, and conceptions of water as an "emblem of citizenship" are elaborated (Bakker 2003a, pp. 19-21).

Drinking water was conceived, in early industrial cities, as a welfare service, with critical impacts on public health and environmental quality. The state bore, in large part, the costs of drinking water supply and resources development. This behavior was not unusual at the time; the implementation of the state hydraulic mode of regulation occurred over the twentieth century (at least in most OECD countries), and particularly post-WWII, during which states undertook to provide those services assumed to be unprofitable or unfeasible for the private sector (Bakker 2003a, p. 21). In the United States today, it seems the state hydraulic paradigm, under which public water systems have been founded and run, is giving way to a market environmentalist model. In Detroit, this is plainly evident in the allocation of dues and debts before and after bankruptcy.

Unreliable Water

For many people I spoke with, running water had been a fairly reliable fixture, even in hard financial times; this was often because water bills were at the same time very unreliable, with some residents reporting that they did not receive bills for years. Some people got the same charge every month, no matter how much water they believed they used. In the city's efforts after bankruptcy to recoup revenues for the water system, it regularized billing, setting a monthly schedule for payments that are tied to metered use. This cost-per-unit structure for water changes its status from a public welfare service (for which, for example, city taxes and state revenue shares should pay) to a salable commodity, for which those who do not pay – even if they cannot pay – can be disconnected. The bill

and the meter are thus symbolic as well as mechanical tools (Anand 2015; Von Schnitzler 2008). But there is more.

The bills Detroit residents received following bankruptcy may have been issued regularly, but the charges were still unreliable; some were wrongly charged for thousands of gallons of water use that no household leak could account for; many were charged for months of back-bills, with no way to verify or contest the assessed volumes; zeros were misplaced. Those with the knowledge, time and tenacity to contest their bills could sometimes do so successfully; a nurse I know spent three weeks contesting a $3000 bill that, once properly adjusted, was only $40. Thus market environmentalist methods, like metering and billing, describe new contractual arrangements for water, displacing citizenship, rights and residence as an operating basis for the city's social contract.

Whereas the environment is a domain to be controlled under the state hydraulic model, the environment is a resource to be protected under the market environmentalist. Corporate social responsibility acts as its own (in many places, the only) check on the destructive, toxic and damaging effects of capitalist production and consumption (including of laborer's bodies), sometimes using the rhetoric of sustainability to paper over these 'waste products'. Many grassroots activists call this 'greenwashing,' in distinction to that version of "green capitalism" in relation to ecological stewardship.

That the private sector is positioned as steward of planetary care while its industries continue to drive both the ravishing of the planet and the destitution of the poor who suffer most from it is no small irony. Rather, it is a testament to the mutability and hegemony of what are called neo-liberal logics of capitalism. "Central to neoliberal

thinking," writes Elizabeth Povinelli, "is the idea that the market naturally pays people what they are worth – and that bargaining power organized through extant institutional arrangements should have nothing to do with income distribution" (Povinelli 2011, p. 17). To this we might emphasize state-mediated *redistribution* through welfare subsidies as well, the majority of which – we must add – are still allotted to corporations and the wealthy by proxy. In Michigan, the political climate is such that neoliberalism has all bus acceded liberalism, in a dramatic reversal (and as activists argue, an engineered suppression) of the historic gains of unions there – both trade and domestic, as in autoworker and welfare (mothers') unions.

Detroit's revitalization is widely narrated under the broad and heterogeneous banner of neoliberalism (and managed by market environmentalism in many respects), but so is the story of its decline. The suburban expansion of the postwar years followed by the economic contraction of the postindustrial period enunciates a transition in governance from Keynsian liberalism to neo-liberalism, a shift in the relationship between state, market, and civil society. Accelerated financial crises in the new political economy are used to usurp authority, a domestic form of disaster capitalism that is creating a "postdemocratic" landscape for municipal governance in American cities (Peck & Whiteside 2016, p. 247). Finding that the diminished welfare movement is nonetheless the dominant site of water advocacy attests to this transition.

Emergency Management

On June 18, 2013, two years before this event, the City of Detroit filed for Chapter 9 bankruptcy, becoming the largest city in American history to do so. Detroit's water system

was at once the city's largest source of debt and its most valuable asset, taking center stage

in negotiations alongside city retiree pensions. A few factors in addition to scale make

Detroit's bankruptcy proceedings unique. The Chapter 9 filing was issued under the

direction of a state-imposed Emergency Manager (EM), Kevyn Orr, handpicked by the

governor of the State of Michigan, Rick Snyder in March 2013. Emergency Management

amounts to an effective coup on local leadership; supplanting the elected Mayor and City

Council's authority, EMs were given unprecedented powers to sell off municipal assets,

privatize city services, and unilaterally rewrite collective bargaining agreements –

including pensions that are protected by the state constitution. In fact, the Bankruptcy was

strategically organized to outmaneuver a counter-suit filed by city pensioners to block the

proceedings. The pensioners' lawyer said he felt "blindsided" when he agreed to a five

minute delay in their hearing at the request of Governor Snyder's attorneys, during which

time Orr's legal team filed the bankruptcy petition in Detroit (Apel 2015, p. 30).

Governor Snyder installed an Emergency Manager not only over the City of Detroit,

but nine cities and three school districts, imposing sweeping state authority over local

publics. The cities and districts forced into Emergency Management are overwhelmingly

African-American. Of the 10% of Michigan residents under emergency management,

70.7% were African American, though Black residents make up only 14% of the state by

population.[4] Of all African Americans in Michigan, 51% were stripped of their democratic

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[4] Throughout this dissertation, I have capitalized the word Black when it refers specifically to the African American community, and use these terms largely interchangeably, though I note that 'Black' may offer a more expansive designation of ethnic identification. When referring to more abstract concepts and categories, such as blackness or black thought, or using black as an adjective in relation to skin color, subjectivity, or social epistemology, I have retained the commonly-used lowercase. When citing, I retain the

voice this way, compared to only 2.4% of the state's white residents, although they make up 76.6% of the population (Lee et al. 2016). The law was so unpopular it was repealed by voters in a statewide referendum in 2012, but Governor Snyder pushed another version through the Michigan Legislature in a lame-duck session at the end of that year. This time, Public Act 436 included a clause that eliminated the veto option of voters, cementing the powers of Emergency Management.

Among the dramatic measures taken by Detroit's EM was the move to aggressively shut off water and sanitation services across the city. In the spring of 2014, DWSD began shutting off service to three thousand households per week, in a city with an average of 2.6 residents per household. No effort was made to determine who was living in these homes and no protections were offered for households where children, elderly, or sick residents live. Moreover, the shutoffs were only directed at residential accounts, sparing commercial customers who owed much larger debts to the water department. Though this was eventually, partially, amended, the disconnection of residents before companies refutes the premise that the strategy was simply a matter of financial recovery. Activists implored the United Nations to intervene, and in 2014, two rapporteurs deemed the city in violation of the Human Right to Water and Sanitation, finding it was denying water illegally to those with a "genuine inability to pay" (De Albuquerque 2014).

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author's original case. The Chicago Manual of Style (16th edition, Section 8.39) advises, "Common designations of ethnic groups by color are usually lower-cased unless a particular publisher or author prefers otherwise" (2010). In preferring otherwise, I take cues from the community, who by and large use the capitalization in their self-designation (see also Tharps 2014). Where these forms blur, I have used the lowercase form. The lack of uniform style itself speaks broadly to the complex legacy of dislocations and the social construction of race.

Emergency Managers also played a disastrous role in Flint. Sent to rectify financial distress, the cost-cutting decision to draw drinking water from the Flint River rather than continue to pay for water from Detroit – and even to spend the $100 a day to fund proper corrosion controls – only exacerbated the woes of the troubled city. Residents raised red flags from the very beginning, complaining of foul odor, taste and appearance of the water, and presenting with skin rashes, hair loss, and sick stomachs to local health professionals. Despite residents' protests, the City and State spent eighteen months concealing the damage; revelations about the cover-up show that authorities not only falsely assured residents the water was safe, but did so by manipulating testing protocols and scientific standards to suit the lie (Barry-Jester 2016; Clark 2018b). In the process, not only was public trust in government shattered, but lives were lost. More than 70 residents are presumed to have died from an outbreak of Legionnaire's disease, a bacterial pathogen that causes severe pneumonia – far more than the 12 originally reported by the state. Subsequent studies estimate that 275 pregnancies were lost because of exposure to high levels of lead in utero (Grossman & Slusky 2017), resonant to days when women ingested lead as a known abortifacient. But at the time of the Water Justice Journey, residents' worries were still unrecognized.

Biopolitics and the Management of Life

Anthropologists of science and society, particularly those concerned with health care and humanitarian ethics, have gainfully explored the ways that 'the modern state' renders the living population visible through techniques of audit and surveillance that biologize life and pin vitality to market values. More often than not, they do this through

close study of the limits to and failures of 'actually existing states' in securing life. Indeed, the state is the grounds for what Michel Foucault calls bio-politics, the discursive and practical governance of life, expressed in his oft-quoted phrase, "the power to foster life or disallow it to the point of death." This productive power is distinct from the sovereign power "to kill or let live," and though it is often forgotten in studies of biopolitics, Foucault reminds us that the prominence of biopolitics has perhaps concealed, but not wholly supplanted, this more ancient power of the state (Foucault 1990, pp. 138-141).[5]

Life is widely promoted as a moral and economic good in service of achieving the sacred triad of secular states, "order, wealth and health," whose very status as modern is propped up on the elision of religion through the supposed objectivity and supremacy of science. The state eschews religious explanations for life and life's misfortunes – sickness in particular – as it refigures charitable works as part of, or proxy projects of the state.[6] Under modern biopolitics, the pastoral (charitable) concern with "each and all" is refigured in a responsibility "of each to preserve their health in the interest of all" (1990).

Biopolitics can be read as a scientific technology of governance, an assemblage of techniques of surveillance, powers of emergency, promotion of the value of life, and instillation of the institutions and disciplines of (self-) care. The enabling fiction of biopolitics is the production of statistical truths about the population, truths that depend on the reproduction of data about the physiology and psychology of individuals' bodies. As many interpreters of the modern state note, statistics and statecraft share an

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[5] Bio-politics is, as Foucault elaborated, one pole of what the philosopher calls *biopower*, the other being *anatomo-politics*, where individual bodies become the focus of disciplinary controls. (Foucault 1990, p. 139)
[6] Here I am thinking of both the regular administration of welfare and the emergency enrollment of groups like the American Red Cross to provide disaster relief; see (Dauber, 2003; Adams 2013).

etymologic origin, and thus an epistemological function, forming the bedrock of the modern state's knowledge-power (Scott 1998).

Under neoliberal rationalities, the state today is increasingly 'data driven' and profit-motivated, even as its dependence on numerical metrics can skew governance strategies away from population health and even economic gains (Adams 2016) – as in the long-term financial benefits of costly infrastructure investments. These metrics are often unable to capture the complex conditions of, and changes to, the life that biopolitical states seek to measure and govern, as I will explore. Under austerity, governments gather and share data less transparently and less comprehensively – shifting the burden of public health knowledge production to un- and under-funded community based organizations in the shadow of dismantled public health departments, and dysfunctional regulatory agencies – as the evidence presented here from Flint and Detroit suggests strongly.

Overburdened, underfunded, and ill-equipped for changing ecological and economic climates, urban water infrastructures increasingly emerge as important sites for rethinking the ethics and politics of collective living in the aftermath of industrial decline. At issue are not just claims to "drinking water" as such (who has access, how much it costs, is it safe, and so forth) but an understanding of how water makes and remakes the very fabric of urban space and the uneven conditions of possibility for life with/in it.

Throughout, I've wanted to understand how claims made about life are not only *splintering* alongside our "splintering infrastructures" (Graham & Marvin 2002), but also *reassembling* under these new conditions of economy and environment. This has meant taking seriously the organizing claims, made together, "Water is Life" and "Black Lives

Matter," to the point of interrogating the matter of what some have called "life itself" and how only some lives (or "lively" assemblages) come to matter (see Chapter 1). Through study, I've come to better understand Katherine McKittrick's premise that "black matters are spatial matters" (McKittrick 2006, p. xiv) and Cornel West's reflections on "what *race* matters have meant to the American past and how much race *matters* in the American present" (West 2001 [1993]) as matters writ into the materiality of cities and the governance of water *as life*.

I came to see how those excluded from the city's water – despite their claims to citizenship, property, and human rights – nevertheless engage in urban water politics, assembling water just as (and precisely where) water overflows the bounds of modern infrastructure ideals and neoliberal governance. These sites of excess and overflow point to spaces of possibility for new socialities and new types of politics.

Chapter Overview

Under contemporary conditions of austerity, the state is being remade in the image of a cost-cutting corporation, with every domain of life becoming subject to the dictates of a capitalist market. This intensification of neoliberal dogma has produced devastation in the state that I study, the state of Michigan. The poisoning of Flint residents and the mass shutoffs in Detroit represent two genres of crisis that make visible, while perhaps also re-entrenching, existing relations of economic inequality, geographic dispossession, and racialized violence.

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In Chapter 1, "Water is Life," I explore transformations in the theory and practice of the governance of life under contemporary economic and environmental conditions. The restructuring of cities of Michigan in the aftermath of industrial decline offers a site for thinking about both "splintering infrastructures" and "splintering" commitments to life. I examine the organizing claims Water is Life and Black Lives Matter, considering how life matters, and is made to matter, through hydrosocial remaking of postindustrial political ecologies.

Chapter 2, "Seeing Like a Neighborhood," documents and analyzes attempts to study the health impacts of mass water shutoffs in Detroit using community-based participatory research. I examine the limitations of quantitative health research to adequately account for the forms of water insecurity emerging in the region – especially as the burden of producing that research falls to un- and under-funded community based organizations in the shadow of dismantled public health departments – and consider these constraints within critical discourses of rights, recognition and eventfulness. I argue that local actors' struggles to 'perform the state' through public health practice at the grassroots becomes a nonmimetic form of biopolitics that aspires to a more-than-liberal ethics of care yet nonetheless works to make suffering legible within established liberal institutional and discursive forms. Producing accurate and reliable information without erasing the complexity of experience, overriding local interests, or undermining the movement's credibility requires that activists appropriate and adapt the structures of power-knowledge installed in the state. Instead of 'seeing like a state,' they work towards 'seeing like a neighborhood'.

In Chapter 3, "Assembling Blue/s Infrastructures," I build ethnographically on this theoretical terrain, looking out from neighborhood streets and their spatial politics in contrast to city planners' presumed "view from nowhere." I consider recent proposals, as part of Detroit's recent redevelopment efforts, to create green and blue infrastructure zones to manage urban flooding on what the city calls "vacant" lands. I draw on community-led maps to show that the areas slated for "blue" water retention zones are the same racially segregated neighborhoods where Black residents face frequent foreclosures due to water debts and mass shutoffs from water and sewer services. This has led residents to claim they are being displaced *and* replaced by water. I focus on how water materializes and mediates uneven landscapes of livability, as well as new modes of living in common among those excluded from the urban commons. This chapter introduces the concepts of "bluelining" and "blues infrastructures" in order to think through these contested assemblages of water, race, and space.

Chapter 4, "The (Un)Certain Life of Water (In)Security," explores discussions of the ongoing water contamination "crises" in Michigan – from the endemic lead toxicity precipitated by Flint's switch to untreated water, to the exponential rise of a class of chemicals called "contaminants of emerging concern" – to reconsider the nature and politics of contemporary water insecurity. The chapter examines how a militarized logic of security informs and engenders new forms of insecurity that permeate old landscapes of race, class and geography. It also shows how water evades and overflows the logics of security set out by modern (bio-)political governance, belying regulatory regimes based on scientific certainty, political economies structured on insurable risk, and biological

sciences presuming a normatively 'healthy' body bound from its environment. Instead, water reflects another material-semiotic relationship between life and its milieu, and refracts contemporary governance strategies set to secure 'life as usual.'

To understand the full force of the state in 'securing' the state of insecurity in which we live, we must also look to cities. Chapter 5, "Policing the Water Crisis," takes these themes two hundred miles south, back to Detroit, to explore the 'soft' and 'hard' policing techniques that impose and maintain radical racial inequality in access to water among the urban poor. I consider the role of moral panics and urban rumors in producing racially divisive narratives of deservingness, suffering and power. In many ways, this story extends Loïc Wacquant's account of 'punishing the poor' (2009), in which the United States increasingly engages carceral strategies for managing the widespread insecurity wrought by neoliberal economic 'reforms.' I examine the city's construction of criminal 'water theft' and the threat that child protective services will be used to separate families shut off from public water supplies. I follow the work of a union of welfare activists as they critique and resist the encroachment of the carceral state into matters of survival, and create spaces of sanctuary and care for each other. Chapter 6, "Life After Water," concludes with a brief anecdote and a provisional consideration of water, race, and life in relation to historical memory and anticipated futures.

Each of these chapters is designed to stand on its own and so contain some repetition of information essential to ground the specific points of inquiry at work.

Fingerprints

By way of conclusion here, I want to return to the very start of the Water Walk.

Our journey begins at the Detroit River, a small strait in the Great Lakes system that forms the southern border of the city of Detroit, the State of Michigan, and the United States of America. Just south of us is Windsor, Ontario whose high-rise apartments, factory smokestacks and glittering casino signs are clearly visible from just across the river. This is the only stretch of border where Canada sits to the south of the United States, a novelty of the geography of settler colonialism and history of nation-building that seems fitting for a place that has come to symbolize a world turned upside-down. Along the riverfront looms the Renaissance Center, a maze of skyscrapers that forms General Motors' world headquarters, standing as the facade of capitalist development and redevelopment gone awry (Wylie-Kellermann 2017, pp. 92-93; House 1991). That the buildings connect by skyway to the municipal center, dedicated to Detroit's first Black mayor, belies the decidedly anti-public and antiblack politics of the space, whose disorienting maze of circular hallways and lit showrooms prefer transient gazing to gatherings like ours, outside (House 1991; see also Benjamin 1999).

We gather at the "Gateway to Freedom," a bronze statue commissioned in honor of Detroit's role in the Underground Railroad, set at the site of the strait's narrowest crossing, where enslaved people were helped in their escape, by boat, to Canada. This statue depicts six fugitive slaves, two of them children, and a white abolitionist pointing out across the water. The statue base juts into the riverfront fencing, disrupting a border. There are dragonflies in the bronzed woman's eyes 3].

We are gathered at the river to send off those embarking on a seven-day water justice journey, traveling on foot from Detroit to Flint to mobilize action against the curtailing of water access, affordability, safety and security in the region.

By 8:15 am, there are nearly sixty people at the riverfront, mostly members of the People's Water Board Coalition, movement supporters, and media. The ceremony is led by a local Native American leader, Mona Stonefish. "Mama Stonefish," as she is lovingly called in the community) looks out through her green glasses, librarian thin, and framed on either side by long dark braids. Though she is nearly seventy years old and exudes kindness when she speaks, you get the sense she could kick your ass if it needed kicking, which is to say she is clearly a woman of power and principle. Stonefish holds a clear jar full of water from each of the five Great Lakes. She and a group of Native "water walkers" trace the 2,000 mile periphery of the lake system on foot each year, traveling along the largest body of freshwater on the planet in a ritual of prayer and protection.

She recites an Anishinaabe prayer, then pours the water into a small tin pail. "Water is the most important resource we have, because every living organism in the universe needs water to live," she begins. "So I'm going to pour some praise, gratitude and love into the water this morning. And we should all do that daily. I want to show you what water actually does. I want everyone to come, put your hand in there," as she hands the pail to the person to her left. The water makes its way through the irregular crowd in silence; some wipe their wet hands on the seams of their shirt, others touch the back of their necks (it is already hot this July morning), and a few paint a cross on their foreheads that quickly evaporates. When the pail returns to her she says: "You can't leave a fingerprint,

can you? No. Every living organism in the universe needs water, but none can own the

water. Water is truth serum."

Figure I.3: Author's photo, taken at the dedication of the Detroit to Flint Water Justice Journey, July 3 2015, of Ed Dwight's "Gateway to Freedom" Statue (Dwight 2001)

Water is Life
Matters that Matter in an Antiblack Climate

I wish I could afford to move, I really do... [She coughs strongly.] Even if someone came and said I'm gonna pay your rent for 6 months and I'm gonna move you into this house [coughing, coughing] I couldn't have moved because my water bill wouldn't allow me to get service anywhere else and we need water to live! So I had to — the only choice I had was to — to file bankruptcy... I was paying on it, but the bill wouldn't drop – like, damn! So the option you have its to put it all on credit. But now I have no credit. [At least I had] my store cards that you can't use to pay bills, I would at least go to Walmart and buy some food, or go to Target and buy them some food...

[Coughs] When they first cut it off, they wouldn't let me get on a payment plan. I didn't get anything, not even a notice. I just got up one morning, went to turn the water on and it was off... They said you can get a letter from your doctor and have it cut on for 21 days. Mind you my son has asthma, she has asthma, I need to clean both their nebulizers with water. But if I tell you I have an ongoing medical condition that I have been diagnosed with, that is not temporary...

Things just got worse... By the time I got to the hospital my temperature was like 104. My blood pressure was through the roof. All they knew is I had to have some type of infection. They started testing me for a number of bacteria and you know, illnesses. And didn't know what it is. Turns out I had viral pneumonia. In both lungs, they were completely infected. I felt scared, so I told the nurses, 'Look, I don't want my kids to get taken but I don't have any water. I haven't had any on for several weeks'...

The whole time my water was off, 2, 3 months, May to July – Oh! Once you get a bug, I never knew this was true, but they're not lying when they say if you see one there's probably a thousand more, in the walls and under the floors. Everything. I see them and I'm like, I wonder it's like, you know, like what more can you live with?

This is the start of a story about life after water. Sitting in a chain coffee shop in Cass Corridor, with her 8 year old daughter shyly pawing at her dress while sipping on an iced birthday cake 'latte,' Jordyn spoke with me about her and her children's lives after the water department shut off their home from running water. It began in fits and spurts – between harsh coughs that sound the sense of how this young woman's body has been seized by the city. But as she told them, the events poured out like a torrent – "a flood of troubles," as another mother called it – and haven't stopped spilling over.

Shut off for debts she was paying on, but could never pay off, Jordyn lived in a two-story house for nearly three months without water, learning new ways to source and recycle water in that house for cooking, bathing, cleaning and flushing, in that order. Hers is a story about raising three children in that house, which the state could deem unfit at any moment, thus also about the fear of losing her children if the state were to deem her home unsafe. (When is a home without water never a home without risk?) It is a story about empty plastic water bottles overflowing a trash can the city only sometimes collected, about bills that could be improperly assessed and were not always actually owed. It is a story that she has shared – with friends, family, followers, journalists, film crews, and legislators – sometimes against her own interests, out of care for her community. This is the kind of story few people will tell. It echoes a history we may think we know, but that water makes us think anew.[7]

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[7] Here I pause to insist that this is only one way to tell a story, echoing the refrain of feminist science studies scholar Donna Haraway, that "it matters what stories we tell to tell other stories with" (Haraway 2016, pp. 12, from the anthropologist Marilyn Strathern's rejoinder that "it matters what ideas we use to think other ideas (with)" as cited in Haraway 2016).

A recent confluence of water-related happenings – the United Nations' censure of the mass water shutoffs in Detroit, followed by the national shock over the lead exposure and Legionnaire's outbreak in Flint, public outrage over untaxed water withdrawals by private water bottlers, insurgent opposition to the expansion of oil and gas pipelines through the Great Lakes, and widespread worry over rising levels of chemical contaminants – mark a sea change in U.S. politics, where water security has largely been taken for granted. Suddenly, water issues have become central to the political conversation in Michigan, and across the country.

The United States, nationally speaking, has enjoyed some of the best drinking water the world has known, supplied by a vast infrastructure network with nearly universal provision. Nearly. Today, in Michigan's major cities, hundreds of thousands of families do not know if their water will be there when they go to the tap – or if it is, that it will be safe. The uncertainty of water saturates social life, diffusing through the meshwork of privilege and precarity that expose some more than others, restitching the fabric of urban life for all. These conditions seem to be only harbingers of more to come. Scholars estimate that more than *one third* of Americans will be unable to afford their water bills by 2022; we know that more than 70 communities in Michigan alone have higher lead levels in their drinking water than in Flint; urban flooding and infrastructure damage is only expected to become more damaging and more expensive as rains intensify; while the toxicity of 'contaminants of emerging concern' in our waterways is both exponential and

unknown. "The cost of living is going *up*, and the chances of living are going *down*!" as Maureen likes to say.[8]

Run Out of Work

A former autoworker herself, Maureen has watched the dissolution of employment in the manufacturing trades as she has organized with welfare rights and labor rights campaigns for dignity and equity across a more than a few years of struggle. I listen to her speak at the second International Gathering of Social Movements on Water, held in Detroit at the headquarters of the United Auto Workers. Signs posted at the entrance make clear that only American-made cars are welcome to park on site; happily I arrived by bike. In the hall, she welcomed activists from the world over to engage in the "universal" struggle for water, but centers Detroit as an epicenter of the current wave of economic and social devaluation, stripping people of a life of their own making: "for sure, Detroit is always the test grounds. Always mad at us because we're union. Always mad at us because we're united around different ethnic groups. Always made at us because we didn't need them to lie for such a long time and we didn't care," she begins, "but I also need to put an apology out there," she continued. For all the places where water was "being held captive" and "hoarded like gold," she apologized for not speaking up because

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[8] If life as we know it is carbon based, why water as life? There is no single answer; here, it is because at this moment, in this place, water is the anchor for social movements expressing their cause in these terms, but it proceeds alongside and entangled with the movement for a carbon-neutral future, a movement with life-and-death implications on a planetary scale. Life is made of many animated molecular elements, but water is the milieu and primary substance (by weight) of life on earth because it is the medium of exchange: because it is liquid at the temperature and pressure of Earth. Water is vital *because* it flows. With capitalism, that flow became entangled with money and bodies and formed the threads of spool spun into what urbanist Matthew Gandy, writing of water, calls "the fabric of space" (2014).

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it wasn't happening locally. Her emphasis was on the need for people the world over to learn about their respective access issues in order to forge a movement in struggle together, for safe and affordable water for all. That water access is threatened in the global North and South alike was offered as new basis of solidarity for the working class, as that class was and is increasingly run out of work.

"My kid today works at the Rouge Plant," she tells us, "and he is so happy because he starts off at $14 an hour. To him that's a whole lot of money," she continues, "and I don't have the heart to tell him, it's not laying the way you think! Technology that used to enhance labor now replaces labor. Let me repeat that" she adds for emphasis.

By the numbers, she isn't wrong. A Brookings Institute analysis of data from the International Federation of Robotics shows that within the U.S. private sector, the industrial and automotive industries are most heavily robotics-dependent. The Detroit area is virtually blotted out by the volume of industrial robots in its infographic, 'Where the Robots Are,' with more than three times the number of installed robots as any other metro. From 2010 to 2015, the number of robots in the region tripled, supported by a federal bailout of the auto industry – just as homeowners struggling to cope with the crash of home values were denied any such bailout (Muro 2017).

In 2009, Detroit and Flint had unemployment rates of 28%, and even as that figure has improved in the decade since, it hovers at nearly double the national rate. Manufacturing employment in particular is a fraction of its former size and unlikely to return to the home of the assembly line (Walstrum 2017). Since the Great Recession, much of the employment growth reflects temporary jobs with lower wages, fewer

benefits, and less security than in a previous generation. Meanwhile, the share of people living in poverty has only increased in every year since (Mack 2016).

As technological interconnection has widened and quickened the flows of capital, its 'spatial fix' to cities like Detroit and Flint has come untethered and relocated in fewer nodes in a worldwide network. The very few finance capitals of the world, those Saskia Sassen calls "global cities," concentrate decision-making power alongside wealth, causing de-territorialization and re-territorializations of capital the world over (Sassen 2002). Of course the inverse also occurs, with the implosion of those cities stripped of their decision-making capacity as well as their financial stability, leaving "cities in distress" on the verge of bankruptcy, a form Michelle Anderson has explored as a new norm for the postindustrial United States (Anderson 2013). Globalization and communications technologies have reorganized the relations of work that the Industrial Revolution engendered and that these cities rationalized through a system of Fordist assembly assured by Keynsian social welfare. Yet as work has become a central means through which social, economic and political membership has been forged, for some, the prospects for work are rapidly diminishing, for too many (Beck 2014; Just 2016; Muirhead 2004; Weeks 2011).

Detroit, Flint, Benton Harbor, Highland Park, and the other 'distressed' cities of Southeast Michigan are no longer "command-and-control centers" (Harvey 1989a), but rather 'sinks' of public debt, regional pollution, and permanent precarity. In response, their governments have moved to decommission civil society, directed by the political rationalities of neoliberalism that narrowly value only what generates profit, and thus

subsume other forms of value into the order of the market. The transformations underway in Detroit are extraordinary exemplars of how the normative conditions of life's possibility are being reorganized under these conditional and conceptual shifts.

Place Matters

As Sassen, Harvey, and many other urban scholars suggest, the liquidity of capital makes place paradoxically paramount in today's political economy, turning cities into a key geography for negotiating access to rights and resources formerly brokered and backed by national governments. Increasingly, the substance of citizenship is mediated at the neighborhood scale (Das n.d; Das 2013) and translated through city services (Holston & Appadurai 1996; Williams 2013; Anand 2017; Björkman 2015). Water and sewer service is well-suited to serve as a site of these mediations because of its economic legacy as the infrastructure system for which municipalities hold a 'natural monopoly', its symbolic resonances to life and health, and its political status as an anchor of the public sphere and civic conduit of the urban commons.

As megacities of the global South struggle to meet the demands of rapidly rising populations, and so-called "shrinking cities" of the global North struggle to re-finance provision of water to the poor, cities have become characteristically variegated in the provision of vital services. Infrastructures are "splintering," argue Graham and Marvin (2002), infringing on the "modern infrastructural ideal" to integrate everyone into life-sustaining support systems to which urbanists aspire. Instead, with urban terrains reflecting "archipelagos of access," public water has become an increasingly salient

"material emblem of citizenship" as Karen Bakker writes (Bakker 2003a, p. 334), and "a brutal delineator of social power," adds Matthew Gandy (Gandy 2004, p. 373).

Even in South Africa, one of the only countries to include the human right to water in its post-apartheid constitution following a national referendum, this right has not precluded large-scale disconnections and persistent inequalities in water service provision (Bond 2002; McDonald 2002). Indeed, much has been written on the ways in which water infrastructure can scaffold segregation (Alatout 2007; Cross 2001; Haddad 2007). Alongside this, a considerable literature in the United States emphasizes the co-location of racial and environmental injustice in spaces of the city (Bullard & Lewis 1996; Bullard 1993; Pulido 1996; Sze 2006; Butts & Gasteyer 2011).

In the urban *milieu*, water appears both as an environmental medium, alongside soil and air, that holds and concentrates legacy pollutions and discriminations, and as a city utility, with electricity and internet, that connects and disconnects residents from the public sphere. Race relations are remade within the reworking of these urban geographies, in the flow of power through ponds as well as pipes, revealing a remarkable consistency to the organization of marginality through skin color and its sedimentation in cityscapes, even as conditions of legal recognition and political economy change. This suggests, as many activists argue, that the current moment reflects not only an un-democratic 'racist' lapse in liberalism, but instead reveals the *ante*-democratic racial foundations of liberalism. This layer of critique looks 'beneath' and 'before' narratives of race-based discrimination within the legal system or housing markets or healthcare sector to consider how these systems are instead based in structural differentiations of

race at the level of the subject.

As we have seen, the citizen, as a political subjectivity, is increasingly, if unevenly, constituted with/in the city (Holston & Appadurai 1996, pp. 196-197). And yet, as Ian Whitmarsh argues, this political subject ('the citizen') is still constituted within a system whose politics rest on the refusal of certain subjectivities from the nomination of the law (Whitmarsh 2019). That is, the "public" – as a 'rational space for debate' – is premised on a refusal of recognition for the irrational, for which the black woman is a paradigmatic figure. Whitmarsh turns to the literature scholar Hortense Spillers, who famously argued that the 'illegitimacy' of enslaved persons' kinship structures produces the 'illegibility' of the black woman within the American grammar of gender, race and kinship (1987). She shows that approaches that attempt to explain the structural impoverishment of Black families through "cultural difference," exemplified by David Moynihan's 1965 report, presume a subject who does not, and cannot, exist as a liberal citizen. Spillers theorizes the flesh as the "primary narrative," or what comes before the scripting of the body as the subject-person. Grafted onto the flesh are overdetermined significations, "layers of attenuated meanings, made in excess over time, assigned by a particular historical order" written in the "grammar" of American normativity from which black people, as fully realized political subjects, are illegible (Spillers 1987).

I will return to how such a critical reading of race informs the mattering of black lives in the next section, but begin at one level of apprehending how the differentiated value schema of life come to matter in the body. The prevalence of health disparities in Black populations is a trace of this exclusion made legible through the grammar and

arithmetic of public health. Given the especially salient relationship between place and the quality and quantity of human life in these cities, health has become an important proxy for seeing and contesting these conditions – even as I discuss below how its focus on the body offers a limited perspective on *how* racialized violence seeps into flesh.

Place Embodied

Across the U.S. Rust Belt, 'shrinking cities' are dismantling and reorganizing their institutions for governing life. In 2012, at the brink of bankruptcy, Detroit Mayor Dave Bing submitted a radically revised budget proposal, one that eliminated the Department of Human Services, the Department of Health, and the Department of Human Rights.[9]

Figure 1.1: Stills of Detroit's Metropolitan Building, 1998 (left) and 2009 (right) from Camilo José Vergara's "Tracking Time". The windows are repaired and painted, though the doors remain closed. Vergara quotes *New York Times* writer Mark Binnely, "Detroit's brand has become authenticity, a key component of which has to do with the way the city looks." (Vergara 2009)

The determination that these are "non-core" city services represents a sharp reversal of standard procedure, a precedent that has carried the city through the twentieth century.

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[9] It also eliminated a fourth major department, the Airport, the only one that state courts later demanded the city continue to fund.

With the water department accountable for the largest portion of the city's debt, the decision was made to separate this vital asset from "non-core" city services.

Two years later, in Flint, the decision was made to draw drinking water from the Flint River, a heavily-polluted and highly-salinated source, using city treatment plants that had barely been used in decades. "It was sort of like grandma's Chevy… full of spider webs, dust and bad oil," a regulator later testified in court (Fonger 2019). Fatefully, the city, under the auspices of the Governor's Emergency Manager, also decided to forego proper treatment standards in order to manage short-term revenue shortfalls while a long-term private water pipeline was built to supply the city. Under the premise of financial emergency and the powers of state receivership, the public health of these cities' majority-Black populations was deemed less important, less vital than the financial health of the municipality, otherwise financially starved by state and federal revenue sharing agreements. The majority of the city has been deemed "uninhabitable" and even "unviable" (as I explore in Chapter 3), while enormous resources are poured into "productive landscapes" to foster their "sustainability," reflecting new objects of life and governance in an austerity economy. This has produced tremendous staggering and enduring health disparities.

Today, public health practitioners have begun to argue that across the United States, the zip code is a better predictor of health outcomes than the genetic code. In one Ohio area, similarly situated in terms of postindustrial dynamics of race and class, a recent study showed a 20-year difference in the life expectancy of seniors based on their zip code (Bhaskaran 2017). Dr. Abdul El-Sayyed, the first Director of Detroit's Department

of Health since it regained funding in 2014, calls it an "unzipping of health from wealth," because location now outweighs income in determining outcomes, particularly below the 50th percentile. "Place matters, and it matters more for the poor," he says (El-Sayed, 2017).

Detroit itself is home to the most polluted zip code in the country, and contains the most superfund sites of any state, due to Michigan's notoriously lax industrial regulations. Water contamination sites in southeast Michigan outnumber any other region of the country, with largely unmeasured effects on the population. These environmental determinants seep into homes and bodies, affecting residents physically, emotionally and socially (Balazs & Ray 2014). Meanwhile, estimates of water-related disease outbreaks have been increasing, though they remain dramatically undercounted due to the nature of their spread and presentation (Craun, Craun, Calderon, & Beach 2006; Dorfman 2004). Amidst the largest Hepatitis A outbreak in the nations' history since the vaccine was invented, alongside the rise in Legionnaire's disease in Flint, *Scientific American* has reported that Michigan is now an epicenter of "resurgent outbreaks of infectious diseases" (Moyer 2018).[10]

The infant mortality rate in the majority-Black city is 13.6 percent compared to 6.1 percent in the rest of Wayne County and 6.8 percent in Michigan. Its rates of obesity, diabetes, and mental distress are higher than the state averages (37 compared to 31

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[10] Former Deputy Director of the Detroit Department of Health, George Gaines, tracked morbidity data from the state and showed several outbreaks of diseases rarely encountered in Michigan's cities: shigellosis, an acute dysentery; giardiasis, a protozoan infection, and campylobacter, an acute enteric that attacks the intestines. Examining the data, Gaines found a "quantum jump in the years of massive water shutoffs". While this is not causal evidence, it makes the connection plausible, especially when examined alongside another study of spatial correlates of shutoffs and water-related illness conducted by HFHS and what is known about the etiology of disease transmission (Gaines 2017; Plum, Moxley, & Zervos 2017).

percent; 14.6 to 10.4 percent; and 18 compared to 12.6 percent, respectively. An estimated eighty percent of households with children contain dangerous levels of lead from unabated paint (Robert Wood Johnson Foundation 2016). Psychiatrist Mindy Fullilove has written from Philadelphia that the devastation of deindustrialization has produced a condition of "root shock" among Black families, a traumatic psychic inhabitation of the violence of urban renewal and poor housing (Fullilove 2001). And of course all of this is compounded by the decommissioning of vital public services, including water and sanitation, human services, and health clinics, under the auspices of austerity.

These un-prevented conditions are complicated further by intersecting barriers to palliation. A Grand Rapids mother's story illuminates the vicious cycle: After her child tested positive for lead poisoning, she requested a city inspection of her home. While waiting, she received an eviction notice due to failure to pay her rent (though technically renters have leeway to withhold rent if the lead levels violate the landlord's obligations). When she called the city to accelerate her inspection, so she could use it to fight her eviction, the city cancelled the inspection because of the impending eviction. She had a second child the following week, who was sent to transitional housing when the family was forced to leave (Rigg 2018).

In conversation with a local professor of urban studies, I am reminded that with the Detroit Land Bank, the city itself becomes the largest landlord in the city, and becomes responsible for the condition of the houses, their viability. While discussing the pervasiveness of lead with this professor, he refused the narrative of exceptionality surrounding Flint, reminding me that water mediates only 3% of childhood lead exposure

– the majority comes from paint chips and dust in older homes, to which children of color are "confined." "We need to move the kids out of these neighborhoods entirely," the professor proposed, recognizing the political and practical improbability of funding such a project. Lead abatement would likely cost more than many of these houses are worth, and in an echo of mid-century 'redlining' practices, few banks extend new – let alone reverse – mortgages in Detroit since 2009 (Reveal 2018). The current condition is an inevitability of capitalism embodied in ongoing impacts for the majority-Black families inhabiting these 'uninhabitable' homes: "Our indifference is biologically reinforcing an underclass with effects on DNA that can last multiple generations." Here we approach a public health system that does not presume a normative, universal body but instead recognizes that entanglement with chemical exposures in the urban environment shapes embodiment throughout the life course, in patterns differentially distributed by race (Nading 2014).

The epidemiologist Nancy Krieger offers a model for tracing the historical effects of racism and marginality on population health, in an integrated approach she calls "ecosocial theory." Her approach attends to how humans "literally biologically embody exposures arising from our societal and ecological context, thereby producing population rates and distributions of health" (Krieger 2012). Situating trends in morbidity and mortality within their historical contexts, Krieger uses quantitative methods to reflect the embodiment of socio-structural violence. While this helps make such forces legible, it

depends upon a preexisting legibility, an accounting of rates of illness and disease.[11] This form of legibility may be constitutively precluded by the exclusions of black flesh from the public sphere.

Anthropologist Patricia Spyer asks if health disparities approaches are nuanced enough to capture "the intricacies of agentive, sensuously informed social differentiation" (Spyer 2006, p. 128). Writing about postwar Chicago in the aftermath of neoliberal housing 'reforms,' anthropologist Catherine Fennell takes up this question, suggesting that the abandoned homes, shuttered factories, and neglected streets of the metropolis "linger in the sensibilities, solidarities and bodies" of those whose lives are entangled with/in them, and create not only new embodiments but also a kind of 'structure of feeling' on which "novel arguments concerning what might be owed to citizens who weathered the worst of such abandonment" are made (Fennell 2015). Not easily dismissed as remnants of a lost past, such 'ruins' appear very much instead as part of a living present, embodied through a sensory and affective attunement to the urban environment, as Fennell explores.

I build on this approach by exploring not only the postindustrial politics of health, as my title suggests, but also the way that lives come to matter in and through water. As a paramount symbol of life, a fundamental public provision and a medium for

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[11] Krieger's method resonates with medical anthropologists' approaches to bodily change based on interactions with physical and psychic elements of power. Margaret Lock's seminal work on 'local biologies' works against universalisms in the construction of pathologies, attending instead to how the particularity of historical, cultural and political environments informs embodiment (Lock 1993). Scholars have troubled the self-sure presumption of skin as the border of the self (Haraway 1991), arguing that the individual body is inseparable from the 'social body' and the 'body politic' (Scheper-Hughes & Lock 1987). The attention expands beyond not only the clinical manifestations of disease, but beyond the boundaries of the body.

contaminants, contagions and climate-related harms, the study of water points us to a

politics of life that breaks out of conceptual, sociological emphasis on negotiated rights

within governing institutions, and towards recognizing our entanglements, porosity, and

emergence as flesh before body, as metabolizing systems akin to, and entangled with,

urban natures.[12]

In the midst of water 'crisis,' Detroit, Flint and other "shrinking cities" of the post-

industrial United States thus offer key sites for exploring the reorganization of the

governance of life, particularly as the celebration of rights earned through labor and civil

rights organizing anchored in the region have perhaps obscured the underlying, ongoing

presumption: that there are no rights to health, or water, or life that the state (however

liberal or modern today's racial capitalism may appear) is bound to respect. Indeed,

despite repeated appeals to human rights, to national citizenship, and to civic

membership, residents of Flint and Detroit have been consistently denied protected

access to safe and affordable water. In 2014, residents filed an adversarial complaint

amidst the then-ongoing Bankruptcy proceedings, *Lyda et al. v. City of Detroit et al.*,

seeking an injunction to halt the shutoffs, restore water service and compel the Detroit

Water and Sewerage Department to implement an affordability plan. Judge Stephen

Rhodes unequivocally ruled against their claims. Despite finding that the shutoffs would

certainly impose irreparable harm, the court held that "There is no enforceable right to

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[12] The notion of metabolism is integral more broadly to representations of urban life, playing a key role, for example, in Marx's conception of human societies' relationship to nature. For more see: (Corburn 2009; Gandy 2004; Heynen, Kaika, & Swyngedouw 2006; Solomon 2016).

free or affordable water, just as there is no such enforceable right to other necessities of life, such as housing, health care or food" (Lyda et al v. City of Detroit 2014, p. 21).

Though Judge Rhodes recognized that *water is a necessity* to life, *and* rejected the City's suggestion that bottled water provides an alternative that mitigates the irreparable harm of denying water to those who cannot afford it, his ruling still upheld the City's discretion to set rates and widely enforce shutoffs. Finding no relief through the courts, activists took to the streets. Members of the water justice movement blocked the headquarters of Homrich, Inc., the private contractor hired to execute the city's mass shutoffs. The City arrested 10 demonstrators and charged 9 – the "Homrich 9" as they are known – with disorderly conduct (Phillip 2017).[13] At issue in the drawn-out trial was whether the defendants had the right to use the "necessity defense," a legal defense that holds that breaking the law may in some cases be justified in order to prevent an imminent harm. The City argued that the demonstrators were not *themselves* at imminent risk, thus suggesting that the life for which water is a necessity – and the harms that flow from its denials – are individual, not collective – a position the water justice movement (and I might add, nearly all public health scholarship on water insecurity) rejects.

The "necessities of life" are the very grounds for insurgent urban social movements, an in particular for Black-led, women-led welfare rights organizers in

[13] The tenth demonstrator was released without charge following his arrest, in which he charges Detroit Police Officers transported him, in his wheelchair, to jail without any kind of seatbelt or anchor. He is pursuing a lawsuit against the city for damages suffered, believing the rockiness of the ride exacerbated the spinal cord injury that left him paralyzed. A year later, as I pushed him in his chair across broken sections of Woodward Ave, he lamented wearing only a soft C-collar rather than the hard shell; "I shoulda known," he kept repeating, referencing the jagged roads.

Northern U.S. cities, like Maureen Taylor and Marian Kramer, who have always struggled, as a matter of survival, to collectivize resources to affirm life for those excluded from the 'living wage.' Here the restructuring of Detroit and other "shrinking cities" is positioned as representative of a reworking not only of American citizenship, but of the conditions of possibility for contemporary life, modeled on foundational negations of black life and labor.

When the Need for Labor Evaporates

In the union hall, Maureen restates the point: "Technology that used to *enhance* labor, now *replaces* labor." It's a line that appears in several dispatches from Michigan Welfare Rights Organization, including the 2016 pamphlet, "Which Way Welfare Rights?" [Figure 1.2]: "Today, technology has replaced labor, making the need for human hands obsolete," it reads. "Our lives are based on a structure of selling our ability to work.... When the need for labor evaporates, we have to secure a different kind of future that insures [sic] the survival of ourselves, our children, our communities and our country – that is what is at stake today" (Taylor 2016). As relations of labor change, so do relations of liberal political subjectivity and capitalist time discipline. Consider Marx's prescience on the matter in "The Fragment on Machines": Labour no longer appears so much to be included within the production process; rather, the human being comes to relate more as watchman and regulator to the production process itself... As soon as labour in the direct form has ceased to be the great well-spring of wealth, labour time ceases and must cease to be its measure" (Marx 2005).

∞ MWRO Newsletter

Which Way Welfare Rights?

By Maureen Taylor
State Chairperson, Michigan
Welfare Rights Organization

Many members of the National Welfare Rights Union were able to attend the recent U.S. Social Forum held in Detroit, hosted by four local organizations, including Michigan Welfare Rights. The theme of this second Social Forum was: Another World Is Possible; Another America is Necessary; Another Detroit Is Underway, and it was a great event according to the 22,000 plus who attended.

Members of Welfare Rights have to undergo an internal evaluation and arrive at an analysis...Which Way Welfare Rights. Certain objective conditions have changed the landscape of the American economy permanently, making it necessary to review what the future holds for our Organization over the next one year, the next five years, and the next ten years.

It was clearly stated at several workshops during the Social Forum that a change had come to the land that was irreversible. It was precisely because of the position Detroit holds as one of the leading manufacturing sites in the world, that the Social Forum came to this city in an effort to more closely look at Detroit and try to understand what happened here. Rising unemployment; rising homelessness; rising tax foreclosures; mas-

sive hospital closings; massive school closings; all the signs that indicate a community that is managing are under attack. We can list the names of the automobile factories that dotted the metro-Detroit terrain where cars were built for the world. Dodge Main, Huber Avenue Foundry, Lynch Road are many others are closed and cars are being manufactured with less than 20% of the workers that used to be employed at these sites.

There is a direct relationship between employment, unemployment, and welfare. All three positions are part of what it is to be "working class" — sometimes we work, sometimes we are out of work, and sometimes we re-

ceive welfare benefits but we are always part of the working class. Being part of a class means a description of what roots you are tied to. There are two classes of people, and we are the dominant one yet we are often unaware of our power because we are convinced that corporate representatives are smarter and wiser than we are. Our futures are now at stake because of these basic changes that have occurred in the American economy.

Technology used to enhance labor, and make it easier and usually faster to mass-produce things. Today, technology has replaced labor making the need for human hands obsolete. Markets for these manu-

Figure 1.2: Front Page of the MWRO Newsletter, "Which Way Welfare Rights?" (MWRO 2016)

Indeed, the old grounds of solidarity among the Marxist international are shifting into new concerns for the contemporary working class – "well, working, out of work, disabled, what have you," as Marian clarified once. It is an essential distinction, and one that the American studies scholar Michael Denning relies on in his compelling essay "Wageless Life" (Denning 2010).

For Denning, the wageless – those whose labors are not, and cannot, be sold – are the true foundational figures of modern capitalism, not 'the unemployed worker'. Even this construction, the *un*employed, he points out, marks the wage laborer as central and the wageless as marginal – a conception that need be flipped if we are to better understand the state and market both for what they are and what they portend for political economies where fewer workers will be recognized with the luxury of a wage, and the political membership that comes with it. "To speak of labor is to speak of the already enfranchised," he writes.[14] Contemporary capitalism has made 'virtual paupers' of populations whose lives are no longer instrumental to a narrowing aperture of industrial production and inessential to speculative financialization (except as debt holders).

While Denning does not explicitly engage race or gender in the workings of wagelessness, others have recognized it as a generalization of structures of dispossession and disenfranchisement inaugurated with the Atlantic slave trade and inherent to modern capitalism, which is always already "racial capitalism," in Cedric Robinson's

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[14] As Denning notes, "proletariat" in Marx's writings literally means "those without reserves." It is thus not a synonym for wage labor but "for dispossession, expropriation and radical dependence on the market" (Denning 2010, p. 81).

terms. The production of race as a category for managing "devalued collectivity" within

schema of modern valuations of black social and biological reproduction transforms

with/in capitalism (Singh 2016). Slavery "remains" (in Sharad Chari's double sense of the

word (Chari 2017)) a productive template for increasingly generalized *forms* for capitalist

accumulation, rather than representing a past *stage* of the development of modern

capitalism left behind. In this approach, critical theorists have recovered much shared

between Douglass, DuBois and Marx, who recognize that capitalism emerges not (only) in

a contradictory relation to labor, but to life itself. As the forecast for wage-based

economic futures diminishes, the cloud cover of Fordist-Keynsian social protections

recedes, and the harsh heat of a world forged in racial capitalism emerges as the light of

day, with some populations exposed more than others, depending on the weather.

Reading the weather as the geophysical expression of racial capitalism is a practice

of material and metaphorical critique I draw from Christina Sharpe (Sharpe 2016), as well

as Ian Baucom's work exploring the re-temporalization of the contemporary through the

anthropogenic alterations of climate (Baucom 2014). I will return to these works, with

Denning, in the last section of this chapter, but first want to explore how the

generalization of a wageless economy is reworking the conditions of possibility for life

through water. What does the governance of life look like when the population is not

plumbed for its productivity through labor? Does life change?

What emerges through the lens of photographer Camilo José Vergara, who has

documented Detroit in serial images over the last twenty-five years (Vergara 2016), is that

the transformed labor landscape has dramatically transformed the urban environment

and all life within it. Houses' entanglement with grasses, and peoples' engagement with streets, dramatically transform, living in and against the appellations of 'ruin', 'decay' and the resonances of 'death' heaped on the city.[15] Detroit's urban nature reflects as it reshapes a politics of life in an economy and environment wherein the presumptions of modernist city planning and modern manufacturing have been structurally and conceptually undone [Figure 1.3].

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[15] While portraits of decline across the manufacturing belt of America emphasize abandonment and ruin, rarely do they figure death; often they figure no one at all. The erasure of residents from the frames of reference, from circulating reproductions of urban life, has consequence. From images of shuttered businesses, foreclosed homes and burned out houses, it's unclear what happened to all of these people. It is very hard to trace those who move, as people often cross-jurisdictional borders of given agencies. Even those who stay in their homes, or locally rearrange, may disappear from the rosters of the public and nonprofit aid agencies in which they have accounts, tracked as "clients" rather than citizens. People often live unregistered for fear of criminal surveillance and often of predatory financing – as in the assignment of old water debts from linked accounts.

Figure 1.3: Stills of Detroit's Ransom Gills Mansion, from top to bottom, 1993; 2000; 2006; from Camilo José Vergara's "Tracking Time" (Vergara 2006)

The drama of Detroit's shutoffs and Flint's lead crisis emerges from a jarring sense that truly nothing is guaranteed if something as fundamental, noncontroversial and vital as water can be denied. These crises proceed alongside a muted apprehension of the same structures of dispossession imposed throughout the region, albeit unevenly, as racial capitalism storms into the contemporary. Here the prescience of Stuart Hall is particularly fruitful for asking how we can pursue a politics without guarantees – and why we must do so in order to affirm life. Hall argues we must choose *right practices* because outcomes are never guaranteed, no matter the degree of consensus we share.

Against the tendency to see technology as a neutralizer of local geographies, locally-anchored urban elements like infrastructure, non-expert jobs, and care work become ever more important sites for understanding the remaking of livable landscapes in such devastated areas (Sassen 2002).

Attention to waste and what's left behind in these regions also take on new significance: As capital becomes increasingly mobile, so do its waste products. This too is a story that water tells. The paradox of siting industrial plants on urban waters to increase efficiencies for transportation and production is that these industries' externalities have an easier time seeping into the water. Yet toxins nonetheless remain most concentrated at their origin sites, another materially-enriched metaphor for thinking about the form of racial capitalism that dispossesses life at large, but dispossesses black populations most. The eruption of the Flint water crisis figured the sudden precipitation of this 'slow disaster' on a national scale, fostering a conversation about the erosions of economic security, racial equity and democratic accountability that

paved the way for such a fateful reengineering of the city (Hammer 2016; Mascarenhas 2016; Krings, Kornberg, & Lane 2018).

Fittingly – if disturbingly – for this rendering of life's eroding value with respect to wage-based economics, it was not the threat to human life, but to technological labors, that originally warranted protection from the City of Flint. When General Motors engineers complained that the untreated water was rusting its machine parts, the city facilitated the company's switch back onto water sourced from Detroit (Clark 2018a). Yet Flint continued delivering the corrosive water to city residents for more than a year, all the while telling people the water was safe *for them*.

Outrage over this unbridled reign of neoliberal rationality into the territory of life itself converged with growing resentment over state violence against Black people who are beaten or killed without consequence by the police.[16] In a fusion of fury over the structural violence of the state, the rallying cry, *Flint Lives Matter* emerged. In Chapter 4, I explore how children exposed to lead through the water in Flint become imagined as emerging dangers and future threats whose disorder had to be contained – both by the carceral and caring state. The entwinement of policing and water becomes even more clear in Chapter 5, where I explore their entanglement in the home and on the street. Here I begin to ground these ethnographic approaches with a consideration of how water, life, and black lives are governed in these 'shrinking cities.'

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[16] In the year after the Flint water crisis made national news, Netflix produced a series about Flint that focused on responses to the city's poverty, violence and water crises through the eyes of the Flint police department.

Whether the kind of crony capitalism seen in Flint will precipitate and distribute these contaminants on a citywide scale, and to national attention, remains to be seen, but the tightening grip of austerity measures bodes poorly for the protection of our most vital collective resources.

What is clear is that water has become a very serious matter of concern.

Matters of Concern

The politics of water in Michigan mobilizes widespread concern that the development gains achieved by modern capitalism and the democratic gains achieved through liberal citizenship are both beginning to erode under new conditions of economy and environment. Indeed, the contemporary political ecology is dissolving many of the guarantees of American life, metonymized by the crumbling infrastructures whose splintering is unevenly racially distributed. This has uneven health impacts on life chances, and lasting impacts on the nature of urban space. As I argue here, drawing on an interdisciplinary body of scholarship and the coalitional praxis the water justice movement, the environments of life have also become political in new ways, and attuning to the macro- alongside the micro- enables us to understand life as "racialized assemblages" (Weheliye 2014) in relation to assembled urban natures.

Several medical anthropologists have begun to speak of "life itself," emphasizing the management of life at the molecular level through new technologies of observation and intervention emerging from the biological sciences (Fassin 2018; Rose 2001). But to ground "life itself" in "the biological existence of human beings" is to miss both how the

Human has long been constituted discursively and politically through a racialized hierarchy that excludes black people (McKittrick 2014; Wynter 2003) as well as the extent to which the contemporary governance of life extends as well to its milieu (Massumi 2009). How does examining the politics of life through water as its milieu inform our understanding of how life itself has become a matter of concern?

The surge of concern flowing through and about water importantly disrupts the matter-of-fact 'nature' of water, the idea that it is an object without politics. Adapting Winner's early provocation for science and technology studies (Winner 1980), we might ask: Does water have politics? Extending the insights of STS, Bruno Latour's notion of "matters of concern" foregrounds the social and political interests assembled in all objects, or things that appear as 'facts' (Latour 2004). This turn is a rejoinder and a reprieve to the 'social constructivist' position within STS, rather than a rejection.[17] Rather than turn away from facts, Latour argues we must turn closer to them, renewing rather than rejecting empiricism. Extending this approach to political ecology, Latour argues that nature cannot be 'added on' to political science as if apolitical, pristine, and ethically pure. Such appeals to an incontestable nature, he argues, are attempts to paralyze a politics whose public includes human and nonhuman things (Latour 2009, p. 18). Latour asks us to reject the 'modern constitution' constructed on this false division between

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[17] To say that all facts are socially constructed – informed by the politics of the scientists at work, the design of research, the technologies available, the funders' interests, and so on – runs the risk of diminishing the epistemic foundations of science altogether, with no way of negotiating controversies, or evaluating conspiracies, leaving us awash in the 'post-fact, post-truth' world. Those who deny climate change, for example, very intentionally make arguments resembling the social constructivist position, "mak[ing] the *lack of scientific certainty* a primary issue." Latour's reply is that we reorient our methods of critique. What's required, he argues, is understanding that objects are not self-evident and self-contained, but *things* assembled in highly complex, historically situated, richly diverse matters of concern" (237).

objects and societies and bring things into a more democratic assembly of the social (Latour 2005; Latour 2012). "There has never been any other politics than the politics of nature, and there has never been any other nature than the nature of politics," he writes (Latour 2009, p. 28). In this respect, this dissertation does not so much explore the politics *of* water, but water *as* politics.

Water is central to the modern theory and practice of the world. As Matthew Gandy elaborates:

> Water, in its different relationships with urban space, touches on all three words, ranging from the "modernization" or water supply, especially from the middle decades of the nineteenth century, to the "modern" experience of bathing, hygiene and public health, and finally to the advent of "modernist" approaches to design, which still persist in aesthetic if not ideological terms. (Gandy 2014, p. 4)

Underground distribution networks that deliver 'pure' water and remove 'dangerous' waste have been foundational to maintaining not only a modern standard of salubrity, but to the symbolic structure of the social order, in Mary Douglas' sense (Douglas 2003 [1966]; Gandy 1999). Water and sanitation projects are pragmatically and philosophically central to international development projects that promise to foster more healthful, productive and free societies by imposing structural indebtedness in the process of building these vital infrastructures.

Water and sanitation systems may have stabilized cholera, typhus and other infectious diseases as matters of fact with distributions aligned with teleological

narratives of development (at least in those social worlds considered 'modern'[18]), but

contemporary water insecurities reflect ecologies that are constitutively risky, epitomized

by 'contaminants of emerging concern' (discussed at length in Chapter 4), raising new

matters of concern. They represent paramount challenges facing advocates for water

equity, that the impacts of water insecurities are resistant to scientific certification – and

that to be counted, you have to be visible. Water was a matter of fact that has increasingly

become a matter of concern, widely problematized, whether through narratives of

impending 'water wars', climate change or commodification.[19] In this light, Gandy argues

"It has become more useful to conceive of multiple and alternate forms of modernity

within which earlier circulations of ideas are in a continuous process of hybridization and

recombination" (Gandy 2014, p. 4).

I argue that understanding *this* politics of water — which is not (only) water

politics in the political sphere, debated and enacted in legislation, but water *as a politics*

— a material politics that is 'anthropo-geographical' — that carries history in its currents;

that touches the spirit of the commons at a level beneath the liberal compact; that is

claimed universally as life is essential to affirming life in the contemporary. If we can

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[18] In *Politics of Nature*, Latour considers asbestos as "probably one of the last objects that can be called modernist" in this sense: "once an ideal inert material, it became a nightmarish imbroglio of law, hygiene and risk." The Flint water crisis, in this light, is one more major scandal problematizing lead plumbing and tap water as risk-free modern objects, following controversies about lead in house paint and auto fuels.[18] Modernist objects became matters of concern through decades of public suspicion, scientific scandals and legislative efforts, while "the risky objects of ecology" emerging as matters of concern (i.e. genetically modified organisms, n22 p256; or prions, p24, 2009) are problematic and problematized before they are even stabilized as matters of fact.

acknowledge the assembled nature of Nature, we can begin to rethink the politics of water, and perhaps of "life itself."

Sitting, stirring her coffee with a pen, Marian said to us: "There's two significant things about water: One, the question of water, like the question of homelessness, like foreclosures, like employment, these are questions of existential proportions; and Two, All life comes from water. We are 70, 90% water or whatever it is. So this is a question of *how we are going to live*." "Yeah. We are water so we've got to live with this water," another activists added, very matter of fact.

Matters of Concern, for Whom?

Matters of concern, as Whitmarsh notes, are already figured controversies, conscious representations of issues debated in the public sphere – a public whose constitution depends on the refusal of certain monstrous others (Whitmarsh 2019). In order to be counted and debated as a matter of concern, in Latour's sense, something must already be visible, while other things are not only invisible or unseen, but *must not* be seen.[20] Here we are returned to a critique of modern liberal political subjectivity raised through water's politics, which foils each attempt at representing water insecurity

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[20] Elaborating on psychoanalysis and critical black studies to challenge the "object-oriented ontology" of Latour and others, Whitmarsh argues that their approach ultimately relies on an "eminent rationality" (2019, p. 4). Not only does this involve a reduction of objects to their physical matter, but it obscures the way some matters are *made* not to matter. As a matter of methodology, science and technology studies' approach proposes a means of "radical symmetry" of analysis between persons and things—not only non-human beings, but also non-living objects – without flattening every ontology into a reactionary rationality, a materialism that is, as Whitmarsh charges, "exceedingly mechanistic." The spiritual and symbolic registers of water, even as they change across contexts, resist such flattening, even as water's physical chemistry, "H_2O" can be rationally described. Instead, to see water as an assemblage encourages us not to separate 'the social' from 'the natural,' and detach neither from 'the symbolic'; what we see is that water is a fluid and racializing milieu of life.

through epidemiology or realizing rights to water through urban citizenship. The politics of water dissolves the coherence of the citizen as a matter of fact, revealing a projection of modernity premised on nonwhite, antiblack racial exclusions. The demarcation of *public water* allows us to see precisely how this public sphere is constituted – whose life is affirmed and whose is refused by the 'modern constitution' of this vital commons.

The racialized 'retrogressions' of water and sanitation access in Michigan strips the façade of liberalism away, revealing a network of regional pipes like a skeleton of the public itself, showing by construction who is included and excluded in that public at the level of living itself. That the ir/rational and racialized figures excluded from the public are able to live – "to make a way out of no way," as Detroiters like to say – pushes us to attend closely to the imbrication of matter and meaning in the reconfiguration of contemporary life. This follows from environmental and racial justice advocates' observations that exposures to harm are concentrated in communities of color, and moves us to *follow* water, understood as life, through careful study to better understand the mechanics, and desires, of these assemblages of power. Doing so may help us to understand states of durability and points of disruption, tracing historical effects and potential interventions – in other words, how even 'things' can be otherwise (Woolgar, 2014).

Black women, being among the figures constitutively excluded from the American public, despite their nominal inclusion in the law, are often acutely aware of how matters of concern do not, *or cannot*, account for what matters to them. In 2016, I interviewed a couple, two Black women raising two young boys, dealing with the intersecting impacts

of rising rates, repeated shutoffs, 'contaminations', and surveillance where their water security had once been.

Jessamen – Jess, she insisted – had suffered a stroke just two years ago, three years past her 40th birthday. As she tells it, she was taking care of others so much she forgot to take care of herself: "And see that's how I got here, in this chair. Doing everything for everybody... I'm cooking, I'm passing out the meds. I'm checking blood pressures and blood sugars. I'm doing pic lines, but also you know, trying to be like a mother figure to these young women having their children, and everything else... [Then] stood up to go to the bathroom and hit the floor, like someone erased by leg with a big cartoon eraser."

They lived, "somehow," in that apartment, she told me – "if you'd call it living," B added. The landlord would come with increasing frequency asking for $100 for the water bill. They pieced it together each time, until one day, they awoke to find the water was off and the landlord was gone. They inquired with the water department, and found out that the bill was more than $18,000 overdue – how, no one knew – but clearly the landlord had not been paying their bill. After the water was cut, a "flood of troubles" followed, as Jess called it.

Jess, B and the boys found new ways to feed and wash and bathe. Without the ability to use the house's washer and dryer, B had to take a taxi a mile each direction to the Laundromat; it cost $75 a week. The water shutoffs interrupted not only the rhythms of daily life, the stability of household finances, and their health and wellbeing, but also started disrupting their relationship, affecting the boys at school, and rattling their faith. A few women helped shuttle water to them in secret, early in the mornings or overnight

so that the neighbors would not notice. The secretary at the boys' school found out and would fill refillable jugs every two or three days to bring by. Neighbors let the boys use the side hose. "You know, people were trying but it was just never enough."

Finally one day, they were "rescued." Women with the Michigan Welfare Rights Organization had to move the family themselves, except for the help of the fire department to help carry Jess down from the tall, narrow flight of stairs in her wheelchair. MWRO found a small and bright two-bedroom house for them to live in, the house where they invited me to speak with them. The living room was like a sparse movie set, with an olive green couch, an old TV set, and a single lamp on a single table. The kitchen was spotless, dishes all washed and put away. The boys were doing weekend chores, washing the walls and everything. The lovely home seemed completely opposite from the "trap" of the apartment before.

After the water was shut off, they were surrounded by "mice like pets," bed bugs and the smell emanating the bathroom. "You know, that's toxic, we're not supposed to inhale that, but we are. We're inhaling it. *They. Did. Not. Care.*" She repeats, detailing the number of agencies they reached out to for help, none of which could offer more than the meager standard supplements for which they were eligible. It wasn't until they finally disclosed that the water was off that social services was sent over.

> It's almost unbelievable, that so many agencies knew what was going on with us. But they weren't trying to help. They weren't concerned with helping us fix the situation, they just saw it and concerned themselves with sending the boys where they were going [to Child Protective Services], sending me where I was going [Adult Protective Services], and the problem solved for them. To me that's making a bigger problem.

The state's concerns are not their concerns, and the state's protections are only 'bigger problems' – yet Jess and B depended very much on state support, including public water, to live a healthful and dignified life.

Jess described how rude the social worker seemed, charging into the house to make a determination of whether the house was safe for the children despite not having running water. "Did you have to let her in?" I asked Jess. "No," her partner B jumped in, "You don't have to do anything but stay black and die! Or whatever color you are and die." "And see, no disrespect," Jess qualified, "if you were a shade darker, you'd get treated like we get treated. My 12 year old was outside, he said he saw police officers go by, he said he held up his hands. Right away. Don't shoot. Ain't that a shame? This is how we know our lives don't matter to them."

Drawing together the indignity and danger of being left to live without water, of receiving coercive scrutiny rather than caring support from state agencies, and of fearing fatal violence at the hands of police, Jess and B portrayed a "flood of troubles" in which their life was lived as a long disaster that they had to endure.

At one point, an electrical fire from a sparking outlet consumed half the bathroom wall before B could put it out, using water from the bowl of the toilet that was 'recycled' from cleaning dishes the night before. As bad as the apartment was, they feared they might get evicted after that. They weren't even sure the house hadn't been sold out from under them. "We thought he was gonna put us out to put somebody else in. But that house is unlivable. We talked about burning it down just so you couldn't put somebody else in that house." This was no small talk; B insisted that would have been the best thing

they could do to "pay it forward," to wipe out the house and the debt at once. Burning the house down, quite literally, for these mothers, would have been a caring act – one that verges on a matter of survival. This, too, is water *as* a politics, articulated through living as praxis.

Beyond and beneath 'public controversies,' matters of concern for excluded Black women in Detroit *were* matters of survival, a point presciently made by Johnnie Tillmon in 1973. Tillmon, then chair of the National Welfare Rights Union, wrote an article called "Welfare is a Women's Issue" for *Ms. Magazine*, making precisely this point:

> I'm a woman. I'm a black woman. I'm a poor woman. I'm a fat woman. I'm a middle-aged woman. And I'm on welfare. In this country, if you're any one of those things you count less as a human being... Welfare's like a traffic accident. It can happen to anybody, but especially it happens to women. And that's why welfare is a women's issue. For a lot of middleclass women in this country, Women's Liberation is a matter of concern. For women on welfare it's a matter of survival.
> Survival. (Tillmon 2002)

Tillmon wants to sharply contrast that matters of concern debated in the realm of politics are reserved for those whose lives are recognized as valuable and part of a public. They are not the matters of survival that concern women on welfare, Black women, poor women, and those whose lives "count less" as human.

Clean, running water, as a taken-for-granted matter of fact has become a widely debated matter of concern among politicians and policymakers today, while it has intensified as a matter of survival among those whose lives are made not to matter in the eyes of the state and capital. In response to the erosion of water security and the

imposition of insecurity in its place, any life-affirming politics requires assembling a new politics of persons and things, held together with care.

Whose politics of "life itself"?

The politics of water shows us that scholars of biopolitics that focus solely on the "bio" miss much about the contemporary governance of life. While Foucault reiterates across his writings that biopower is not the only form of power, but one layered in with sovereign and disciplinary powers, its limitations for an anthropology of the contemporary arise from its ties to modernity. Elsewhere (Chapter 4), I explore how emerging contaminants disrupt modern biopolitical techniques with the kinds of risks and the nature of life they figure, forcing the state in turn to leverage old techniques of security worked through new means. As security techniques are applied to vital systems, uncertainty and its apprehension appear as a constitutive part of 'life as usual'. The sense of life at stake, as we will see, is not purely physical, but equally experiential. Contemporary biopower, to the extent that designation still fits, is coincidently being reconfigured to this form – or rather, to emerging *forms* – of life.

Foucault's later lectures on security begin to expand how the environment is increasingly essential to governance of life, regulated as a *milieu* of complex, interdependent effects. And we cannot forget Foucault's frequent rejoinder that biopolitics, as a power over life, never replaced discipline as punishment nor sovereignty as the right over death. These supplementary powers are all contained within modern governance. Achille Mbembe's powerful excoriation of the necropolitics at work in the

global governance of Africa, let alone within global scholarship, expands upon the provocation that racism is a categorical imperative of the modern state (Mbembe 2003a).

The critical – dare I say, vital – task at hand is to consider the 'bio-' dimension of biopolitics' "power to foster life or disallow it to the point of death alongside the 'eco-', and even the echo, of life – sometimes a song, sometimes a spirit, sometimes a rumor. "There may be a lot going on, but I'll be damn if the water doesn't run all the way through it," Miss Gigi had said.

In the essay, "Ethics of Survival," Didier Fassin reexamines contemporary scholarly engagements with what he elsewhere calls "the politics of life" (Fassin 2010). For Fassin, there are two predominant modes of conceptualizing life. "On the one hand, life is presented as biopolitical fact," he says, turning to Agamben's figure *Homo Sacer*, whose body stands bare behind the struggle for rights and recognition. "On the other hand, life is conceived as a biological phenomenon," Fassin tells us, referencing the philosopher and physician George Canguilhem's encyclopedic rendering of 'life' as the data of experience from birth to death. Both, he argues, rest on the same premise of life as "a physical phenomenon," shared with the entire animal kingdom, and separable from "qualified life" (for Agamben) or "lived experience" (for Canguilhem). Turning to Derrida, Fassin instead wants to explore *survival* as a form of life that is inextricably physical *and* experiential: "To survive is to be still fully alive and to live beyond death" (Fassin 2010, pp. 82-83). Fassin's caution about upholding this dualism, and the empirically 'physical life' on which it depends, is ultimately an ethical one:

> [T]his reductionism, when it is employed in the study of biological sciences,
> is fully justified, although its definition of life [as "life itself"] often seems

hegemonic... Conversely, when it is applied to the study of human government, it generally has the effect of disqualifying as inferior the lives of individuals or groups that society appears to reduce to their condition of 'bare life': refugees, excluded, marginalized, sick. (Fassin 2010, p. 83)

Denning offers the same rebuke of the many scholarly signifiers used to describe the masses of people written off by contemporary global capitalism, including "bare life, wasted life, disposable life, precarious life, superfluous life." He writes:

To speak repeatedly of bare life and superfluous life [alongside which he adds wasted life, disposable life, precarious life [is to imagine that there really are disposable people, not simply that they are disposable *in the eyes of state and* market. (emphasis added, Denning 2010, p. 80)

As one elder, a "Baba" of the water movement reminds: "Even the disposable drink water."

Denning and Fassin seem to be in agreement, that life should not be understood as either 'bare life' or protected citizenship, but that life is what is made of it. I follow many anthropologists in attending to how life chances are unevenly distributed in the postindustrial present, exploring how living (on) in(to) the contemporary requires new lively collectives and coalitions of care. I do this by following the politics of water through lives "restitched with living," in Audre Lorde's words (Lorde 1988). Fassin emphasizes the merit of ethnographic attention to the practices of making that support this biographical-biological endeavor called living: "ethnography invites us to reconsider what life is, or rather what human beings make of their lives, and reciprocally how their lives permanently question what it is to be human" (Fassin 2010, p. 93).

This question has particular salience in the modern post-Atlantic slave trade world, where the dehumanization of racial others was given legal and institutional form

within democratic publics and Enlightenment philosophies. As Veena Das has written, "the blurring over what is and what is not human shades into the blurring over what is and what is not life" (Das 2007, p. 15). This blurring is at the heart of contemporary questions of life, and in particular black life, which has been constitutively excluded from the human through the social death of slavery, a legacy that endures not only in collective memory, but in the fabric of urban life.

Like life, death, too, appears in multiple forms. There is both the "predisposition to premature death" that can be measured in accountings of infection rates, blood lead levels and years of life lost; and there is the preexistence and persistence of 'social death', the structural negation of a 'qualified life' (Sexton 2016). That we find geographically-concentrated environmental and racial injustices across all kinds of health and life metrics (from asthma rates to depression) is a testament to the structural force of racialization in the modern choreography of life, and its governance.

The ethics of survival is a meshwork of biological and biographical living that emerges in relation, then, not only to biological death, but to what many black studies scholars, following historian Orlando Patterson, call "social death." Social death, for Patterson, is a tripartite cultural severance emanating through and from relations of slavery: it is the condition of (1) "natal alienation", whereby your kinship and lineage are not recognized, (2) "general dishonor," where 'having-been' enslaved persists as a brand of dishonor that socially tints, or even negates, 'good' actions; and (3) "gratuitous violence," where limitless violence against the slave is actually the condition of stability (Patterson 2018). A graphic example of this gratuitous violence as a foundation of the

logics of modern capitalism comes through the story of the massacre that occurred on the slave ship, *Zong*, in 1781, told and retold by many in black studies.

As the historian Ian Baucom recalls, the ship's captain, Luke Collingwood, erred in navigation and steered the vessel off course. Fearing that food and water supplies would run out, Baucom relates:

> [T]he only way for him to guarantee a profit to himself and the vessel's Liverpool owners was to jettison all those sickly slaves who, by continuing to consume water, were 'threatening' the welfare of their fellows, and then to claim compensation for these jettisoned 'goods' under the 'salvage' clause of the Zong's marine insurane policy. (Baucom 2005, p. 62)

For Baucom, this is a foundational moment in modern history, capitalism and citizenship, whereby the theory of value on which the modern age is founded is one that does not value black life, equating money to justice "as literal equivalents." This conceptual conflation extends the fetish of commodities to the fetish of black life, abstracting social life – life as people make of it – from the equation.

This relation is then not a matter of second-class citizenship or constrained subjectivity, but a question of what is refused altogether by equating life with subject formation. The erasure of black life – the *compensated* erasure of black life – is a structure through which Black people, black neighborhoods, and black labors have been devalued; and in turn a template for the degradation of all life. This is why activists insist that for all life to matter – including nonhuman lives, formed and informed by water – we must insist that black lives matter and work with care to materialize the world in which black life is made durable through collective matters of care.

For Patterson, there is an arc of rehabilitation of subjectivity in the aftermath of social death; for the school of thinkers called 'afropessimists,' including Frank Wilderson, black life is an impossibility, "always already dead" (Wilderson, 2015).[21] For others, not perhaps 'optimistically' but never foreclosing the possibility of black social life, the politics of black life itself must engage life as a collectively held sense of living through the recurrence of death, or what Christina Sharpe calls, living in the wake. Sharpe draws on many senses of "the wake" – as in the period of mourning after a funeral and the waves left behind a ship – to understand this 'residence time' of black displacement as a long *duree* of the disaster of slavery that endures, in and through world-making waters (Sharpe 2016).

For Sharpe and others, black life is lived in the temporal frame of an ongoingness, not a progressive, linear time between individual birth and biological death. As Baucom suggests elsewhere, the effect is lived in the milieu of life – translated into the carbon footprint on the atmosphere, a leger of history that he proposes as a new means of measuring time (Baucom 2014). The contemporary epoch, with the man-made alterations to the atmosphere producing change on the scale of a geologic era, requires us to think of time differently, he argues, "to periodize in relation not only to capital but to carbon... not only in dates but in degrees Celsius" (2014, p. 125). This is vividly true in Michigan, where water assembles new forms of the contemporary politics of life and black social death; the concentration of contaminants in water, like that of carbon in the atmosphere, becomes a

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[21] Wilderson explains that it is here that he, along with Jared Sexton, David Marriot, and Saidiya Hartman, depart from Orlando Patterson's concept of 'social death,' which he claims suggests the possibility of black social life, a life before the event of slavery (Wilderson, 2015).

way of marking the degree of (black) life's devaluation, with life-and-death consequences

for those who live in the wake.

Time – like lead, like PFAS, like carbon, like ocean plastics – "does not pass, it

accumulates" (Baucom 2005, p. 333). Water is a metaphor and reservoir for this

accumulating time. Not only do the sedimentations and the currents of its flow

accumulate, structuring the possibilities of life lived in its wake, but it *remembers,* as Toni

Morrison evokes in "The Site of Memory":

> You know, they straightened out the Mississippi River in places, to make
> room for houses and livable acreage. Occasionally the river floods these
> places. 'Floods' is the word they use, but in fact it is not flooding; it is
> remembering. Remembering where it used to be. All water has a perfect
> memory and is forever trying to get back to where it was. (Morrison 1995,
> pp. 98-99)

There is, however, no possibility of going back for Morrison, nor is there ever the release

of 'moving on.' Instead, time accumulates with the past in tow, assembling and

reassembling life in its wake. Harold Fisk's 1944 map of the lower alluvial valley of the

Mississippi River, delivered in response to a commission from the US National Guard,

offers a compelling visual for this reconceptualization [Figure 1.4].

Figure 1.4: Geologist Harold Fisk's "Maps of the Meandering Mississippi," Plate 2 of 15 (Fisk 1944)

This mode of representing the river keeps it alive. It reflects thousands of years of history with dotted lines marking 'indefinite prehistoric bankline positions' and solid lines with different shadings bounding traceable embankments of the river's recorded path since 1765, with the earliest state survey taken ten years before the United States'

founding. As Fisk wrote, this is a map of the river's "recent" geological history, reflecting

the Pleistocene until its publication in 1944. As life, water is a metaphoric and material

force through which legacies of racialized dispossession are written into the history of the

earth, altering black geographies' relations of space and time. The task today is to develop

living methods to trace the meandering and movement of urban nature into the geologic

contemporary, the Anthropocene.

Another Politics of Life is Possible

The killing of the Zong's Black passengers thus involves rites of burial at sea. This

presents a space of understanding this other world, or world lived otherwise, where

modernity's "wasted lives" are shown to translate death into new social and technical

worlds. Drawing upon this historical precedent and structural parable, I want to consider

how black life lives on, underwater, through water, perhaps *as* water, in other worlds.

In an essay calling for a posthumanist approach to the right to water – recognizing

human rights as necessary but insufficient for advancing equitable access – Astrida

Neimanis helps to conceptualize such aqueous naturecultures, writing:

> What if that which cultural constructionism positions as the purview of (human) culture were actually always already there, in the complex unfoldings of 'life at large': neural plasticity in brains; natural selection in evolutionary biology; code-cracking and encryption capacities of bacteria? Or, we might add: a glacier's long-term memory; the social promiscuity of bodily fluids; the river writing the canyon, in a slow-motion, cursive script. All of these processes attest to creativity, culture and 'language skills' before or beyond something called the cultural human. (Neimanis 2014, p. 16)

Her descriptions of the glacier's memory echoes Toni Morrison's remembrance of the Mississippi River, which remembers where it has run. The fugitivity of the River overflowing its dams and seeking return through 'floods' is a form of this "life at large," which includes but predates and extends beyond that "something called the cultural human."

The conflation of the cultural, or biographical, human and the biological human is perhaps most evident in the campaign for a human right to water. In her work on water rights, Laura Westra persuasively asserts that biological integrity can be used not only to protect "the immediate and obvious human need for clean drinking water" (Westra 2010, p. 162) but explicitly to "protect water, understood as our common heritage" (2010, p. 172). The biological determinant of "our" is recognized by Westra to include peoples with a diverse relationship to water. Westra's work focuses on the indigenous nations of Canada, whose right to health and to food must be separated from the right to water in order to understand the full symbolic and sacred aspects of water itself. The "our" she cites implies "our" human community, but the ambiguity and intentions of the philosophical essay allow for a more expansive read of the human and nonhuman assemblages of "our" lives. Moreover, in this collective identification, water is attributed vulnerability in itself – not quite an anthropomorphism but certainly a feature suggesting affect, if not agency – a feature recognized, for example, in the Ecuadorian constitution's Buen Vivir model (Gudynas 2011). In the course of writing this dissertation, the U.S. city of Toledo, Ohio adopted such a measure, recognizing the rights of Lake Erie itself — the right to "exist,

flourish and naturally evolve" — making the first time that a 'natural resource' has been

such rights in this country (CELDF 2019).[22]

The exclusion of the nonhuman in the discourse of human rights upholds the

violently exclusive myth of humanity – the *constitutive contradiction* of humanity – that

Sylvia Wynter identifies as defining the "black subject as beyond the grasp of the human"

(1992, p. 19). We must extend this politics of life, through water, further, recognizing the

specific dehumanization of black life as a central part of the ethics and politics of

affirming life through water, and affirming water as life. As it shape-shifts and traverses

scale, water refracts space and time, dissolving the 'local' and 'global' together and

bringing ancient concerns crashing onto the shores of the present – not only as metaphor,

but as matter. "How are y'all gonna make it if we don't make it, know what I'm saying?"

Jessamyn asked, reminding me of the porosity that entangles and connects our lives.

The mantra *"Water is Life"* affirms life without differentiating levels of

deservingness based on racialized hierarchies of humanity (even animality (Chen 2012))

that exclude black people from the modern categories of citizen, Man, and the Human

(McKittrick 2014; Spillers 1987; Weheliye 2014; Wynter 1992). *Water is life* rejects the

commodification of water as a vital medium, refusing to index the value of all life-forms

to the currency of capitalism. Water is life is also a statement about the life of water – not

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[22] Importantly, the move confers legal "standing" that allows claims of harm to the Lake to be brought on its behalf against polluters or states that violate environmental protections. This emerged from efforts of a local group, Toledans for Safe Water, to pursue clean up funds for toxic algal blooms that prevented residents periodically from using their tap water and threaten the lake ecosystem (Daley 2019; Funes 2019).

as organism, but ecosystem – and often dovetails into campaigns for the rights of water itself [Figure 1.5].

Water is life affirms all life, full stop. Made alongside the claim Black Lives Matter, I read these as reflections on politics and life as refutations of public politics from which black life is constitutively *excluded*, not brought under its realm, as Foucault's biopolitics suggests; and yet it is an affirmation of life lived despite public refusal, in survival, lived in and through material relations, assembled with care, with the matter of life itself.

Figure 1.5: "Water is Life" Detroit Light Brigade (Jean 2016a)

Water, Wake, Weather

I began with Jordyn's story of life after water, but I didn't begin at the beginning, as she told it to me. This is where she began:

We called ourselves – I can laugh at it now, it wasn't funny then – we called ourselves runaway slaves from hurricane alley, down in the Gulf Shore area of Alabama. And I said we should move to Louisiana because my mom's family is from there. And we moved right into the eye of the storm... Everyone said Louisiana was going to wash in the ocean, [that] it was gonna be underwater like Atlantis. I didn't really take it seriously. But I think with [Hurricane] Katrina we came pretty close to falling off the edge of the map. I seen stuff move by water I didn't know water could move... So after that we moved up here to Michigan, but it was a whole 'nother kind of storm, with the water and everything.

When I first met Jordyn, I did not know she had moved to Detroit from New Orleans. I certainly did not know that she had moved to Detroit to move on from Katrina. But when I asked her to tell me about how it came to be that her water was disconnected in the City of Detroit, this is where she begins her story, with the water's demands on her life.

Jordyn recounts the drama of their disasters with a striking calmness and clarity. Just a few days after bring rescued off a rooftop and rowed to the Louisiana Superdome, she was warned of the difficulty she would face returning home. Alongside and long after the damage of the storm itself, residents of New Orleans encountered what Vincanne Adams (2013) has described as a "a second-order disaster," as public relief funds were funneled through private, profit-driven markets. An officer with the National Guard encouraged Jordyn to leave the city altogether: "They just said, 'Is there anywhere else you can go?'... So we did." Jordyn followed an old path in a new light, tracing the routes of segregated 'Jim Crown' railcars in a Greyhound bus on its way out South and up North.

Throughout the period called the Great Migration (between 1910 and 1930), the push from a legacy of two hundred and fifty years of slavery and years of state segregation was the pull of promises of industry employment, legal integration, and the poetics of city

life. Chicago, New York, Philadelphia, Pittsburgh, Cleaveland and Detroit became major cities with the presence and productivity of new African American communities. Detroit alone saw its Black population grow twenty-fold in this period, from 6,000 to 120,000 people. This mass movement of more than ten million people is still considered one of the largest intra-national migration in world history – even more striking, as many historians note, because it was not prompted by a natural disaster, military battle, or other catastrophic event (per se).

Today, conceptual and climactic blurring of the natural and social in the construction of slow disasters creates new displacements and migrations.[23] Because the state of Michigan has historically been relatively free of 'natural disasters' as conventionally defined (earthquakes, floods, tornados), many Michiganders believe (and national media outlets suggest) that another wave of migration will bring people *en masse* to the area as the impacts of climate change intensify (Popular Science 2017). Studies, however, suggest that the Great Lakes area is projected to change due to the pressures of climate more rapidly than anywhere else in the United States (EPA 2016; Union of Concerned Scientists 2009; USGCRP 2017). The current water troubles emerging from the confluence of policy, planning and planetary warming in Michigan refract these historical legacies into new sociospatial arrangements, with uncertain directions.

Immigration scholars conventionally speak of migrants as moved by push and pull factors. Today, the pull of regular employment is minimal, outsourced to overseas

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[23] One Detroit woman filed for status as an internally displaced refugee after her water was shutoff, leading to her home's foreclosure, and a cascade of events that left her unable to find a place for her and her son to live.

workers, crushed by anti-union campaigning, and maintained by a facade of employment called minimum wage work – which in Michigan does not have to meet even the simplest standard of a "living wage." The lack of jobs in postindustrial economies is propped up by many unpaid labors, not least of which are works of care, most often labors of domesticity and healing that support social reproduction (things we call labors of love, or belovedness) and not incidentally the reproduction of economy as well.

The push of wage-supported white workers out of cities in the midst of these changes only further entrenched them, and stalled their momentum. Urban water infrastructure offers one way to see this: unlike many physical networks and certainly most utilities, plumbing and pipelines age best with regular use. The slowdown of demand leaves pipes exposed to wear, air, and in turn, rust. But it also undercuts economic models dependent on predicted volumes of flow; in fact, a principal reason behind the city's severe shutoff strategy is that population decline has cut off the utility's 'customer base." This infrastructural decline takes a measurable toll on the economy and an immeasurable toll on life (human, animal, and planetary). And insofar as the decline of infrastructure has and will be used to the gain of private water markets, it also affects the life of water, as a (metaphysical) force that precedes and exceeds commodification.

Jordyn and her family survived one storm only to encounter another – of another kind, perhaps, but structurally kin, "with the water and everything," as shutoffs and contaminations made life once again unlivable. Though 'natural' and 'man-made' disasters are treated as separate species of catastrophe, her account begins to dissolve this distinction, tracing both a spatial-geographic continuity between crises and a racial-

historical undercurrent beneath them. To think these crises together, as Jordyn does, requires a de-territorialized sense of space – not the bounded nation, city, or even landscape, but the fluid dynamics of a watershed, rivers and rains, surface and groundwaters, ice, mist, tributaries and torrential storms. With respect to the Great Migration, such a perspective sees the Mississippi River as a critical infrastructure, vital resource and spiritual reservoir for survival amidst and against social death. With respect to crises of the contemporary, water again becomes site and substance for new negotiations of life.

A great deal of scholarly writing and lived experience attests to the insight that disasters are happenings that suddenly expose vulnerabilities that were always already there. In this sense we can think of water shutoffs, urban floods, industrial pollution, corporate profiteering, water-borne illness, toxic algal blooms, icemelt, systems failure, and sea level rise together in relation to the possibilities of life in ruins. In this reading, Detroit and Flint represent the precipitation of the structural negation of black life, not the exception or accident. That the lead precipitated in Flint is present endemically throughout segregated black neighborhoods in every major city in Michigan and (post)industrial cities around the country is present testament to the past's accumulation.

These events and quasi-events are disequilibria of social relations suspended in water. From the mother whose basement is flooded, to the one stuck between two collapsing homes, the poor are living compounding, ongoing slow disasters. Not only do they expose the same vulnerabilities and risks, but they are also imposed by market-driven logics of disaster management and governments of emergency (Adams, Van

Hattum, & English 2009; Adams 2013; Dyson & Elliott 2010; Klein 2010; Oliver-Smith &

Hoffman 1999).

Water poses threats to the ongoingingness of life as we know it, and

simultaneously is the vital substance of all life that we know. Alongside life, whose entry

into politics marked the modern epoch, and black life, whose exclusion from politics

constitutes the modern public, water is a "total social fact" whose governance makes and

remakes the social fabric and whose courses and flow can be traced for evidence of the

possibility of life itself.

Seeing Like a Neighborhood
Accounting for [the disaster]

Tucked away at the edge of the Corktown district, in the bend of I-10, is Cabrini

Clinic, where I meet Sister Charlotte. A nurse as well as a nun, Sister Charlotte served as

director of the clinic for almost two decades, providing free primary care, mental health

care and prescription assistance to the uninsured. In operation since 1950, St. Francis

Cabrini Clinic of the Most Holy Trinity Church is the oldest free clinic in the United

States, named after the patron saint of immigrants, caretakers and impossible causes.

Sister Charlotte gives me a tour through the modest two-story building, happily

waving hello to friends and former colleagues, greeting patients with a small nod and

wide smile, before we sit down to talk. Charlotte is no stranger to the politics of poverty

in Detroit, and the sickness and suffering that obtain. It's what brought her to the water

movement, she tells me. I ask her if the clinic has seen an uptick in ailments related to

water access. "Well sure" she says, in a tone that suggests my question hardly needs to be

asked, "but it's hard to be sure unless they tell you," she continues, "and many won't."

People have many reasons not to discuss their water troubles: privacy ("women

like to be clean, but we don't like to talk about it what it takes each month and all that");

stigma ("water poor is the worst kind of poor"); and fears of retribution ("I tell the boys

not to say a word at school"). I take up the substance of these silences in more detail

elsewhere, but for now note, as Sister Charlotte does, that widespread water insecurity is an open secret in the city. While there was "no question" that people are suffering from it, there was also no evidence – none, at least, that the state has been forced to recognize and respect. That was the case, at least, in 2015 when I arrived in Detroit. Over the next few years, many water justice and public health advocates, including myself, attempted to statistically demonstrate the health impacts of the water shutoffs. That task proved surprisingly difficult given the undeniable necessity of water to health – and for that matter, to life itself. In turn, it became a major part of my intellectual and political engagement with the movement, raising complex issues about the politics of knowledge, and the promise of politics, within the in/security state.

This chapter delves further into the methods, ethics, and politics of community-led research study into Detroit's water insecurity, and into my own position as an activist, anthropologist and health student in partnership with local researchers. I describe the difficulties of designing a study that would adequately capture the scale and consequences of the water shutoffs as a public health disaster – even, as some claim, as a form of genocide. Retracing the theory and methods of our work, I offer an ethnographic account of the conditions of possibility and the structural limitations of this claim. This critical analysis is intended as a supplement to the empirical 'results' of the research, reflecting on the power dynamics, evidentiary standards, and ethical imperatives that formed and frame those findings. Certainly, residents' reluctance to speak presented a major methodological barrier to survey-based research, and remains the silent subtext of the projects I describe. At issue in this chapter more centrally, however, is the silence of

the state. Under austerity conditions, the state has recoiled from its obligations to provide

water and sanitation to all, and refused to monitor and disclose 'vital statistics' related to

the health risks. This retreat marks a major shift in the biopolitical norms of the sanitary

state, and leaves this work to residents themselves.

Seeing like a Neighborhood

Accounting for water-related morbidity and mortality is in many ways as old as the

state itself, and certainly a core feature of historical forms of governance as much as it is

of modern biopolitical administration. It has formed a major part of global health and

development work worldwide, and is an undercurrent of all modern(ist) urban planning.

John Snow's seminal study tying a London cholera outbreak to a single water pump on

Broad Street established epidemiological techniques as central to administering health

through organizing urban space. The word *statistics*, etymologically, is tied to the 18th

century German *Statistik*, the "science of the state," referring to the collection and

analysis of data relating to statecraft. That valence emphasizes the centrality of quantified

knowledge to the consolidation of power, and the importance of statistics as a modern

technique of state recognition – of what James Scott calls "seeing like a state" (Scott

1998)[.24]

Water and sanitation is a unique domain of state power because it sits at the

intersection of the 'built' and 'natural' environments and the 'technical' and 'social'

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[24] In U.S. history, epidemiology has often been used to legislatively guarantee certain protections from injury or illness, winning rights – either preventive or compensatory – for organized groups (Jain 2018). The study I describe here shows how the scientific burden of proof becomes as a social barrier to political recognition, particularly when the state withdraws from its role in scientific managerialism.

worlds, forming a nexus where modern biopolitical and industrial interests 'flow together.' Just as Scott described for the practices of scientific forestry, the scientific administration of water and sanitation depends upon the translation of 'nature' into a 'natural resource' that suits the modern state's utilitarianism. This mode of perception "requires a narrowing of vision," a singular epistemology, or way of knowing, that discounts local, heterogenous and possibly discordant understandings. But "simplifying" the way of seeing and knowing does not simplify the complexity of reality as it is lived in the home and in the city.

Veena Das, alongside Clara Han, has explored how institutions for the management of life are not simply overarching institutions that govern from above, but are folded into everyday life at the level of the neighborhood (Das 2013; Han 2012, p. 79). This involves an alternate ethical engagement with what Han calls 'critical moments,' constituted in ordinary acts like offering food or transportation to sustain in small ways those nearest to you. In the process of conducting these studies, we encountered numerous 'critical moments' of everyday care: a child offering to take a survey to a disabled neighbor; neighbors setting out jugs of water at the curb; volunteers offering to help when needed and as importantly, withholding when needed. The neighborhood emerges as the key level of scale for the study of health and illness, as Das and Han argue, because it is the scale at which bureaucracy, law, environment and ethics become folded into everyday life.

Activists' challenge, then, is to produce a knowledge base that reflects the concerns and experiences of residents in a form that is recognizable to the state – which

controls drinking water and sanitation access – but does not reduce the social dynamics of water insecurity to the singular statistical vocabulary of the state. Producing accurate and reliable information without erasing the complexity of experience, overriding local interests, or undermining the movement's credibility requires that activists appropriate and adapt the structures of power-knowledge installed in the state. Instead of 'seeing like a state,' they work towards 'seeing like a neighborhood'.

In this chapter, I argue that local actors' struggles to 'perform the state' through public health practice at the grassroots becomes a nonmimetic form of biopolitics that aspires to a more-than-liberal ethics of care yet nonetheless works to make suffering legible within established liberal institutional and discursive forms. That they may 'succeed' or 'fail' in normative political terms is then only a commentary on the normativity of liberal politics, and the epistemological limitations of 'seeing like a state'. That is, rather than seeing this work solely as a reflection of state failure, we might consider its achievements in returning to, and making visible, local forms of suffering and accountability that are unaccounted for in 'successful' states. This possibility can also be thought of as one that moves between realization (turning suffering into a basis for collective self-determination) and recognition (as in making suffering *politically* visible within the liberal state). In the case of Michigan's urban disasters, all of this movement takes place within a given field of power-knowledge gridded by the modernist vocabulary of rationality and a racial grammar of respectability.

I proceed in three parts: first I offer a theoretical framework for thinking through the participatory politics of knowledge-and-power production in the context of

contemporary U.S. austerity. I follow many scholars of health and human rights in interrogating the limits of metrics in advancing equity within liberal governance frameworks. I read these constraints within critical discourses of rights, recognition and eventfulness. Part II offers an ethnographically-grounded look at a community-led research project to study the impact of the shutoffs. As it explores the unfolding of its design and implementation, I mark its epistemological and political departures from conventional community-based participatory research (CBPR) studies, suggesting that 'community-led' is the key distinction. Because the study template was designed for use in disasters, I consider what its adaptation to the Detroit water shutoffs suggests about the nature of disasters that are not recognized (as 'natural'). I draw on local theorizations and critical race theory to disrupt the temporality of disaster narratives and foreground the ongoingness rather than eventfulness of crisis. The chapter concludes with a reflection on local political projects of state-making and world-making in settings of market-reconfigured states and worlds.

Recognition: a Reckoning

In the article, "Bioexpectations: Life Technologies as Humanitarian Goods," Peter Redfield asks the important question: "What might biopolitics look like without the state, so to speak?" (Redfield 2012). He poses this question in relation to what are called 'failed' states in the so-called developing world. These are states wherein even basic health infrastructures are absent or unreliable, and often where the market and certain forms of civil society are inadequate as well. Redfield's question resonates with what is happening

in Michigan, even if its 'de-development' cannot be reduced to the same analytic of failed state. Under conditions of austerity in the so-called developed world, particularly in the postindustrial United States, there are many areas where basic public services have been downgraded, degraded, sold off or altogether discontinued. In these cities, 'failed' becomes less an adjective than a verb, not simply describing an absence but rather emphasizing a withdrawal of the state from public infrastructures, social and technical. As one Detroit preacher and activist, Reverend Ed Rowe, likes to say: "I don't live in a bankrupt city. I live in a city that has been bankrupted by a morally bankrupt system."

Detroit has become an infamous archetype of this well-known predicament. Geographer Jamie Peck describes urban austerity as a "politically imposed condition" (Peck 2012, p. 637) characterized by the "scalar dumping" of responsibility from federal and state to local governments. Buckling under this pressure, the city of Detroit has been experimenting with what responsibilities it can in turn 'dump.' Detrioters knew then and know now that the City was and is "held hostage" by the State of Michigan and beholden to federal grants for many sources of environmental protection and infrastructure funding, but distinguishing between 'the state' at these levels makes little difference when residents nonetheless are left without a fully-functioning state (infra)structure and a fully-realized (liberal) social contract. While they may have particular electoral or legislative targets, activists in Michigan address 'the state' as an infrastructure of power whose physical and administrative scaffolds can be leveraged for the common good even as they have been anchored in discriminatory logics that are ongoing.

In 2012, the City of Detroit presented a radical budget proposal that *completely eliminated* the Department of Health, the Department of Human Services, and the Office of Human Rights. Without these agencies, many of the biopolitical obligations of the state were 'dumped' onto organized and less-organized local groups essentially privatizing, without government funding, the obligations of the state's social contract.

Following bankruptcy, the City leased the Detroit Water and Sewerage Department to a newly-created, quasi-public regional entity, shifting the racial, class and power dynamics of the system's leadership and customer base. Non-governmental organizations, such as they were, had to absorb responsibilities for service provision and population surveillance. But this is only possible to an extent. As we have seen elsewhere, the provision of safe water and sanitation poses a unique problem for non-governmental organizations precisely because urban populations depend upon the infrastructures funded and built through state systems. Even anti-state organizers depend on the 'natural monopoly' of a state that has abandoned them. This applies *both* to the 'hardware' of pipes and treatment plants, and to the 'software' of environmental regulations and disease surveillance.

Many academic and organic intellectuals gloss contemporary postindustrial governance as a 'politics of abandonment', and there is certainly strong evidence and shared experience to attest to the reality of material and social (even affective) abandonment. But that rubric might too-strongly suggest that the state's withdrawal is total. The geographer Clyde Woods, referring to the 'neoliberal turn' in U.S. policy from the 1970s refers to its strategy as *planned* abandonment, emphasizing the strategic

intention and subsequent management of selective dismantlement (Woods 2017). In Michigan today, as the state divests from public service provision (of housing, water, and welfare) and environmental regulation, it is *simultaneously* strengthening other positions: investing in targeted "urban renewal" through corporate welfare subsidies and controlled demolitions, attracting tourism and business through planned gentrification schemes, increasing the reach of child protective services, and policing the poor. Responding to changing economic conditions, this de- and re-structuring of the state suggests that curating transient investments is today at least as important as providing for the health, education and welfare of a laboring population.

Even to say the state is providing the bare minimum of the law overlooks the ways the law is being actively reinterpreted to evacuate its protections of substance.[25] Alongside the legal denial of any personal (non-property) rights to water that I discuss below, recent interpretations of the right to education offer a clear example. In 2016, a Federal District Court in Michigan dismissed a class-action lawsuit filed by Detroit students who argued that crowded, under-resourced, molding and infested public schools were failing them – even denying them basic literacy. The judge ruled that "access to literacy," or a "minimally adequate education," is not a fundamental right, and its denial legal insofar as schools do not practice 'overt racial discrimination' (Fortin 2018). What the state recognizes as overt discrimination, then, is narrowed to what it is designed to see, premised on a specific kind of *political* recognition of *individuals* as before the law

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[25] Importantly, they are also being outright rewritten – as in the reneging of pension obligations owed to public sector employees.

that overlooks the systematic discrimination patterned into the resources among racial *groups* across the state.

Given the geographic segregation of urban and suburban Michigan, the schools with lowest resources and poorest performance are all concentrated in majority-Black cities. Michigan has been able to rearrange its racial geography so as to effectively gerrymander its schools while upholding the veneer of integration and equality before the law. The state has re-segregated through geography what was, in *Brown vs. Board of Education*, was desegregated by law, undercutting the major achievements of the Civil Rights Movement. By granting legal equality, the state does not produce freedom for citizens – certainly not for schoolchildren who graduate without the basic literacy to 'freely' participate in society. Rather, the state *frees itself* from obligations to pursue equity among its members, as Karl Marx insightfully argued more than a century and a half ago.

In "On the Jewish Question" (2012 [1843]), Marx offered a trenchant critique of the modern state's notion of emancipation. Responding to an essay by Bruno Bauer, in which Bauer argues that Jews in Germany must renounce their religion in order to be emancipated as German citizens (Bauer 1843), Marx asks, "what kind of emancipation is involved?" In a Christian state like Germany, Jewish repudiation of religion is still an issue within the domain of theology, not "politics as such." Only in secular, constitutional states does the domain of politics appear as one in which man is granted political emancipation as a citizen of France or the United States, for example, rather than as a member of a religious group. The citizen still retains his religiosity, but it is banished

from the sphere of public law and into private domains. Thus the state can claim itself

unconcerned with religion even as religion and religious prejudice persist as influential

realities among social actors; "the state as a state emancipates itself," Marx writes,

through political emancipation.

By analogy to religion, race in the United States functions similarly, with the state

asserting racial equality before the law while relegating matters of racial animus and

material disparity on the basis of race to private spheres—hence, the limits of a liberal

politics of recognition. As Marx writes: "The limits of political emancipation are evident at

once from the fact that the state can free itself from a restriction without man being really

free from this restriction, that the state can be a *free state* [pun on the word Freistaat,

which also means a republic] without man being a *free man*" (Marx 2012 [1843], p. 65).

When the state abolishes private property as a condition for voting or holding

office, or when it says it will not discriminate by education, occupation, race, or gender, it

does not actually abolish these distinctions. In fact, Marx goes further, arguing that in

declaring these distinctions non-political, it actually presupposes them, recognizing that

they exist; the state 'asserts its universality only in opposition to these elements of its

being." All of these particularities persist as elements within civil society, negotiated

there, among families and neighborhoods, rather than in the sphere of *the political* as

such. That is, the "state as such" not only cannot recognize these "real" distinctions, but is

designed to disregard them (even as it presupposes their reality).

In contrast to political emancipation, Marx is inclined towards human

emancipation, wherein men would not need the state to serve as an intermediary and

repository of their collective power. What Marx calls "human unconstraint" and activists

in Michigan most often call "liberation" (which certainly has its Christian overtones),[26] I

am referring to as "realization." The term realization is meant to index both the

materialist foundations ("not only in thought, in consciousness, but in reality, in life") and

aspirational temporality ("its real merging in the 'general question of time'") of endeavors

towards 'true' equity.[27] Labors of realization are organized at the level of civil society (in

communities) and not solely oriented to the political state, even as they, reciprocally,

presuppose the existence and importance of political recognition.

The work I describe below elaborates on these ideas. When Detroit Water Justice

claims they are "using statistical power to build people power," they orient the tools of the

state to popular, emancipatory ends rather than suggesting that the importance of

community-based participatory research is to organize people in service of scientific

knowledge—even if that knowledge is the key to political recognition.[28]

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[26] Marx considers religion to be a projection and reserve of the divine powers we have within us as humans. For Marx, Jesus Christ is an intermediary of human divinity just as the state is an intermediary for human unconstraint. By suggesting activists struggle for a version of this human unconstraint in realization, I am not imposing Marx's view of religion on activists' view of race. Indeed, many would oppose to his characterization of the function of religion, given the overtones of Christianity in articulated visions of 'liberation.' My interest is in understanding the distinction between political and 'true' emancipation as it relates to state recognition and material equity against a legacy of racial discriminations, among others.

[27] Realization is also a technical term in statistics. It refers to the *observed value* when a function is run. For example, with a coin toss, the random variable may be Heads or Tails for each and any flip; the realization is the result of a specific toss, or *what actually happened.*

[28] At the same time, activists do not reject or resist political recognition because they know, as Marx did, that: "Political emancipation is a big step forward. True, it is not the final form of human emancipation in general, but it is the final form of human emancipation within the hitherto existing world order." Any 'failures' of this research to 'win' *political* recognitions are then, in the sense of 'state failure,' flaws in and by design. These instruments are no calibrated towards 'true human emancipation' even if and as they are used by collectives struggling for that realization. The impetus, as well as the limitations of this study, suggest that political emancipation remains the final form of political emancipation within the existing world order, but also that social actors and activists in Michigan are struggling to reorganize that world order in order to realize further (if never final) forms of emancipation.

Happenings

Recognition is tricky business, particularly as liberalism has given way to late liberalism.[29] The contemporary era is saturated with a sense of crisis, just as the air is saturated with carbon dioxide, but the change in climate – while certain by scientific consensus – is difficult to localize.[30] It is as if there is more data, but less information. "[N]othing happens that rises to the level of an event let alone a crisis," Povinelli writes – at least not one that is recognizable as such by the state as *politics* in Marx's sense. For Elizabeth Povinelli, the temporal compression of "crisis" is a means of consolidating distributed suffering into recognizable (and recompensable) harm, and statistics are one means of conveying that. Indeed, the rhetoric of crisis itself is almost exhausted (Roitman 2013) and as a result, writes Povinelli, "any ethical impulse dependent upon a certain kind of event and eventfulness – a crisis – flounders" (Povinelli 2011, p. 4).

Many of these happenings, however, do come to be understood as catastrophic among those who experience them, as overturning local lifeworlds and evoking the 'ethical impulses' of disaster. It was this impulse that led a local organization, to use a state instrument designed for disaster assessment in order to describe an event that the state could not, or would not, recognize. Like Povinelli, I am interested in how these

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[29] Charles Taylor, in "The Politics of Recognition," considers the legacy of 'identity politics' and the civil rights struggle for equality up against the tension of (mis)recognition, flattening into stereotype or a statistic (1994).

[30] Here I want to gesture towards the rapid proliferation of information/data, and at the same time the compression of registers of legibility, indexed to the market. Accelerations in the circulation of capital, the proliferation of information, and the supersaturation of carbon in the atmosphere are set against the slow violence of deepening precarity.

'quasi-events' "are, or are not, aggregated and thus apprehended, evaluated and grasped as ethical and political demands" among specific late liberal publics and, in particular, in the role of statistical techniques in translating the quasi-event into the event (or not). What ethics emerge outside the realm of politics as such, where recognition is limited to identities and events? In contrast to this recognition, I propose *realization* as the aspirational, even affective, aim of residents' collective organizing, the impact of which emerges from the community to which it is ethically oriented.

Detroit Water Justice, a grassroots group founded and led by five longtime community advocates, all Black women, organized a Community Research Collective ("the CRC") in 2015. Composed of activists, academics, artists, and youth committed to research that advances racial and environmental justice in the city. I became a member of the collective early on in my fieldwork, out of my political and ethical want to lend my own training as an anthropologist and health practitioner to the work of the water justice movement. Detroit Water Justice had already begun an extraordinarily ambitious research project combining archival research, demography, and design into a visually-compelling narrative of spatial and racial disparities in water access. In the introduction to the work, Dr. Elliott explained the stakes and rationale behind it:

> Detroit community activists recognize that the water crisis and the other destabilizing policies mentioned above, driven by corporate and government austerity imperatives, are leading to the erasure of our communities, to a reconfiguring of city land and resources to accommodate corporate objectives. To put it simply, we understand that the forces at work are genocidal, but when we assert that reality, our perceptions are viewed by many as extremist. For that reason, we have sought data with which to measure our perceptions. (DWJ 2016)

For Dr. Elliott, as for many activists in other groups within the water justice movement, this denial of safe and affordable water is undeniably, fundamentally genocidal.[31] It is the present "reality," and emerges from a long history of racialized exclusions. Articulating this reality, taking certain political positions and expressing experiences through certain analytics – including and especially the naming of genocide – is, the group recognizes, seen by mainstream media and the liberal public as extremist. I refer here to the discussion of activists' charge of genocide in Chapter 1 and will return to it again in the Conclusion, as it signifies the stakes of the water justice movement in the long sweep of modern human history and its nonmodern, more than human politics. Here I want to emphasize how and when these stakes are planted in relation to the struggle for representation through data – a representation always between recognition and realization.

Part II of this chapter further explores that pursuit of data – the effort to turn a quasi-event into an event, as well as the efforts that exceed the sanctified politics of eventfulness – within "the statistical vacuum of political collapse" (Redfield 2012). It explores both the empirical and ethical challenges of quantifying the scale and impact of postindustrial water insecurity, the crux of which Sister Charlotte suggested. In her response as to whether people were becoming sick due to the shutoffs ("Well sure, but it's

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[31] For Foucault, there is a genocidal prerogative undergirding biopolitics: "The power to expose a whole population to death is the underside of the power to guarantee an individual's continued existence... If genocide is indeed the dream of modern powers, this is not because of a recent return of the ancient right to kill; it is because power is situated and exercised at the level of life, the species, the race, and the large-scale phenomena of population." (Foucault 1990, p. 260). Here, genocide emerges as a naming of the constitutive consignment to death, via the retraction of a vital necessity for life – water – under a fundamentally racialized calculus of capitalist city governance. See also (Vargas 2005).

hard to be sure unless they tell you, and many people won't") there is a telling slippage in

the double sense of the word "sure." There's "sure" as in "obvious," and "sure" as in

"proven" – and therein lies the rub. The very problem facing water justice advocates in the

region is the problem of having to prove what *everyone knows* to be true.

Self-Evident Truths, Un-enforceable Rights

    Everyone knows that water is a necessity of life, and that poor quality and lack of

access to water pose risks to health.[32] This is known in the world of global health, as it

was in the era of international health and colonial health before that. Water is key to

survival but also to quality of life. "More people die from unsafe water than from all

forms of violence, including war," says UN Secretary General Ban Ki-moon (UN-News

2010). But how do we account for the depravation, indignity, and damages suffered

outside defined pathways of disease in relation to water, especially in places where it is

assumed to be available and safe?

    The space between presumable risk and provable danger always relies on evidence

that can be hard to come by – particularly in the postindustrial context of unaffordable

rates, untrustworthy systems and unregulated contaminants. Water insecurity is episodic

and irregular, appearing unevenly in the urban space and for varying lengths of time. The

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[32] This is in contrast to official denials, doubts that were consistently raised by those responsible about whether it 'really' harmed public health, doubts meant to lubricate bureaucratic and political inaction or deferrals. This includes the City of Detroit arguing to Bankruptcy Judge Steven Rhodes that no evidence of harm existed to suggest that its water shutoffs harm public health (Lyda et al v. City of Detroit 2014). Rhodes rejected the premise, writing: "The City also argues that health department records fail to demonstrate any health consequences from the water terminations to date. That appears to be true, as far as it goes. It must be noted nonetheless that those health department record compilations do not appear to be designed to measure the consequences of significant water service terminations in the City. Accordingly, the Court is not prepared to infer from them, as the City suggests, that there have not been any significant health consequences" (Lyda et al v. City of Detroit 2014, p. 22).

studies we do have (spearheaded by Detroit Water Justice) show that insecurity goes

beyond the direct experience of having the water off: those at risk of shutoff have

increased psychological distress (see Appendix), and anyone living on a block where

shutoffs have occurred experience higher risk of water-related infectious disease (Plum et

al. 2017); others describe significant economic hardship, cost-shifting from schooling,

food, and medical expenses (Rockowitz et al. 2018). As discussed in previous chapters,

water-related illness extends well beyond waterborne infections, and includes compound

chemical exposures to every system of the body and psychosocial distress among families

and communities. While generations of scholars have devoted considerable time to

documenting the damage of unsafe water in poor countries, measuring these less-lethal

effects poses an enormous challenge in places like the United States. Still, doing so has

become a significant ethical imperative when considered in relation to the life-death

calculus of survival in poor places in the country. Generating statistics about water access,

contamination – and crucially, its affordability – matters because black lives do.

Internationally, the United Nations and World Health Organization's Joint

Monitoring Program is the major international body overseeing water and sanitation

access today. Their data draw on two metrics: the capacity of "improved" infrastructure

and the geographic supply or scarcity of water with respect to the population

(WHO/UNICEF 2012). Neither of these captures the inadequacy of water and sanitation

access in Michigan, as we will see. The instrument relies on in-country reports collected

at the national level and thus the United States appears to have near-universal water and

sanitation access by these numbers. Activists in Detroit however, want to expose what's

overlooked by the metric. They implored the United Nations to send investigators to examine the water crisis in Detroit, to see it first hand from the ground level. Its rapporteurs reported "shocking" violations of the human right to water and sanitation – violations that aren't reflected in standard instruments (OHCHR 2014).[33] As important as metrics have been in regularizing global monitoring of water and sanitation and setting human rights targets, activists in Michigan recognize the inadequacy of these tools to capture their local realities.

    Medical anthropologists pay significant attention to the translations between suffering and statistics, as they occur at various scales of social life. In the meta-architecture of global health policy and practice, metrics become instrumental forms of accounting for development, tying population health to market logics and enabling comparisons across space and time, often between radically different contexts (Adams 2016). Such a globalizing vision not only extends the logics of the market into all spheres of life – the tenement of neoliberalism – but reduces the complexities of local biologies, and socially- and culturally-constituted body politics into individualized typologies of diagnosable difference (Gordon 1988a; Lock 1993; Scheper-Hughes & Lock 1987). Empowered by metrics, liberal institutions of modern states only recognize and intervene on those forms of suffering that can be framed within the "known languages" of public health and human rights, meaning global accountability pressures may paradoxically leave the poor unaccounted for (Das n.d.). Because that recognition depends on the

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[33] Indeed, their report notes: "the city has no data on how many people have been and are living without tap water, let alone information on age, disabilities, chronic illness, race or income level of the affected population." (OHCHR 2014)

numerical accounts, it is limited in form by modern scientific methods and in effect by liberal legal amends. This work attempts to extend the anthropological conversation about the limits of recognition through numbers into a cautious appreciation of what else the production of numbers might realize.

Human rights claims have not succeeded in restoring water access to Detroiters, despite UN censure. The 2002 Comment on the human right to water states very clearly: "The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses." The United States abstained from voting on the resolution and from ratifying the International Covenant on Economic Social and Cultural Rights (ICESC), from which the right is derived – thus refusing to be legally bound by its terms (UN 2002).[34]

Among the reasons cited by the City of Detroit to justify its denials of safe and affordable water is that an alternative to the public system exists in the private market for bottled water. But bottled water poses a number of problems, as scholars and activists the world over have noted. Private water companies draw water from 'common pool reserves' in order to privatize the profits, extracting both water and wealth from local communities. In the United States, bottled water is regulated by the Food and Drug Administration, not the Environmental Protection Agency, which either adapt the EPA's

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[34] Domestically, U.S. law deals with 'water rights' as matters of property, but there are no rights to drinking water and sanitation for residents of any citizenship status. Legal scholar Sharmila Murthy has argued that the fundamental necessity of water, including as a vital part of the "right to life," justifies that access to water be considered what Cass Sustein calls a "constitutive commitment," worthy of Constitutional-like protections through legislation (Muthy 2016). But when residents of Detroit challenged the shutoffs in court, Bankrtupcy judge Stephen Rhodes ruled against them, finding that there "is no enforceable right" to water (Lyda et al v. City of Detroit 2014).

contaminant standards or "finds that the standard isn't necessary for bottled water" (FDA 2019). Bottled water creates an enormous amount of waste, both in energy and materials, so that single-use drink bottles now constitute the majority of the plastics that end up back in the world's seas and oceans. By 2021, more than half a trillion plastic bottles will be consumed annually, 90% of which are not recycled (Laville & Taylor 2019). Bottled water is, of course, limited in volume and not pressurized, making it difficult to use for many domestic purposes (such as showering), and crucially, does not address the coincident problem of lack of access to sanitation. Even as drinking water, bottled water does not meet international human rights standards of an 'improved' source, and was rejected in U.S. Bankruptcy Court as a viable alternative to municipal water service.[35]

Alongside unenforceable human rights claims, health claims, too, have little purchase in a weakened welfare state. Even in Flint, where the lead toxicity has certainly risen to the status of an "event", there are only limited forms of what Adriana Petryna calls "biological citizenship" (2013), whereby bodily injury becomes a basis for receiving state services. In Flint, residents with elevated levels of lead in the blood become eligible for nutritional and medical support, though these benefits seem to come in the form of extended eligibility for the existing welfare services, namely SNAP and Medicaid, or a reversal of retractions in the welfare state. In other words, the benefits of biological

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[35] "The City argues that the harm is not irreparable because there are alternative sources available, including purchasing containers of water at local stores. The Court rejects this argument for at least two reasons. First, those sources are much more expensive, and many of the affected people are already in poverty. Second, it is challenging to commit the time and energy necessary to purchase and transport sufficient quantities of water (Lyda et al v. City of Detroit 2014, p. 22).

citizenship underscore the erosion of the substance of citizenship, placing a body burden on benefits that were part of 20th century social security.

In Detroit, efforts have been made to prevent the execution of water shutoffs on the basis of health claims. Many of the organizations serving residents at risk recommended they get a doctor's note certifying a medical condition (as if the 'healthy' do not need water to live), which cannot prevent, but only delay, a shutoff for a 21-day period. After National Nurses United declared the shutoffs a 'public health emergency,' the Population Health Council of Wayne Country issued a call for a moratorium on shut offs for medically-vulnerable groups, including: children under the age of 18; seniors age 62 and above; persons with mental illness; persons with disabilities; expectant and/or breastfeeding mothers; persons dealing with chronic diseases or otherwise in need of critical and/or medical care (Cantu 2016). Sister Charlotte was among a small group who were given an audience with the Mayor to discuss it. "He actually laughed! He said, 'if we did that [exempted the sick and elderly], there would be no one else to shut off'!"

Detroit residents brought a class-action suit against the city in 2014, calling for a moratorium against shutoffs. City attorneys used the absence of evidence to argue there are no "known" negative health impacts. Even though the court rejected the premise,[36] it found that even with the presumption of irreparable harm to community members, there is "no enforceable right" to water – let alone water rates that residents of a city can afford

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[36] Judge Rhodes' opinion reads: "The City also argues that health department records fail to demonstrate any health consequences from the water terminations to date. That appears to be true, as far as it goes. It must be noted nonetheless that those health department record compilations do not appear to be designed to measure the consequences of significant water service terminations in the City. Accordingly, the Court is not prepared to infer from them, as the City suggests, that there have not been any significant health consequences" (Lyda et al v. City of Detroit 2014, p. 22).

(Lyda et al v. City of Detroit 2014). Though public health data generated in the intervening years has not yet been tried in court, Judge Rhodes' decision in the *Lyda* case suggests that it may not have legal purchase no matter the results. As one Detroit Water Justice member said: "It's scary to think that the institutions that should safeguard public health and welfare get more silent as people get more sick."

The *Lyda* decision is remarkable in that it litigates fundamental issues about the obligations city government through Bankruptcy court. Because cities, unlike corporations, cannot be 'dissolved', municipal bankruptcy proceedings restructuring the public sphere, translating drinking water provision into a 'liability' rather than an 'asset'. It also demonstrates the limits of rights-based social security; if these are the 'rights' offered to the 'recognized' (i.e., to citizens), then being recognized is inadequate to the security of each and all. If "life, liberty and the pursuit of happiness" are "inalienable" rights, it seems they may still be denied through due process.

Dis-ease by the Data

When I arrived in Detroit, I was immediately confronted with the lack of reliable data about the water shutoffs. Until 2018, the City of Detroit and the Detroit Water and Sewerage Department made no effort to determine how many people were living without water (Kurth 2018). Though it was required by the 14th Amendment due process to hang a door tag notifying residents of an imminent shutoff, DWSD was not required by law to

knock, or to determine if anyone lived in the residence.[37] The department releases only

the number of shutoffs executed each year, and a figures relating to entry and enrollment

in payment programs – with no way for this information to be externally verified.

Compared to the Department's claim that 90% of people shut off get signed up on a

payment plan, investigative reporting revealed that only 23% remained on their payment

plan the first year; of the 24,737 households enrolled in the plan in 2015, only 300 were

current on the payments (Wells 2015). Meanwhile, important information including the

number of people left without water, the duration of disconnections, and the geographic

distribution of shutoffs, and related figures like the number of homes pushed into

foreclosure from water debt are not released – it's doubtful they are even recorded.[38] The

Detroit Water and Sewerage Department has repeatedly denied FOIA requests from

citizens and organizations, including Food and Water Watch International and the

American Civil Liberties Union of Michigan, for what should be public records.[39]

At one point, a roster of shutoff records for the year 2015-2016 was leaked. Detroit

Water Justice (DWJ) partnered with the Global Health Institute (GHI) at Henry Ford

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[37] By 2019, DWSD would no longer hang door tags when shutoffs were imminent; instead, they had a standing notice in red on each bill explaining that anyone $150 or 60 days past due is liable to be shut off at any time. This creates a particular problem for those who do not receive a bill directly (i.e., when it is issued to the landlord). This nonetheless seems to legally satisfy the 'due process' requirement.

[38] In 2018, DWSD began publishing one additional figure: the number of homes that were 'illegally' reconnected to water and sewer service each year. (Kurth 2018)

[39] Indeed, one of the central reasons people oppose privatization is that it would curtail even further the transparency and accountability of the system. Michigan ranked last among all 50 states for openness in government, receiving a grade of "F" on ten of its thirteen measures, including Executive, Legislative *and* Judicial Accountability as well as public access to information, ethics enforcement, and state pension fund management (Selweski 2015). It is one of just seven states nationwide whose water department is not regulated by a state utilities commission, giving local operators free reign. In Detroit, this has enabled an unchecked rise in water rates – skyrocketing 119% in ten years (Barlow et al. 2014). A recent Michigan State University study suggests that by the year 2022, more than 30% of Americans will be unable to afford their water and sewer rates – even with an affordability threshold twice as high as the international human rights limit (Mack & Wrase 2017).

Health Systems (HFHS) to see if a relationship could be determined between experiencing a shutoff and presenting with a water-related illness. GHI has a unique mission. In another echo of the resonance of postcolonial dynamics in the postindustrial present, the institute employs what it calls "reverse innovation," bringing the tools, experiences and knowledges of the 'developing' world to help combat local health challenges in Detroit. The research effort of HFHS and DWJ offer an introduction and a foil for later health impacts research, speaking to the institutional suppression of data.

With the leaked list, the last few digits of each address had been redacted, thus anonymizing homes at the block level. While precluding the correlation of specific patients' illnesses with the event of a shutoff, the two data sets at hand allowed researchers to conduct a block-level spatial analysis of the relationship between water shutoffs and incidence of water-borne illness. What they found was that between January 2015 and February 2016, patients who were diagnosed with a water-associated illness were 1.42 times more likely to have lived on a block that had experienced a water shutoff. Those who lived on blocks that experienced a shutoff were 1.55 times more likely to have been diagnosed with a water-related illness (Plum et al. 2017).

It would seem like an obvious choice to publish and publicize the results, but the politics of water in Michigan's poor cities was such that efforts to make this data visible were obstructed. A press conference was arranged to disseminate the results of the study. It was cancelled abruptly that morning because HFHS barred its employees, including all study authors, from appearing. It became clear that the hospital system was concerned the study was "too political" in an election year, and that the negative results might

disrupt its positive relationship with the Mayor. "Henry Ford yanked the chain," an activist complained. In a public statement, one of the study authors had to emphasize that the study demonstrated correlation, not causation, underscoring a classic distinction in public health science (Smith 2017). But among the research group, his frustrations were clear: "As an [infectious disease physician], there's a clear risk – when people can't bathe, can't use a toilet. And we can do all the research in the world, and it can be more or less rigorous, more or less above criticism, but the science here is settled… What these data show is there is a health impact *which should be obvious.*"

Given this obviousness, why the need for data – particularly, as we have seen, when recognition is not enough to secure a livable life in late-liberal America? Data here allows residents to claim their rights are being violated despite what the letter of the law may say; in doing so, they make a deeper claim about the violence of the law itself and amplify the charge of violation to the level of human rights writ large. Indeed, these activists charge genocide, a claim they know exceeds the legalistic, technocratic measures of right and life. It allows them to go 'on the record,' even if only in the court of public opinion. By harnessing the power of metrics, they offer quantified evidence to support their claims in a world dominated by statistical forms of seeing. Furthermore, by participating in the production of evidence, they endeavor to organize other ways of seeing and speaking about the social world, bringing community members together to debate and determine how their stories should be told.

Poverty Limits

There are many statistics that describe a generalized situation of socioeconomic deprivation in Detroit, setting the scene for the importance of *affordable* access to water and sanitation. Detroiters suffer a compound burden of race and place; 83 percent of Detroit residents are Black, and 41 percent live below the poverty line – the most of any major city in America. Consider infant mortality rates, widely considered one of the most telling measures of population health. African Americans have rates of infant death more than double that of the white population, both nationally and locally, and Black babies are three times as likely to die from low birth weight (Guzman 2015). Of the 100 largest American cities, Detroit also suffers the highest preterm birth rate, with nearly 15% of babies born too soon – a rate is so staggering that if Detroit were its own country, it would have the fourteenth highest (worst) preterm birth rate worldwide (Guzman 2019; March of Dimes 2012). Morbidities and moralities related to poverty exacerbate problems of water insecurity even as they complicate the effort to produce data tying the two together.

Repeating these figures obscures the violence baked into the ways we measure poverty, let alone sickness and health. The federal poverty line, the state's standard for the adequate income need to live a 'minimally adequate life' is set at just $12,000 for individuals and $24,000 for a family of four. Established in 1963, the measure was never intended to serve as a general measure of poverty, but rather to help assess the relative risks of low socioeconomic status. Over the last half-century, not only has a larger percent of Americans fallen into poverty, but our very definition of 'poverty' has fallen below its

own standards; once set to fifty-percent of median income, the poverty line has only been adjusted for inflation, not to a rise in income levels and living standards (Fisher 1992; Gille 1996).

This obscurantism is not only a problem for policy, but a failure of a promise: the stagnant poverty line represents a shortchanged American dream, namely, that expectations of progress and living standards are, by design, not extended to the poor. The Johnson administration's promise of a Great Society came in this sense at the expense of the poor, preventing the Social Security Administration from adjusting the poverty line upwards so that the figures would not suggest more people were 'falling' into poverty (Fremstad 2016; Matthews 2017). Representations of poverty became the political 'reality' from which real poor people continue to suffer. To say that people live below the poverty line today is in effect to say that they are poor by the living standards of the 1960s, thus very poor by the standards of today.

As the seminal work of Amartya Sen has shown (1976), poverty lines are too static to account for the local markets of opportunity and dignity available to people, and differently available 'capabilities' available to people depending on gender, race, class and location. This is not to say that things are better for the poor than metrics like this can capture; it is to say they can be worse.[40] A more elastic, and more ethical, accounting of poverty is needed to account for deep poverty within wealthy nations, and for

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[40] There are three primary concepts of policy in the literature: income concepts, based solely on measures like the poverty line; basic needs concepts, where poverty is defined by deprivation of the goods and services for a minimally acceptable fulfillment of human needs, including food, shelter, education and health care; and capability concepts, where poverty is locally-defined as the lack of opportunity to achieve minimally acceptable life in a community, bridging relative and absolute measures of poverty by emphasizing their mutual influence on capabilities (Anaafo 2014, p. 4).

phenomena like widespread water insecurity within water-rich regions. Poverty should be

thought of in terms of "individuals' capability of achieving the kind of lives they have

reason to value" (Sen 1993).[41] Incorporating local values and individual capacities into the

descriptive indicators of socioeconomic status challenges the fixity and limits the

universality of measures like the poverty line.[42] It is an approach that has been developed

in opposition to the 'welfarist' model of poverty, wherein the state determines social

support by income measures and utilitarian rationales (Robeyns 2005). At issue for those

who adopt Sen's approach is whether an individual can realize functional ends given their

contexts – or, ability to translate beings into doings.

The Way: Community-Based to Community-Led

Community-based participatory research (CBPR) has roots in the progressive era,

where local 'sanitary surveys' were developed by neighborhood groups to advocate for

extended public services (DuBois 2003 [1906]), and soon after by laborers in factories and

offices who sought to document the bodily harms of work (Murphy 2000). CBPR became

a prominent part of civil rights strategies in the late 1960s, as activists and advocates

began studying the interrelation of the distribution of health inequities with racial

segregation, militarism, and antipoverty policies across the country (Loyd 2014, p. 16).

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[41] The capabilities approach differs from functionalism because it contextualizes not only whether or not a certain resource or function (eg, employment) is met, and rather looks at the context of possibility and limitations determining whether one can fulfill upon local metrics of justice and value, as well as how systems of redistribution should be organized to maximize the capabilities for all.
[42] Incorporating local values into quantitative studies is essential to cultivating 'acceptability' and garnering public trust in the safety and security of water and sanitation as public goods and vital resources with collectively-held investment and impact.

In the 1960s, pushed by Latin American social movements, the concept of 'action research' and its many interrelated disciplinary motifs entered the formal academic sphere (Wallerstein, Duran, Oetzel, & Minkler 2017). In public health, the paradigm of CBPR — sometimes called "citizen science" — has gained traction and respectability, though its projects vary widely with respect to their aims, process and outcomes. At worst, the notion of community can lose its attachment to local capabilities if included as a 'token' of representability without consideration of the power dynamics in the design and distribution of research and its financial, symbolic, and epistemic rewards. At best, CBPR seeks to engage people as subjects, not simply objects, of health studies and direct resources and attention to the priorities of community concern. Even this rendering of community-based research deserves some scrutiny, for while it characterizes such efforts as positive in their ability to transfer power and decision-making to local actors, it also transforms 'activism' against a failed state rather than an artifact of that failed state. Both views of this work need to be kept on the table, as we will see, since this form of activism and research still depends on subjects of a particular kind – liberal subjects, subjects of rights, whose bodies can be valued in relation to the market and regulated in relation to the law, thus reinforcing the capacity for the state to remain in retreat. In Detroit the efforts of community groups were positioned from the start as forms of resistance to the state and to the retreat of the state, simultaneously.

In Michigan, the devolution of producing data on water shutoffs tell us much about what happens when government social contract institutions devolve to citizens and grass roots movements. Detroit Water Justice was asked often to advise other groups

trying to replicate the collective's research or to emulate it to explore other racial and environmental injustices. One prominent local leftist group organized a conference call with us in 2018 to organize a study in support of a lawsuit against the Department of Health. They told us they received an 'unredacted' list of more than 2,000 households in the city whose water had been disconnected in the last three months, and wanted to go door-to-door surveying people about whether they had since then experienced respiratory, enteric or skin conditions. One organizer asked Regina: "Well, we're trying to figure out if it's worth canvassing all of the 2,000 homes, or sampling from them, or doing a cohort and comparing to addresses without shutoffs, you see? What we really need is data that can hold up in court," he added.

Regina stepped in strongly: "Well my position is a little different… I'm not willing to rush research that may compromise people's freedom or their identities or custody of their children for a legal battle we may not win… Seems to me legal routes are the last resort because they usually take the longest and deal with the least. Any legal system that accepts systemic and irreparable harm, or says that harm to financial stakeholders is more severe is not a legal system that represents us." Instead, Regina advocated for a 'frontline' strategy driven by the experience of organizing and listening in the community, educating educators, and pressuring every nonprofit, journalist, and policymaker who reaches out for comment to center urban water affordability in the public discourse. Detroit Water Justice would come to call this methodology simply, The Way: "What we're trying to do," she explains, "is build people power with statistical power.… The goal *really* is to protect the people who are most marginalized," and "to inform, educate and

empower the citizens of Detroit to be able to live a full life." This is an ethics that stems not from a methodological protocol, fiduciary responsibility, or legal obligation, but a kind of promise.

What distinguishes the tactics and theory behind the work of this Detroit collective is that they are not aiming for community-based participatory research study, but *community-led collective research*. This is a critical distinction that enabled them (and enables me) to see how community research was also community activism in relation to the retreating state.

All members of the research collective were consented into a 'memorandum of understanding' that underscored the idea that all research was owned by and will be used for the benefit of the community, which maintained creative direction and 'veto powers' over publication and dissemination of the results. Given the intense politicization of the Henry Ford study, Detroit Water Justice became wary of partnering with state (or state-adjacent) institutions: "We never partner with institutions – only individuals," Regina said. "And only people we trust!" added Deanna.

The goal is to develop research that meets the highest scientific standards, knowing – as Dr. Elliott expressed – that otherwise the claims of Detroiters are dismissed as "extremist." The politics of respectability are such that Black scholars and women scholars –particularly those situated outside of academic institutions – know that the work must be unimpeachable to survive scrutiny. However, if the results "don't serve the people," then there is "no obligation to share." Regina summarized it boldly: "The difference between us and them is we're operating on equity and justice *with* the

community – not *for* anyone." Such are the tactics required of Community Based Research in an era where the notion of what can be demanded reasonably from the state is very little, wherein research is not simply about showing the state what is needed but wherein the research itself must be the provocateur for creating these institutions.

We see these tensions in one of the health impact studies I contributed to. The design of this particular study reflects a strategic appropriation of institutional resources towards collective ends – that is, both producing evidence for state-like infrastructures of aid and promoting the idea that such institutional resources should be in the hands of community members.

Documenting the [Disaster]

At the outset of this work, Detroit Water Justice set up a meeting with the newly-reopened Detroit Health Department. DWJ was told that the department did not have the money, nor the political clout, to investigate the health impacts of water shutoffs in the city. However, the Director, Dr. El-Sayyed promised his support if the community could "bring us [the city] the data." He made clear that 'data' in this context meant quantitative, statistically significant findings based on a random sample ("no cherry picking of a hardest-hit neighborhood") – typically very expensive and time-consuming criteria. DWJ needed a method that would allow us to survey the whole city, but so do quickly, cheaply, and reliably. The Centers for Disease Control has a toolkit that offered just that, the Community Assessment for Public Health Emergency Response (CDC 2013).

The survey was designed to be used in disaster settings, with a "just-in-time" training for canvassers, assessment sheets to document the physical state of housing, and

questions that measure immediate and underlying health needs, as well as whether households had enough food, water, medicine, transportation to survive three days without the state. I return to its methods below, but want to explore its framing first.

The toolkit includes a 'bank' of 150 or so available questions, including:

Demographics Q9. Did your household evacuate your home at any time during or before the [disaster]?

Damage and Repair Q2. Do you feel your home is currently safe to live in? 2b. If NO, why not? (check all that apply): Structural Hazards, Surface Dust, Air Quality, Fear of future [disaster], Other

Utilities 1. Do you currently have the following services in your home? (No/Yes/Never Had): Running water, Electricity, Garbage pickup, Natural Gas, Sewage service, Telephone (landline), Cell phone

Utilities Q4. Do you have access to a working indoor toilet?

Q4b. If **NO**, do you have access to a working toilet?

Supplies and Relief Q1. Do you have access to adequate drinking water for everyone in your household for the next 3 days?

Supplies and Relief Q2. What was your primary source of drinking water before the [disaster]?

Supplies and Relief Q3. If using WELL or MUNICIPAL water, are you treating the water? (No/Yes, boiling / Yes, chemical)

Health Q5. Has anyone in your household become ill since the [disaster]?

Health Q9. Since the [disaster], are emotional concerns preventing you or any member of your household from taking care of yourself/themselves or others? (CDC 2013)

Though the methodology seemed perfectly suited to this purpose, the language of disaster became the subject of much discussion at our first organizing meetings. In adapting the toolkit to the needs of the community, we had to figure out how to fill in the blank, asking: what exactly is "the [disaster]"?

We gathered to discuss how to adapt this toolkit, dealing first with what to fill-in for "the [disaster]." Perhaps we should individualize it, defining each household's disaster with their own shutoff date. But what to do for those who experienced multiple shutoffs? Should we ask only about the most recent, or the longest in duration, or the one that they feel impacted them most? Perhaps we should follow more standard surveying protocols and establish a set time frame, 'in the last 3 months' or 'in the last year.' Or, should it be temporally anchored to a central event, "the" disaster, which we could define either as the start of the escalated shutoff strategy, or to the Bankruptcy?

"How you could even say it starts there?" Liz interjects, "and not in 2008, or like, 1967?" She is being sarcastic, but it's a telling question. It theorizes the longue durée of disaster, suggesting that disasters not only unfold through history, but emerge as aftershocks of other catastrophic events. By referencing the 2008 financial crisis and the 1967 Detroit rebellion (known to outsiders as a "riot" (Kurashige 2017)), Liz points to systems disruption and social dislocations born from racial capitalism. She suggests that

there are no originary disasters, only aftershocks – that aftershocks are, in Saidiya

Hartman's terms, *afterlives* of racial capitalism (Hartman 2008).

It also flattens the distinction between disasters of different providence: for Liz, en

economic meltdown stands aside an urban movement rejecting racialized police violence,

and both are foundational to water insecurity. It is an approach that has precedents in

American history, as Congress has widely interpreted both "disaster" and "the general

welfare" to shuttle appropriations to economic crises at home as well as geophysical

events abroad (Dauber, 2003). While there are few hurricanes or earthquakes in this

region, the seasons bring intense, life-threatening freezes and equally severe heat waves –

the kinds of weather events that become "social autopsies," exposing the catastrophic

potential of underlying vulnerabilities, as Eric Kleinenberg has shown for Chicago

(Klinenberg 2015).[43]

This approach to disaster thinking is a fairy recent turn in social scholarship,

emerging in the late 1970s and 1980s as geographers, anthropologists and historians began

arguing that disasters were not simply "natural" events independent of social forces, but

derive from and expose the social and material disruptions of uneven development

(Oliver-Smith & Hoffman 1999; Barrios 2017). Many have drawn on Marshall Sahlins'

sense that disasters are "revelatory crises," exposing contradictions in a given social order,

elaborating Marx's thesis about the periodically disruptive contradictions inherent to

capitalism (Sahlins 2017 [1972]). Most of this work begins with the storm, tornado, or

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[43] Interestingly, the Henry Ford study mentioned earlier used the CDC's "Social Vulnerability Index" as a variable that it could *control for* – needing to negate underlying racial, class and environmental determinants of health in order to show causality between shutoff proximity and incidence of disease (Plum et al. 2017).

earthquake and traces their socioeconomic roots, though there is also strong interest in technological catastrophes under the specter of nuclear explosion. Here the team is taking on urban drinking water insecurity as a form of disaster – "it's a total disaster, because if people don't have water to live, everything is affected" – taking vulnerability theory to its limit point, suggesting that the underlying social and material inequality *is itself* the disaster.

The Flint water crisis helps crystallize this point, as it further blurs the line between 'natural' and 'man-made' disasters, by drawing on the social, infrastructural, and natural valences of drinking water. In fact, the State of Michigan organized a post-disaster assessment using the very CASPER toolkit we applied to Detroit, revealing the environmental consequences of government (Ruckart et al. 2019). That Flint has become broadly discussed as an 'environmental' consequence of corporate governance draws upon the Marxist tradition as well as more contemporary conceptions of the environment as not just the atmosphere 'out there,' but the fabric of material and social relations that are entangled in our body politics.

The CASPER toolkit offers this definition of disaster: "a serious disruption of the functioning of society, causing widespread human, material or environmental losses and exceeding the local capacity to respond, requiring external assistance" (CDC 2013). It is an open concept sense, purposefully allowing for broad interpretation and defining disaster by the scale of social impact. It also defines disasters by the local capacity to respond – an echo of the capabilities approach that Sen shows us is fundamentally related to poverty. The limitations on poor peoples' capacity to respond to social disruption make urban

poverty a preexisting template for disaster. The definition at hand, however, risks reifying

the distinction between the local and external, allowing the spatial and temporal

specificity of an emergency to overshadow the entanglement of political, social and

environmental forces at multiple scales. In emergencies, this distinction can be used to

justify the expansion of political domination of 'external' actors like the state, as in Naomi

Klein's "disaster capitalism" (2010) or entrench financial predation by corporations

through forms of what Vincanne Adams calls, in relation to recovery post-Katrina,

"second-order disasters" (2013).

In the organizing meeting, we decided to define "the [disaster]" as the incident(s)

of water shutoff specific to the household. For those questions that depend on reference

to an event, we felt this would best crystallize the physical and mental health impacts of

not having running water, even as we recognize the broader socioeconomic dynamics of

water insecurity. But in doing so, we also added open-ended questions to the survey,

allowing people to tell us the story of their shutoff(s) and describe its effects in narrative

terms, alongside the checkbox-style lists of physical and mental health symptoms.

To the toolkit bank, we added questions from prior DWJ surveying efforts, being

very mindful of ensuring the whole survey would take no more than fifteen minutes. We

wanted to add questions related specifically to the water shutoffs, questions developed by

Detroit Water Justice members over a number of years of work. It was important to the

organizers to avoid the kinds of "invasive" questions that you would be asked in a welfare

office – especially questions about income. Because income is so central to state

administration, including as a ready index to the infamous 'poverty line,' organizers were

especially suspicious of mimicking the 'searching eyes of the state' (Fairchild, Bayer, Colgrove, & Wolfe 2007). It was considered essential to be able to say to people upfront, 'We will not collect your name or address and we will not ask about your income,' and indeed it seemed to make an impact – even in training. Throughout the whole process, the state was present as a phantom that is needed but cannot be trusted, thus prompting activists to feel they needed to handle these things by themselves, once again.

The work of crafting citizen science and citizen-based forms of social security where the state has retreated is complex, and it involves many different approaches that enable this work to be legible to different institutions – even as this work reflects an underlying skepticism of them. The following ethnographic account is meant to highlight the amount of work needed to contextualize the survey so that it is legible to locals and suits the scientific, political, and geographic landscape of this [disaster].

Privacy as Protection

Using a federally-validated tool offered a template for respectability in a climate where the controlled lack of data and the production of doubt were being used leveraged against the community. Situating our study within an institution also lent it legitimacy – to state officials and community members alike – and modeled a process for ensuring that ethical standards were upheld as rigorously as scientific ones. In practice, the research collective found that the community's standards of human subjects protection were higher than those set by the university, even as that approval was a state requirement. Once again, this points to the mixed relationship that citizen scientists have to the state, which can assert its presence or impose its absence selectively. As the state's position may

shift with political winds, activists maintain strategic attachments while maintaining a critical autonomy.

Given that no identifying information was collected and the study offered no more than 'minimal risk' to participants, the study was deemed Exempt by the Institutional Review Board. Thus, the procedures set by the state were necessary but insufficient to the ethical proposition of the work, which in this political context, involved protecting the privacy of community members from disclosure to the state itself. Most important was the fear that a disclosure of information could expose families without running water in the home to the scrutiny of child protective services, which could remand children to foster care if the home was deemed an unsafe environment. Organizers also feared that city officials might use leaked information to disconnect residents whose water was running improperly, or criminally pursue those who had reconnected their home's water after a shutoff. We applied for a Certificate of Confidentiality from the National Institute of Health to protect the data from possible subpoena by the state in the event of legal proceedings.

To mitigate further against potential harms, volunteers were reminded several times not to write down addresses on any study materials, and to return all study materials to the organizers each day. We discussed blurring the boundaries of the study blocks surveyed so that even the block itself could not be positively identified, given the low occupancy rate in the city.

These issues were the subject of many hours of discussion among organizers, committed – perhaps to the point of paranoia – to protecting the privacy of participants.

This there is a double relationship at work – a desire to use state tools to certify damage in a form that is legible to the state, and also an explicit need to protect residents from the state. Recognition by the state is not enough. Instead, the collective designed the research as a means of realization of collective power and the demonstration of a collective ethics of care. In the following section, I walk through our adaptation and implementation of those protocols, attending to the challenges of translating these tools to the knowledge, ethics, and politics of the community.

Sampling: A Snapshot

The toolkit outlines a 'two-stage cluster sampling' method to randomly select households across the study area to survey. The study organizers ran the first stage of sampling in advance by running a weighted random sample of city blocks based on data from the most recent (2010) Census. We then located those 30 tracts in Google Maps, and brought aerial maps of each to the training. Teams of volunteers were given these maps and asked to perform the second stage of sampling, by counting the pictured rooftops and dividing by 7 to get a number, *n*. Each team would survey every *n*th house on the block so that 7 surveys are randomly collected in the end [Figure 2.1].
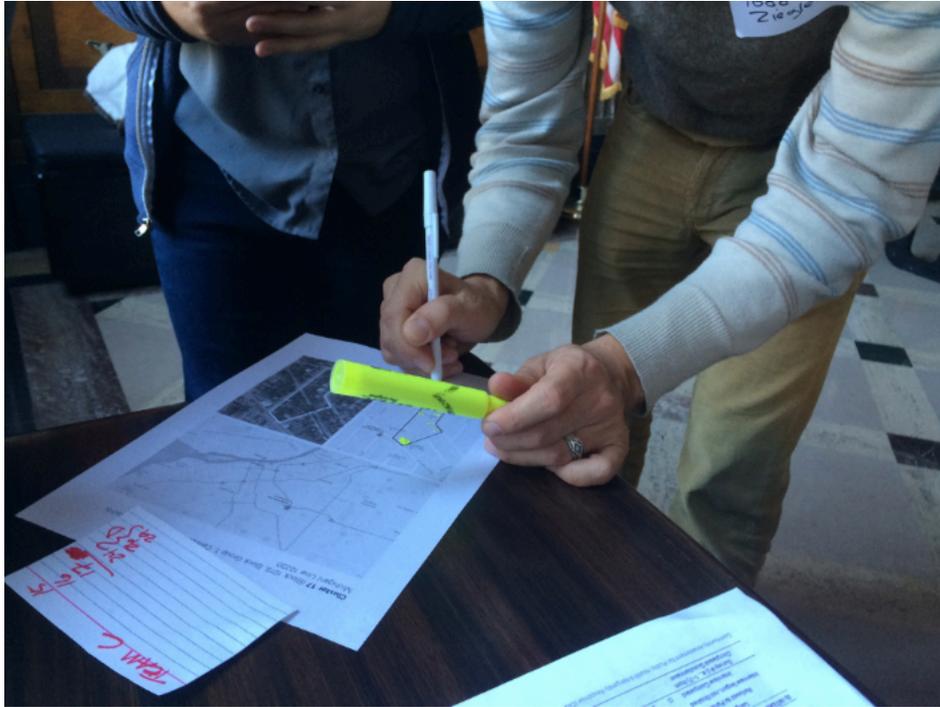
Figure 2.1: Volunteers mapping CASPER Clusters for community-led study of the health impacts of the Detroit water shutoffs. Author's Photo (November 2016).

The group was split up into canvassing teams of four, with some effort made to distribute people by age, gender, race, and tenure in the city. We wanted to have a Black member on every team, with longtime Detroiters insisting, from experience, that residents would be reluctant to speak with us otherwise. "People are suspicious, they're tired, they feel trampled, they may be scared," a volunteer reminded us in training.

Knowing that, the surveyors wore badges and vests to appear 'official' while making sure to dissociate ourselves from any state agencies within the first few sentences of our introductions. The way community members took race, gender, age, and relationship to the city into account when forming canvassing groups reflects on how the politics of recognition appear not only before courts of law, but also in the streets and on doorsteps.

Our efforts, however, would be virtually undone by conditions on the ground. A block reported to have 500 residents on the 2010 census looks to have no more than 15 when we arrive. So much has changed in the six years since the census was published, and I wonder the rate at which the effects of the 2008 financial crisis in particular are still unfolding. Sampling relies on a database and an image that each offer snapshot in time, a statistical representation of the world as it is that leaves the world as it unfolds unrecognizable.

Research as Realization

Early on a cold October Saturday, we arrived on Second Street, with an hour to set up before the volunteers came. A security guard let us into the stately art deco foyer. DWJ had paid a small donation for use of the space as our canvassing headquarters over the next four days. The task was to survey residents across the city of Detroit about their water access and household health issues in order to assess public health impacts and needs. DWJ wanted to "build our base," a phrase borrowed from social movement organizing and used here to refer to a base of evidence, and of volunteers.

Through the heavy bronze and glass front doors, we hauled in bins, bags, boxes and backpacks full of supplies. Ten minutes before people were set to arrive, Regina and Deanna were on their knees cutting the frayed rug and pressing duct tape over a long rip. "Damn, isn't it always the activists down here doing this?!" Regina says, half-joking but truly serious. "Now don't forget we're black women," Deanna added, "so we're always on our knees." Regina and Deanna burst into giggles as Rachel and I blushed with shame, but when Regina looks our way, still laughing, I feel that it's an invitation. I offer a sheepish

smile, which she returns with a full-toothed and totally warm one. This is a gesture of recognition of the power differential in the room, while forcefully calling it out; for us two, young, non-Black academics, it is a humbling gift that we try to reciprocate throughout the work.

Deanna had planned out a continental breakfast as well as bagged lunches for everyone volunteering their time, paid for with grant funds from the small nonprofit. Coffee with creamers, two kinds of juice, hard boiled eggs, mini donuts and fruit, nothing fancy. We had asked the volunteers to bring reusable water bottles for the day, reminded them to wear comfortable shoes, dress in warm layers - including a hat - and have fully-charged phones. For those who forgot or didn't have what they needed, Deanna brought back-ups: some large sweatshirts, gloves of various styles and wear, beanies, and a small case of bottled waters with the labels peeled off.

About 35 people filed in, a mix of activists, community members, and students. Deanna asks who's done canvassing before and 80% of people raise their hands. We had our own three hour "just- in-time" training planned, guided by the toolkit and my university's training materials. It began with an overview of the design and intent of the survey, engaged the volunteers in completing the sampling, and a mock interview to explain the questions and model a few canvassing scenarios.

Deanna gives the cue for everyone to quiet down – "Peace in the house!" – and dims the lights. Regina knocks three times on the wall, as if it is a door. Cynthia approaches and pretends to peek out of a slit in the doorway.

> R: Hi ma'am how are you? My name is Regina and I'm a community
> researcher with a project we're doing in the city of Detroit and your house

has been selected to participate in a survey to give us feedback on what's
happening with water shutoffs and public h--
C: Who sent you here?
R: Well basically it's a convening of --
C: You're not DHS are you?
R: No ma'am, we aren't, and in fact, we won't ask you any personal
information like your name, or financial information or anything.
C: Okay, I'll answer, just try to make it quick.
R: Yes ma'am. Have you received a water shutoff?
C: I have no water. It's shut off now.
R: How long has it been off?
C: About three weeks.

At this point, Regina puts the survey on pause. Still in character, she offers to call

DWJ's Water Rights Hotline to have cases of emergency water delivered to the house. The

choice to take care of her water needs immediately, rather than at the conclusion of the

survey (toolkit protocol) is deliberate. Regina shows us all to signal to residents that we

put their welfare above our research, even if research is oriented to that end in the

abstract. In an instant, she switches from public health assessor to first responder, and

back again, resuming the mock interview:

R: In the time your water was off, did you or anyone in your household get
sick?
C: Well look at me, don't I look sick?!
She says it so flamboyantly, so unexpectedly, that the room laughs. "I mean,
it happens, it does happen," Cynthia adds. The laughter has that same tinge
of acknowledgement, of recognition.
R: And anxiety or stress?
C: (just stares, with her head cocked to the side. The room erupts in full-
throated laughter. Cynthia turns to us and says, "You know you gonna get
that look on that question...") Yes I'm stressed right now, working this low-
paying job, overnight, barely can make ends meet. Yeah, I would say I'm
stressed.
R: Depressed mood?
C: Yes ...
R: Are you worried about the removal of a child or elder from the house?
C: No, but I'm worried about me losing my house and me being outside.

R: How often would you say you were stressed about paying your mortgage?
C: Every. Day.
R: How often would you say you were stressed about paying your water bill?
C: (In hushed tones) Every. Day.

Regina actually teared up. Deanna stepped in as moderator and tried to extract some teaching points for the volunteers. "What was the turning point, that led from you cussing her out to participating and having a conversation?" "The questions, it was the questions," Cynthia said. "She didn't ask me my name, she didn't ask how much money I made, she didn't ask if I had a boyfriend that could help me pay my bills, or do you have kids who can help you out? And that's what changed my approach to her, to where I felt in her energy that she was actually trying help me."

Safety in situ

Regina finished out the role play, reading through the rest of the survey with Cynthia. Afterwards, a collective member raised a hand: "Why are we asking residents if they feel safe in their house and secure in their neighborhood," she said; "What is that meant to convey, except that Detroit is an unsafe place?" It is a concern that had not come up in the study design. I explained that these questions were taken from the question bank, likely meant to refer to structural integrity and physical safety. She's still worried that could backfire, giving fodder to narratives of black criminality. We tenuously agreed to keep the question, but reserved the right to nix the question later if it would reflect the 'wrong' sense of safety and security. We also had an open "Why or why not?" question after each, which allowed us to better understand how residents themselves interpret such a loaded question. The majority of respondents both felt safe in their

homes and secure in their neighborhood, and the central reason expressed was familiarity. Many of these homes have been inherited from earlier generations, held in families from the postwar years, when Detroit became the city with the largest rate of African-American homeownership in the country. But most residents gave no reason at all; safety and security aren't easily explained on paper, but rather worked through in the rhythm of the neighborhood.

I experienced some of the subtleties of safety and care myself in the course of surveying. When walking up to a house, it's noticeable that most everyone has the blinds shut; some peek through them before coming to the door, others ask 'who's there?' from behind it. There are very few fences in Detroit. Most open their wooden doors, but leave the metal screen door locked; they can see and speak to us that way. Some quickly invited us inside, particularly on wetter days.

At one house, a young kid, maybe 10 years old, answered and we asked if an adult was available to talk to help us with a community-led study of the impacts of the shutoffs; "she said come back in 20 minutes," he told us, "but did you try next door?" We told him we had, but no one was home. "Give me one, I'll take it over there," he offered, much to our surprise. "Yeah, I always look out for my neighbors." Meanwhile, Deanna was always looking out for me. When we drove up to a new block, Deanna made a point to circle it twice before parking in front of the most 'held-together' house on the street. That night she taught me another bit of car safety when she knocked loudly on my window. "You're a young woman, clean car, out-of town plates, c'mon! Don't be sitting in your car alone!"

As we approached another house, the family of people in the font yard approached us, in a kind of V-formation. Before we could explain what we were doing, they shooed us away, clearly uninterested. Seeing a U-Haul truck and a water key in hand, I realized what was going on. I offered a postcard with the DWJ's water-rights hotline number on it, but the woman, recognizing that I recognized that they were reconnecting their water, refused it all the more firmly. Clearly, the most responsible thing to do was move along quietly. I realized in the moment why Regina insisted on keeping the photographers and journalists in her group; controlling the narrative is part of protecting residents, and central to both the ethics *and* the efficacy of the research.

Results Beyond Results

Of course, the methods and making of this study entail a number of limitations. The most apparent was structured into the sampling design. In effect, the second-stage of cluster sampling made no sense in a city so vacant; we had difficulty completing seven surveys per block even with canvassers knocking on every door. We had to extend our sampling frame and gather the crew together for a second round of research, months after the first, introducing the problematic dimension of time. This sampling structure, however, was necessary to suit the political demands of the day. The city, ultimately, is the jurisdictional unit of analysis, the owner and operator of the water system, and thus the legally-responsible state entity. However, the experience of water insecurity unfolds unevenly in the neighborhoods, revealing the looming disaster of systematic dispossession, structural violence, and urban abandonment.

The nature of this [disaster] also limits the possibility of quantification – even of discretely identifying health effects at the household level. A lack of running water is clearly a public health hazard – a fact that "should be obvious," say the local infectious disease doctors – but documenting incidents of specific illness related to specific, often small windows of water security, is difficult with a small sampling frame. It would depend on having the breadth of data that state agencies have, but also the political will and attention that these clearly do not. Activists, for example, continue to raise questions about the Hepatitis A epidemic sweeping southeast Michigan – the largest in the state's history – and whether it relates to widespread water shutoffs, a plausible cause. The city's Department of Health denies the connection, but has not undertaken any original research, and with the outright manipulations of health evidence to cover-up poor water governance practices in Flint, the level of suspicion among Detroit residents remains high.

For my part, I took these limitations very personally – as failures of a method I felt I had convinced community members to adopt. When we ran the data statistically, it wasn't robust enough to find the kinds of evidence the community would need in court. We did gather a good deal of anecdotal evidence, but in a world dominated by health metrics, "anecdotal evidence is seen to lie beyond the pale of quality" (Adams 2016). The metrics that were hoped would save the activist effort and give it ballast, in this sense, actually probably undermined them instead. Thus, despite the gains made by efforts to include communities and to let research be a point of engagement and action, our research survey could be read as the worst kind of community-based participatory

research, where a researcher with privilege and distance coerces the community into work that does not in the end serve them in all the ways imagined and hoped for.

Setting aside my personal laments – which I was able to do with the sustained love and support of the research collective – I began to recognize the failures as failures of form. Given the limitations of quantification, the complex experiences of water insecurity could not hold up to the specific demands of institutionally-recognized scientific research – particularly when the institutions themselves refused to lend their resources, data, and authority to such investigations.

These failures should be read not simply as artifacts of the instrument (as built in caveats of the statistics-oriented method). Rather, they need to be read as failures that arose from the larger context in which these instruments were deployed. That is, using community-based research under conditions of the retreat of the state will always potentially have this problem. The desire for evidence that the 'state' can recognize comes up against the desire for community action and the two cancel each other out.

Given the notions of rights and responsibility that the liberal state establishes between itself (as an over-determined abstraction of the state and its capacity to care for citizens) and the individual (as an equally reified artificiality that is taken as the site for evidence and for action), research methods that are designed by and oriented to the state cannot capture, in their "Results" sections, the scale and scope of the problems. This is especially true in the case of water insecurity as it is known in the communities of Michigan. These instruments cannot capture the complex textures of power as they are performed in local practices of care. Indeed, the outcome of the research and the court

rulings on these cases makes this abundantly clear. The Bankrtupcy court's ruling in this case, that no evidence of harm could compel the courts to grant residents a right to affordable water, offers telling testimony of this failure. So why did we do it?

Seeing like a Neighborhood

In Detroit (and also in Flint), the blurring of responsibilities that rightfully should be held by the state and the devolution of those responsibilities to an activist public reveal how problematic it is to assume that our methodologies should remain focused on state presences and absences. Rather we need to be focused on communities.

The challenge of "seeing like a neighborhood" is heightened under contemporary conditions of austerity, in this setting of state failure and epistemic opacity. Detroit Water Justice understands the limitations of statistical evidence both to represent experience and to secure substantive legal rights, and yet believe that building statistical power can serve to build 'people power.' Using the tools of the state to expose its blind spots, residents argue that disaster is endemic to the landscape, against which incidents of water disconnection are catalysts that make legible to the public what the poorest in Detroit already know.

In the end, the research did establish a significant baseline assessment of health vulnerabilities across the city, and in so doing offered empirical support for the call for a health moratorium. In fact, it enabled us to estimate that 80% of Detroit households would be exempt from shutoffs if such a moratorium were implemented. The suppressed

Henry Ford-DWJ study showed that the impacts of water shutoffs are collectively experienced, increasing the risk of water-related illness for all who live in the neighborhood, regardless of their water status. In another CRC study, we also showed that water insecurity has a significant impact on mental health, and that even the threat of shutoff from the city created significant psychosocial distress. Our collective research also uncovered an alarmingly high rate of bottled water use, even in homes with running water, out of distrust of the state and its aging infrastructures.

But, these 'wins' in the face of the more pressing and looming sense of failures is not enough to undue the ways that even activist efforts to do citizen science continue to be troubled by the built-in contradictions of this work. The process raised collective suspicions and fears, of repressive criminalization and state surveillance, of stigma and shame – even in the name of care.

In the process of putting together these studies, residents engaged in important and difficult negotiations about how to represent race, poverty and vulnerability; how to call out the epistemic violence of the state's power, despite needing (even wanting) the restoration of a strong state; questions about the meaning of public health and safety; and experiments in the provision of life-affirming social services. Constrained in their capabilities by local conditions of poverty and austere centralized power systems, residents nonetheless organize research and direct relief work that stands in for the withdrawn state. Though not a substitute for a central state, these projects are performances, or demonstration projects, of the collective ethics of care that this civil society demands. "The goal *really* is to protect the people who are most marginalized,"

Regina says, and "to inform, educate and empower the citizens of Detroit to be able to live a full life."

Assembling Blue/s Infrastructures
Black Geographies of Water Dispossession

In Detroit, "every neighborhood has a future, just not the same future." This is the mantra of *Detroit Future City*, the 300-page document that outlines a 50-year plan for Detroit's "revitalization." Wary of the resonances with urban renewal projects of the 1950s, the authors call it a 'strategic framework' rather than a master plan (Inland Press 2012). Mayor Mike Duggan calls it his "Bible" for redeveloping Detroit.

One of the hallmarks of Detroit Future City (DFC) is the creation of what are called blue and green infrastructure zones [Figure 3.1]. These "productive landscapes" are meant to help absorb some of the stormwater overwhelming aging drains and low-lying houses and overflowing into the watershed.

Detroit, like many metropolises in the early twentieth century, built combined sewer overflow (CSO) systems that integrated stormwater and sewage drainage in one system of pipes. All of the water that runs through city drains should be treated to a minimum environmental standard before being returned to the lakes, or purified further into drinking water that is delivered in a parallel pipes. However, as the region has expanded, paving over more of the earth's permeable surfaces, and as the rains have intensified under the pressures of climate change, the volume of rainfall that runs off

streets and into the storm drains has increased beyond their capacity.[44] These waste-waters pollute rivers several dozen times per year on average – well in excess of state and federal regulations – threatening aquatic ecosystems, public health and city finances alike.[45] Pesticides from farm runoff feed algal blooms in the Great Lakes, while bacteria from sewer drains carry infectious bacteria, including E. coli, and endocrine-disrupting chemicals, including pharmaceutical byproducts.[46]
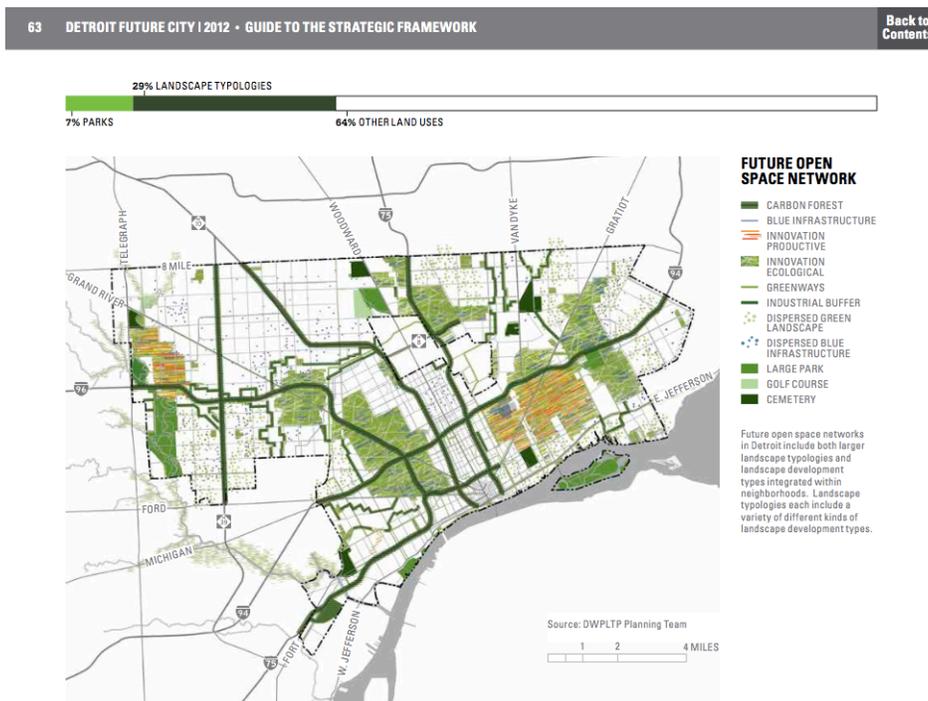
Figure 3.1: Detroit Future City projection of designs for "productive landscapes" in "future open space." Green & blue infrastructure zones are dotted throughout the map. (Inland Press 2012, p. 63)

[44] The combined sewer overflow problem is so urgent that as law professor Peter Hammer notes, one might think it is *the* most pressing challenge facing the city of Detroit (Hammer 2014) in (Safransky 2014, p. 239).
[45] The Department has been able to treat 95% of wastewater this way, but faces federal environmental sanctions over the remaining 5 percent. DWSD estimates it would cost nearly $1 billion to repair and replace its CSO system to treat 100% of the water that runs back into the river. Instead, it has requested an exemption from the EPA for this requirement if it can build enough 'blue infrastructure' to absorb this remainder in the ground before it reaches the sewer drains (City of Detroit 2012).
[46] Rains have increased 45 percent across the Midwest in the last five decades due to the impacts of a changing climate, including a 10-15 percent increase in annual precipitation in the Detroit area in the past 30 years. Detroit dumped 7 billion gallons of untreated sewage and 25 billion gallons of partially treated sewage into the Detroit and Rouge Rivers in 2011, the wettest year on record (Bienkowski 2013).

Not only are these transformations of the 'built' and 'natural' environments increasingly incompatible with any kind of hydraulic harmony, they are also seen as incompatible with the past, present and ongoing sea changes to the economic landscape of the region: "The current systems of water, energy, roads, and telecommunications are not sufficiently oriented to a new economy that focuses on less resource-intensive manufacturing and new service sectors," Detroit Future Cities tells us (Inland Press 2012, p. 23).

The enormous cost of treating all wastewaters to code is exacerbated by the dwindling base of 'water customers' in a city that has lost half its population since 1950, as well as the peaking pension obligations of the many New Deal-era city employees who are now reaching retirement. Though the waste-water infrastructure is the city's largest asset, the capital-intensive (which is to say debt-intensive) nature of its construction and maintenance makes it also one of the city's greatest liabilities.

With the city's emergence from bankruptcy, the Detroit Water and Sewerage Department (DWSD) has begun pursuing aggressive 'full cost-recovery' strategies, including raising rates, implementing a new drainage charge, and harshly enforcing shutoffs for those past-due on their water bills.[47] The city has gone so far as to put a lien on residential properties to force collections of these unpaid or overdue utility bills – a

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[47] Detroit implemented this new "drainage fee" in 2015 to much outrage, particularly from the faith-based community, as churches tend to have large, paved parking lots that, with these fees, would be prohibitively expensive either to maintain or to remodel. Several residents are suing the Department in a case that may reach the Michigan Supreme Court (Horan & Staff 2019). The fees require property owners to pay $750 per acre of impervious surface on their land. After months of backlash, the water department was forced to give churches a discount and retool the fee structure so that it increases to $677 over five years, starting at $150 (churches begin at $125).

striking policy exposed by citizen-led research, like that of We the People of Detroit's

Community Research Collective [Figure 3.2]. Nearly 100,000 households have been

disconnected to date, with an unknown number reconnected, and an uncounted number

forced into foreclosure from this attribution of water debt as property tax. It is a double

dispossession: of land, by water.[48]

Figure 3.2: Map of foreclosures attributable to water bill levy on property taxes in Detroit (We the People of Detroit 2016)

We the People's map serves as a counter image to DFC, forcing a reconciliation

with the racialized dismantling of neighborhoods that is the prerequisite for the future

development agenda of the city. The map reveals a concentration of water-precipitated

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[48] In the wake of Hurricane Katrina, the City of New Orleans pursued a similar strategy. The city mapped out 'Green Dot' zones where parks would be built on flooded lands, spinning it as an opportunity to "shrink" the city's footprint to reduce public costs (alongside primarily, policing). (Troeh 2015; Wolch, Byrne, & Newell 2014). This accompanies a broader re-eevaluation of waterfront properties; long considered too polluted for private development, riverbeds once sited only for public housing are becoming prime real estate. On the urban impacts of waterfront redevelopment see (Harvey 1989b; McGovern 2008; Sairinen & Kumpulainen 2006).

foreclosures in the outlying neighborhoods of the city, sparing the central commercial corridor, mirroring the gradient of poverty that runs along Woodward. What's more, it is in these same neighborhoods that *Detroit Future City* envisions (re)developing a slate of water retention ponds, bioswales, and canals – *leading residents to fear they are being displaced and replaced by water*. Following their insight, I illustrate how water is being used to redouble a spatial politics of inclusion and exclusion long after housing discrimination on the basis of race was 'outlawed' in the United States. Rather than redlining, I propose that today a process I call *bluelining* is reshaping urban geographies, materializing the reproduction of racial residential segregation by other means.[49]

This chapter explores the retooling of Detroit's water and wastewater infrastructures within the current of postindustrial urban redevelopment, proposing that we need an expanded sense of both water and infrastructure to capture the racial and spatial politics at hand. While the media has focused quite rightly on the injustice of leveraging mass residential water disconnections over a population mired in poverty, few have situated the shutoffs within a contemporary politics of nature that enables us to account for the physicalities and performative practices through which hydraulic relations are remaking urban life. I am less interested here in water's "greening" or even

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[49] Bluelining has special significance and meanings as climate change and its catastrophes accelerate, but we also find it as a historical undercurrent of redlining in cities like Austin, TX: "The City Council of Austin decided that they needed a comprehensive city plan and zoning map in 1927. One of the leading objectives of the all-white Council was to find a way to encourage residential segregation and find a way to compel Black families, who at that time were living throughout the city, to move to East Austin. The city used techniques such as eliminating utility services in certain areas where Black citizens lived in order to force them from their homes and neighborhoods. Private developers then purchased these areas at very low prices and built new roads, homes, and commercial buildings. When these same neighborhoods "re-opened," higher rents and restrictive covenants prevented African American families from returning" (Straubhaar 2012; Clio n.d.).

greenwashing[50][51] effects than I am in its parallels with *redlining* and its effects on black

health and black life.[52]

Redlining was a formal practice of demarcating certain urban areas more and less

"risky" for investments based on the racial makeup of the residing communities. The term

stems from policies developed by President Franklin Roosevelt's Home Owners Loan

Corporation in 1933 and inscribed in the 1937 Fair Housing Act, which established the

Federal Housing Association (FHA). The FHA, the nation's largest lender,

institutionalized a refusal to back home mortgages to African-American neighborhoods,

shaded in red, supporting investments in whiter, wealthier districts [Figure 3.3].

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[50] On urban agriculture, green infrastructure, and other sustainability efforts as facilitators of a kind of "green gentrification" (Checker 2011; Dooling 2009); in Detroit, see (Clement & Kanai 2015; Montgomery 2015); on shrinking cities as "urban triage" see (Kirkpatrick 2015); on the "future" in Detroit's redevelopment as a blank slate erasing the city's racial past, see (Cummins, 2016).

[51] In fact, many activists advocate strongly for green infrastructure, but as a means of supporting, rather than displacing, black neighborhoods. Charity Hicks, founder of the People's Water Board Coalition, spoke to filmmaker Kate Levy about "letting the water seek its level naturally" and the uncovering of what are called Detroit's 'Ghost Rivers': "When Antoine Delamont Cadillac got here, was six creeks – [including] Savayard, Baby, Bloody – and if you look at the old creek network, we paved over 100% of it, but they're still running, just under the surface. We want the city of Detroit to uncover that natural hydrology so we can access some of that." (Levy, 2014). See also (Goldenberg & Lewis 2013).

[52] DFC does have greening / ecological decontamination as an objective: "Further contributing to market struggle and health concerns are the 72 Superfund sites located in Detroit where the unmanaged industrial legacy of the city has created a range of areas with measurable hazardous waste that must be cleaned up before the land can be reused" (Inland Press 2012, p. 215)
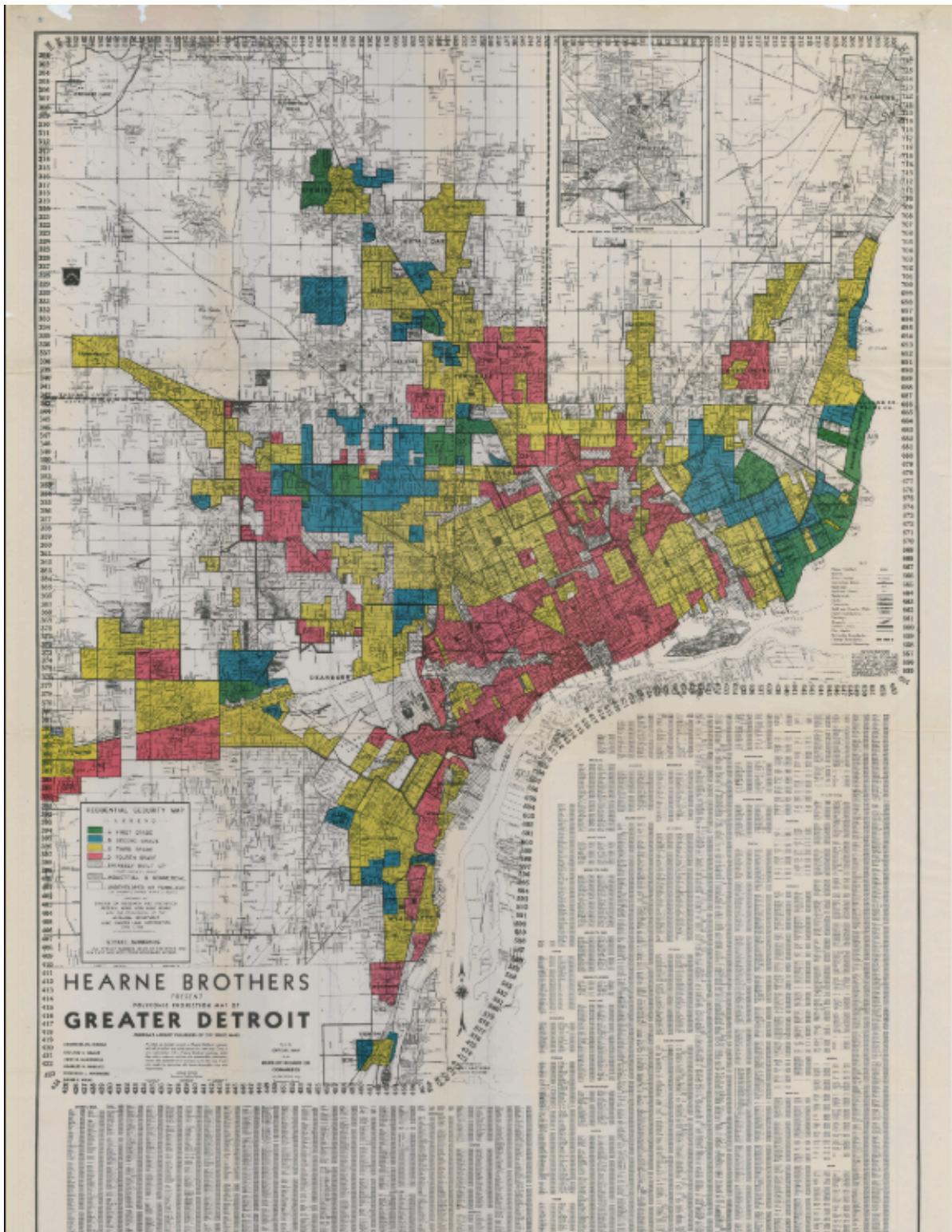
Figure 3.3: Home Owners Loan Corporation (HOLC) Map rating Detroit, MI neighborhoods by "Residential Security", Federal Home Loan Bank Board Division of Research and Statistics (HOLC 1939)

Crucially, these policies subsidized the exodus of the wealthy from cities altogether, even as regional suburbs remain anchored in the cultural and material infrastructures of the city (Sugrue 1996; Soja 1980). Alongside restrictions on lending, racially-restrictive covenants written into the property deed barred "anyone not of the Gentile and Caucasian races" from buying, or even occupying, certain homes.[53] Though these practices were eventually outlawed[54] their legacy continues to pattern the racial geography of city landscapes, reworked not only in the domains of law and policy, but also in the material fabric and social ecologies of urban environments.

To this effect, I want to explore the notion of *bluelining* as a means of thinking about the racialized remaking of urban geographies through the politics of water. Unlike redlining, bluelining refers not only to a political and financial reengineering of urban space, with its explicit legal sanction of discrimination, but also the biophysical forces that restructure urban space through new water-related accumulations and dispossessions. Following water through these transformations allows us to see how prevailing conceptions of race, rights, and residence become remixed amidst new considerations of economy and environment. I am particularly interested in how the

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[53] This language was deliberate so as to also exclude Jewish and immigrant "whites" from certain areas, depending on the biases of the individual property owner and neighborhood associations, and whether and how well a family could 'pass' for white. See (Freund 2010). Interestingly, immigrant communities carved out the municipal enclaves of Hamtramck and Highland Park within the city itself, achieving segregation without suburbanization (Sugrue 1996).

[54] The Supreme Court finding that nullified racially-restrictive covenants actually did not actually find the practice unconstitutional. In *Shelley v. Kraemer* (1948), Supreme Court held "that the [racially] restrictive agreements, standing alone, cannot be regarded as violative of any rights guaranteed to petitioners by the Fourteenth Amendment." Instead, calling on the state to enforce these private contracts would require discriminatory state action and on that basis negates these agreements because they cannot be legally enforced. The Supreme Court of Michigan ruled similarly in *McGhee v. Sipes*, a companion case to *Shelley v. Kraemer,* involving an African American family in Detroit (Shelley v. Kraemer 1948).

enclosure of water as a public commons engenders new exposures (to disease, to

incarceration, to eviction, to depression), and in turn, new modes of living in common in

changing political-ecological climates. In this sense, what the United Nations calls the

"retrogression" of water and sanitation access is not only subtractive, but also productive

of new infrastructures of collective living in urban space.

Theoretical Terrains

    Infrastructures are more than the sum of their parts (Anand, Gupta, & Appel 2018;

Larkin 2013), and often a "splintering" sum, at best (Graham & Marvin 2002). Though

urban planners design infrastructures to be centrally controlled by bureaucratic

institutions (Scott 1998) and hydraulic infrastructures in particular have historically

centralized the power of state administrations (Meehan 2014; Wittfogel 1957), they

nonetheless disrupt the presumptions of contained, frictionless interconnection that

modern technopolitics presume (Anand 2017; Collier 2011). Though it proceeds under the

race-neutral valences of economic rationality and environmental sustainability, the

restructuring of public water and sewer services in Detroit after bankruptcy and under

emergency management is very much a "racial project," in Michael Omi and Howard

Winant's sense of the term: "simultaneously an interpretation, representation or

explanation of racial dynamics and an effort to reorganize and redistribute resources

along particular lines" (Omi & Winant 1986, p. 56).

    (Gandy 1997) claims to "drinking water" as such (who has access, how much it

costs, is it safe, and so forth) but a rejection of the escalation of dispossessions through

neoliberal policies and practices of water management. At issue is an inquiry into

(re)organization of the dynamics of urban life, governed through one politics of water and survived through another. Even water as a 'thing in itself' becomes nuanced by reading it genealogically through modern sciences of hydrology, sanitation and global development discourses, as well as understanding it materially and socially as a relation of actions, legacies, pipes, norms and affects (Björkman 2015; Gandy 1997; Kaika 2005). Water takes on many forms not only in the well-charted hydrologic cycle – changed by evaporation, condensation, precipitation, transpiration and percolation – but also in the dynamic and relational "hydro-social cycle" (Swyngedouw 2004) – as drinking water, rain, runoff, ambient humidity, suffocating humidity; as reservoir of serenity or trouble; as a medium of life, death and salvation. The point is not to attempt the impossible task of classifying the infinite, ubiquitous hydro-social configurations, but to insist on the inseparability of the physical and social in how we understand water and the claims made to and through water infrastructures (Bakker 2003b; Heynen et al. 2006; Swyngedouw 2006a).

These and other 'new materialist' approaches reminds us that built environments are not pre-given, fixed physical objects but *processes* in flux and flow of social life, dynamic assemblages that enfold and unfold in space (see also Amin 2014; Anand 2017; Bennet 2005). This emerging attunement to the politics of 'things' complements the historical materialist approach to urban space, in which critical geographers, following Henri Lefebvre, emphasized the *production* of urban life over the prescripted planning of city governors (Lefebvre 1992 [1974]). Space appears for these thinkers as the product of the complex, creative labors of urban actors, whose fundamental (human) right to the

city is based not in their status as citizens but their reworking of social space (Harvey 2012; Lefebvre 1996 [1968]; Harvey 2008).[55]

While critical theorists of science and technology show that the production of urban space is not only the product of conscious human action, but a choreography of "lively" matter, critical theorists of race insist that the (re)production of urban space is never separable from the legacies of domination that are shaped by, and sustained in, place (e.g., Massey 2005; McKittrick & Woods 2007; Omi & Winant 1986; Sibley 2002). Rather, as Katherine McKittrick argues, it is "social processes that *make* geography a racial-sexual terrain" (2006, p. xiv).[56] Writing against a legacy of the conceptual erasure of black spaces as "ungeographic" and the ongoing displacements of black populations, the "black geographies" approach/reproach to "traditional geographies" understands instead that the production of space is always achieved – and also contested – "alongside and across" racialized geographies of domination, in the temporal frame of an ongoingness (see also Camp 2009). Christina Sharpe draws on many senses of "the wake" – as in the period of mourning after a funeral and the waves left behind a ship – to understand this 'residence time' of black displacement as a long *duree* of the disaster of slavery that

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[55] The study of urban water practices also pushes us to move beyond the masculinist, anti-environmentalist, race-blind 'new humanism' that has marred much Marxist critique. Consider Lefebvre: "[Only the proletariat] therefore has the capacity to produce a new humanism, different from the old liberal humanism which is ending its course – of urban man for whom and by whom the city and his own daily life in it becomes oeuvre, appropriation, use value and not exchange value, by using all the means of science, art, technology and the domination over material nature" (Lefebvre 1996 [1968], p. 180).

[56] For Manuel Castells, the increasing integration of networked societies – with which we can think of water as a formative network for metropolitan regions – portends a kind of frictionless inclusion, but belies selective exclusions: "Valuable locales and people will be found everywhere, even in sub-Saharan Africa. But switched-off territories and people will also be found everywhere, albeit in different proportions" (Castells 2010, p. 390). The addition of "even in sub-Saharan Africa" reflects the continent's 'real' historical marginalization in the value system of the global economy even as it reflects many critical Marxists' relegation of race as a secondary or 'superadded' feature of the production of space.

endures, in and through world-making waters (2016). David Delaney uses Toni Morrison's

phrase "a wholly racialized world" (qtd. in Delaney 2002, p. 6) to affirm that "there is no

'outside' to racial geographies" (2002, p. 7).

Paralleling these works, I attempt to adopt an ethnographic approach to the urban

politics of water inspired by medical anthropology, actor network theory and black

studies alike, as they converge in the *environmentally-mediated* "state-sanctioned or

extralegal production and exploitation of group-differentiated vulnerability to premature

death," inflecting ecological dynamics into Ruth Wilson Gilmore's incisive definition of

racism (2007).[57] By "following the actors" in fluid and racializing assemblages (Latour

2005; Weheliye 2014), I engage water as an object but also method of inquiry towards a

characterization of how racial matters come to matter in contemporary urban life.[58] This

critical approach also elucidates as well how ontologically-negated subjects of racialized

regimes engage reflexively with this object-oriented ontology to sustain social life against

the tides of social death. It takes as axiomatic McKittrick's premise that "black matters are

spatial matters" (2006, p. xiv), and works in solidarity with the coincident activist

contentions that "Black Lives Matter" and "Water is Life," considering how life is made,

and differently made to matter, in and through assemblages of humans, natures,

infrastructures and ideologies.[59]

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[57] See also (Pulido 2000).
[58] Color as a modality informs the chapter in many ways that could be elaborated. Colors, as a condition of perception and classification, are deeply symbolically invested, informing ways of knowing race, including map-making, social marking, and stereotyping. What I am tracing is a shift in the politics of the color line from the attribution of physical difference through skin and hair color (black and white) and the legal system (black and white) to a reproduction of racial difference through the environment (green and blue).
[59] New materialist theorists rarely go so far, excluding gesture, aesthetics and ideology from the 'lively matter' of urban assemblages. Ian Whitmarsh argues that the 'politics of things' advanced by Bruno Latour,

The recognition of drinking water and its infrastructures as inextricably

hydrosocial thus not only speaks to "the production of urban space as an oeuvre"

composed of nonhuman as well as human actions, but also suggests an understanding of

environment that cannot be uncoupled from the dynamics of racial capitalism (Pulido

2000) – a political economic tradition that structures not only the distribution of

resources among people but the very 'nature' of those resources in the production and

reproduction of social worlds. That is to say not only are urban and nature inseparable,

refuting as Latour calls it 'the modern constitution' that separates the social from the

physical world (Latour 2009; Latour 2012), but 'urban natures'[60] themselves are racial

formations, not only landscapes onto which populations differentiated by law and policy

are superimposed.

The extent of shutoffs across Detroit reflect how market-driven governance (in the

water department's parlance of "full cost recovery") creates new premises for

dispossession, layered on top of legacy discrimination – a pattern consistent with the

neoliberal administration of nearly all public services, as many scholars and activists note

(Gilmore 2002; Marston & Mitchell 2004; Peck & Tickell 2002; Swyngedouw 2006b). But

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Annemarie Mol and many other object-oriented ontologies emerging in contemporary anthropology challenge "any too easy reliance on either social construction or a straightforward empiricism" and yet are nonetheless "exceedingly mechanistic…united by their eminent rationality" (Whitmarsh 2019). Instead, Whitmarsh turns to Lacan's sense of 'the real' as that which is 'under the law', an originary lack or loss that precedes and saturates the world made recognizable to concern. For Whitmarsh, gods, utopian ideals, and nightmares are generative, structuring forces that are founded on unreason. I address the ways water runs through these im/material and il/liberal logics in Chapter 1.

[60] Gandy uses urban nature and urban ecology synonymously, writing: "An 'urban ecology' is by definition a human ecology and is no more or less "natural" than any other kind of modern landscape whether it be a managed fragment of wild nature in a national park or those accidental pockets of nature of the type that [the artist Lucian] Freud observed [in portraits of a bomb site blooming with new botanical life]" (Gandy 2006).

water is not like any other public service, and its morphoplogy – its many forms –

uniquely informs the production of urban space, as I hope to show. Moreover, its

symbolic and biophysical relationship to life, as I explore in Chapter 1, informs the politics

of water's relation to social life and social death. Indeed, the politics of water extend

beyond water *policy*, confined within the sphere of electoral politics or the pipes of the

formal system. Instead, water *as* politics reveals a choreography of social power and

hydrologic properties that continuously enfold history into the making of urban life (just

as emissions of fossil fuels physically engender new climates). It is within this domain of

politics that those excluded from the public commons and denied access to the most

fundamental resource of urban life assemble the conditions of possibility for new politics

and new socialities where the promises of modernism and the guarantees of liberal

citizenship have failed.[61]

Those excluded from the city's water system by policy – despite property, rights

and citizenship – nevertheless engage in urban water politics, assembling water just as

(and precisely where) water overflows the bounds of modern infrastructure ideals and

(neo)liberal governance. These sites of excess and overflow point to spaces of possibility

for new (hydro)socialities and new types of politics, assembling what I call 'blues

infrastructures' of collective care and survival against the existential threat of

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[61] As the modern "state hydraulic" paradigm of centralized, government-controlled water supply, sanitation and regulation, its conceptual tools are no longer adequate to understanding urban water governance (Anand 2017; Bakker 2003a; Björkman 2015). While much of the literature challenges this paradigm by showing how cities in the so-called developing world have 'yet' to realize its promise, water systems of the global North are presumed to fit the model well. The disrepair of Michigan's public drinking water systems offers an important corrective to the literature and the presumptions of the "modern infrastructural ideal" on which much of it is based. The racial politics materialized through the reworking of urban water systems pushes even further, suggesting that as a key element of life, water is an agent, as well as an object, of contemporary urban (bio)politics.

dispossession from and through water. Drawing on Clyde Woods' blues epistemology (Woods 2017 [1998]; Woods 1998), I refer to these alternative, often underground, hydrosocial assemblages as "blues infrastructures" in order to situate them within the tradition of the blues – not solely as a genre of music, but also as a cultural genre of critique and resistance.[62] For Woods, the blues epistemology is a form of social explanation emerging with the Reconstruction generation of African Americans as they struggled to understand and survive the ongoing, mutating powers of the plantation after the Civil War. The blues are a performative theory and practice of black life rooted in resistance to social death that it names as fact and yet strives to survive.

By exploring the idea of blues infrastructures, I try to at once extend theorizations of the 'survival strategies of the poor' (e.g., Edin & Lein 1997; Scott 1985) to acknowledge the creativity, love, even ecstasy that blues artists express amidst the sorrow of their lives (see also Baldwin 2011 [1964]; Davis 1999; Ellison 1945) and suggest that these strategies, however improvisational and informal, do not simply evaporate, but echo, indexing a kind of (under)common(s) care that makes black social life durable.[63]

Contrasting *Detroit Future City's* plans for blue infrastructure zones against these blues infrastructures, I suggest that as modern infrastructures of public health and safety

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[62] James Baldwin expresses this inseparable separation: "The title 'The Uses of the Blues' does not refer to music; I don't know anything about music. It does refer to the experience of life, or the state of being, out of which the blues come" (Baldwin 2011 [1964]).

[63] Here I am riffing off of Latour's definition of technology as "society made durable" (1990). I am exploring what it would mean to think of social action across the technology/society divide, just as I am thinking of water's materiality as a social force, engaging the "analytical symmetry" that the strong programme of science and technology calls for while recognizing the material resources offered by the blues as black art. I return to this in the final section of the chapter.

are disassembled or dissolved, the form and performance of these 'blues infrastructures'

constitute a new materialist politics of (black) care in a climate of (antiblack) austerity.

Materializing The Color Line

The politics of race invoke a politics of color, in more ways than one. As W.E.B.

DuBois famoulsy wrote in 1899, "The problem of the Twentieth Century is the problem of

the color line, the question as to how far differences of race, which show themselves

chiefly in the color of the skin and the texture of the hair, are going to be made, hereafter,

the basis of denying to over half the world the right of sharing to their utmost ability the

opportunities and privileges of modern civilization" (2014 [1899]). There can be no doubt

that racial difference has been used to deny homeownership to African Americans

throughout the twentieth century, as DuBois predicted, though how skin color, hair, and

other features become 'differences that make a difference,' to paraphrase Stuart Hall

(2007), changes as discourses and practices of American racism shift.[64] "Racism is like a

Cadillac," Malcolm X quipped, "they come out with a new model every year." The modes

of racializing urban geographies are once again shifting as we enter a twenty-first century;

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[64] DuBois' idea of the color line is sharpest when he calls for its abolition; fifteen years later, in a reply to an address given at the symposium, "What is Americanism?" DuBois writes: "Americans in the immediate future should place most stress upon the *abolition of the color line*. Just so long as the majority of men are treated as inhuman, and legitimate objects of commercial exploitation, religious damnation, and social ostracism, just so long will democracy be impossible in the world" (DuBois 1915, p. 463). For a reconsideration of the color line with respect to global colonialism and changing labor relations, see (DuBois 2014 [1925]; DuBois 1999 [1899]).

in this new light, water refracts the (black and white) problems of the color line into a

prismatic spectrum of (blue and green) ecological and economic concerns, as we will see.

Mapping the Water Crisis

We the People of Detroit's graphic of homes put at risk of foreclosure due to water

debt [Figure 3.2] is a color-shaded counter-map of the city's redevelpoment. It shows how

urban planning's spatial aspirations encode racial reorganizations, leveraging an imposed

water scarcity to pursue evictions and foreclosures throughout black communities. The

DFC map, on the other hand [Figure 3.1], presents the potential of these 'vacant lands' to

be put to new use as "productive landscapes" for managing water surplus in the form of

urban floods. It envisions returning "natural" forest and water terrains to a city

characterized by its concrete footprint. As DWSD Director Gary Brown boasts, "We think

that we have the ability in Detroit to become the greenest city in America because we

control forty percent of the land. We think that's a great opportunity" (Brown 2017). The

question of how that land came under the city's control is all but erased in the

conversation about how to 'revitalize' Detroit; where the city sees opportunity, the

community sees oppression and the spoils of dispossession.

Brown and *Detroit Future City* planners share in the philosophy of "right-sizing."

Originally coined in the context of corporate layoffs, right-sizing promotes strategic

disinvestment of sparsely-populated areas in order to minimize the costs of supporting

and servicing "surplus" land and infrastructure (Newman & Safransky 2014). A flyer made

by the People's Atlas project in Detroit makes the racial consequence of this philosophy

visible under the bold headline, "Strategic Renewal is Right-sizing." It claims that only

47,600 people live in zones targeted for upgrading, while 137,300 – one out of five Black Detroiters – live in areas slated for disinvestment and removal of infrastructure (qtd. in Newman & Safransky 2014, p. 25).

At least 24 of Detroit's 139 square miles of land are currently "empty," and estimates show that another six to nine square miles host unoccupied buildings slated for demolition. Adding in the municipal parks the city no longer maintains and abandoned rights-of-way like abandoned railway lines, estimates suggest that 25 percent of Detroit – an area larger than Manhattan-- is vacant (Gallagher 2010). But vacancy cannot be taken for granted, even as it remains a salient feature and urgent problem for the city. These buildings, homes and parks have been *vacated* by decades of disinvestment, discriminatory policies, and the promotion of suburbanization at the expense of the metropolis.[65] Thus when *DFC* describes these areas as "largely vacant" they are eliding the fact that they are still partially inhabited.

Moreover, the math on Gary Brown's argument just doesn't add up. When pressed on the subject of Detroit's shutoff policy, the Director suggests that it is predominantly a way to re-enroll paying customers into the system. As he told me in an interview: "If we put 1000 shutoff tags, I know 300 will come in and pay the next day -- and have no problem paying. I shut them off, they come in, I shut them off, they come in... and on like

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[65] The vacating of Detroit is particularly striking given that the city had the nation's highest rate of African-American homeownership in the postwar years, despite the fact that black families were historically prevented from accruing wealth through mortgage discrimination, racial restrictive covenants and other 'redlining' techniques (Amadeo 2019). From 1934 to 1962, 98% of home loans went to white families. This legacy is particularly devastating considering that most family wealth is held in home equity, on the decline amongst Black American families (Darity Jr. et al. 2018). Estimates are that median black wealth in the United States will reach *zero* by 2053 (Institute for Policy Studies and Prosperity Now 2017).

that until it sticks" (July 2017), he said. Or do they move? No effort is made to track the number of residents who leave the city as a result – by choice or force. Instead, Brown's comments reveal the inadequacy of DWSD's shutoff strategy; 700 of the 1000 houses by his estimation cannot afford to pay their bills at all. And by his own admission, of the 300 who do "come in," many cannot keep up with the payments -- even on the department's assistance programs -- and face repeated disconnections.

Subtle signs of these disconnections are scattered throughout the city, including blue lines spray-painted on the curb in front of the home. DWSD insists these lines simply mark the location of the stop box, where public and private lines meet. To residents and researchers alike, they represent the city's pervasive shutoffs and serve in anecdotal accounts and urban legends as symbols of forced disappearance and social death [Figure 3.4].

Figure 3.4: Blue line spraypainted on a Detroit sidewalk (Jean 2016b)

The Ongoingness of the Urban Crisis

      The tactics used to dismantle Detroit's black neighborhoods are part of a longer history of 'urban renewal' efforts in the 1950s and 1960s, followed by decades of "planned abandonment" (Woods 2017) under neoliberal policies that attempted to govern urban citizens by way of their fiscal contributions, their participation in markets and taxable forms of productivity. These 'reforms' have ongoing impacts on the livability and layout of the urban landscape today.

In his seminal history of postwar Detroit, *The Origins of the Urban Crisis*, Thomas Sugrue traces contemporary structural problems of racial and economic inequality to the mid-twentieth century. For Sugrue, the paradox of New Deal liberalism is that it created unprecedented opportunities for African-Americans even as it actively fostered racial segregation (1996).[66]

In the first half of the twentieth century, urban planning concerned itself primarily with infrastructure, parks and other public works, enforcing only basic regulations of sanitation and fire safety in the private sector. Sanitary concerns were limited to preventing contagious diseases, leaving chemical pollution almost entirely unregulated; in many cases sanitary waste disposal has itself been a major source of pollution, negatively affecting environmental and human health. After WWII, the purview of city planning turned on its head, leaving others to design and build infrastructure while substituting the judgement of the market for that of city planners when desining the local economies of neighborhoods (Salins 2018).

As the public side of postwar planning became routinized into civil administration, control of, and funding for, these projects came increasingly under the purview of state and federal governments. By 1956, the federal government covered 90 percent of construction costs for highways, leaving cities and suburbs to negotiate new bonds to expand the water pipes running beneath (Semuels 2016). Highways not only allowed suburbs to siphon from cities' tax bases, they left cities to pay for the costs many times

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[66] Remarkably, Sugrue shows that white homeowners not only hampered black civil rights by siphoning resources and power from urban economies, but actively coopted the language of rights to secure racial segregation within suburban enclaves of wealth (1996, pp. 78-79).

over, from the asphalt footprint to the toxicity of exhaust plumes. Water and sanitation

systems uniquely reflect the unequal legacy of suburbanization and white flight because

the systems are networked through nodes that remain anchored in the central city. Urban

rewnewal programs, and the federal subsidies that supported them, thus devastated

Northern cities in large part by overtaxing water infrastructures physically and

undertaxing them financially (Duffy 1992; Melosi 2000). Indirectly, as well as directly,

suburbs received "the lion's share" of public and private investment in the postwar years

(Sugrue 1996).

The federal government dramatically altered both municipal land-use practices –

standardizing and popularizing restrictive zoning ordinances and promoting the use of

eminent domain in 'slum neighborhoods' – and the private real estate market, organizing

mortgage insurance policies that disincentivized, when it did not outright deny, loans to

people of color and lending in neighborhoods that were predominantly non-white.

Crucially, however, as Freund notes, while the government played an unprecedented role

in subsidizing suburban growth, it downplayed its own role, invisibilizing the hand of the

state in shaping the market and steering wealth and advantage towards white

communities (2010).

In addition to subsidizing segregation by suburbanization, the heavy hand of the

federal government was also applied within cities themselves, reorganizing urban housing

landscapes through "redlining" and "slum clearance." To facilitate the clearance of multi-

ethnic neighborhoods considered 'blighted,' the American Housing Act of 1949 undercut

protection and compensation for landowners, rapidly expanding the use of eminent

domain. Several of Detroit's Black Bottom and Paradise Valley neighborhoods were destroyed this way. An archive of images filed by the Sandel Insurance company in preparation for Black Bottom's erasure was recently recollected by architect and community activist Emily Kutil. Her arrangement of the images into a "street view" style exhibit offers a haunting testament to the lives erased to make way for I-375 (Kutil 2018).

While planners praised revitalization efforts, often under the auspices of improved sanitation, Black Americans saw it differently. In a televised interview, James Baldwin reflected:

> A boy last week, he was sixteen, in San Francisco, told me on television — thank God we got him to talk — maybe somebody thought to listen – He said, "I've got no country. I've got no flag." Now, he's only 16 years old, and I couldn't say, "you do." I don't have any evidence to prove that he does. They were tearing down his house, because San Francisco is engaging — as most Northern cities now are engaged — in something called 'urban renewal,' which means moving the Negroes out. It means Negro removal – that is what it means. The federal government is an accomplice to this fact. (1963)

The razing of whole neighborhoods in cities across the country, and particularly along the Midwest's manufacturing belt, fomented intense resentment among the majority-Black residents whose property rights, cultural heritage and economic security were ripped up, so that urban renewal – also known as "negro removal" [67] – became a major force driving the Detroit Rebellion – locally remembered as the 1967 Riots. That these histories are told under different names remains a marker of power and positionality, with Black

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[67] DFC promises a means of "developing landscape as 21st century infrastructure to transform vacant land areas into community assets that remediate contaminated land, manage stormwater and highway runoff, and create passive recreational amenities to improve human health and elevate adjacent land values—all without residential displacement, a big change from the urban renewal efforts of the 1960s and 1970s" (Inland Press 2012). Yet changing water infrastructures means changing the livability of the landscape; the city may not need eminent domain, and it may not have to. One high-ranking city administrator, a friend, confirmed as much; early in fieldwork, when I mentioned a concern among activists that the shutoffs were deliberately organized to get them to move he said simply, "they're not wrong."

communities rejecting the implications of criminality in the term "riot" at the expense of an emphasis on structural disenfranchisement and popular resistance.[68]

If anything, the inequality based on mid-century urban planning has only intensified under neoliberal governance. Broad political-economic transformations, beginning in the 1970s, fundamentally and simultaneously changed Fordist-Keynsian welfare protections and urban geographies, altering race in new ways. Municipal governments struggled to administer cities after the flight of white wealth (to the suburbs cities continued to support) and amidst the flight of private industry, and the retraction of federal subsidies for public infrastructure investments as well as social safety net protections (see Fennel 2015). Federal support for cities fell even further as Gerald Ford told a nearly-bankrupt New York City to "drop dead" (Van Riper 1975).

In a reassessment of *Origins*, written after Detroit filed for bankruptcy, Sugrue affirms that the globalization of capital in the late 1990s resulted in a recapitulation and expansion of the processes that ravaged urban industrial America in the postwar years (Sugrue 2014). As a result of the city's emergence from bankruptcy, the water department's assets have been leased to a new regional entity, the Great Lakes Water Authority, for a period of forty years, though operations and maintenance for Detroit residents remains solely with DWSD. Some argue that the opportunity to restructure the water department was motivation enough for the city to steer itself into bankruptcy in 2013 (Shatti 2015).

The GLWA arrangement allowed the region to exert political power over the direction and financing of the city system without equalizing rates across all 126 municipalities. In practice today this means Detroit's customers will continue to be responsible for 83% of sewer costs and pay retail rates for water that is sold to the suburbs at wholesale prices. Moreover, though their rates are lower and financial stability generally higher, suburban customers are afforded much more leniency in the enforcement of water bills and debt than urban residents (We the People of Detroit 2016).

On top of skewed profits and expenses for service delivery between the city and suburbs, Detroit is solely responsible for shouldering the debt for maintenance, repair and replacement, since it still owns the physical infrastructure (Kornberg 2016; Wisely & Guillen 2015; Rossi 2015b) – including that which extends past the city limits and quite literally lays the groundwork for suburban outmigration. While sanitarians encouraged the expansion of a single waste-water treatment system rather than the creation of several distinct municipal water infrastructures, they warned the Detroit Board of Water Commissioners in the 1920s of the need to write contracts that shared the debt burden between city and suburbs (English 1937). These warnings were ignored, creating an effective subsidy for the outmigration of wealthier, white workers from the city, taking water rate and property tax revenues with them.

The trajectory of redlining, white flight, and urban renewal in the region created catastrophic conditions for the city of Detroit, repeated and intensified under austerity governance. These plans provided the racialized spatial template for the latest wave of 'revitalization'. However inadvertently, it also created the conditions for a new, emerging

form of water insecurity in Detroit and cities like it, departing sharply from the tradition, as well as the presumption, of near-universal access to water and sanitation in the United States.

Sanitizing Race through Space

The history of water and sanitation provision in the United States reflects the unique ways in which the material and social relations of water shaped race, space, and cities in surprising ways. In the early twentieth century, while access to public services were severely segregated by Jim Crow laws, provision of water and sewer service for African Americans was actually expanded. In fact, in no other period of American history did life expectancy for African Americans increase so much, nor so widely (Cutler & Miller 2005). In *Water, Race and Disease* (2004), the historian Werner Troesken draws on public health archives, urban planning records, and medical research to estimate the burden of black morbidity forestalled by the provision of adequate water and sanitation in the first decades of the twentieth century. He shows that the dramatic betterment of black health among urban dwellers was seen in both absolute terms and relative to white populations (Clay & Troesken 2006; Troesken 2004). Importantly, however, the overall death rate and life expectancy figures for Black populations were still far worse than for whites (Galishoff 1985, p. 23).

Compellingly, Troesken argues that it was *because* of state racism – not despite it – that public water and wastewater systems were extended to African Americans (2001). The reasons relate to how segregation was spatialized and how disease was understood. Black streets of American cities in the early 1900s were often interspersed between and

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alongside wealthier, white blocks, from which 'segregation had to be invented' (Semuels 2017). There was no 'black side of town': In 1890, the average Black resident lived in a city ward that was only 20 percent Black; this became 70 percent by 1970 (Troesken 2004, p. 36). Because of the networked nature of water distribution, it was difficult if not impossible to plan piecemeal disconnections on a street-by-street basis.

Moreover, it was long believed that proximity was the primary predisposition for disease. Before the mid-19th century, typhoid, cholera and other feared plagues were believed to be spread through miasmas – filth and foul air, a ubiquitous presence in early cities (Rosenberg 1960; National Research Council (US) Safe Drinking Water Committee 1977). Miasmatic theory was displaced, however, as early epidemiologists showed that diseases traveled through urban space along routes of food and water distribution, as in John Snow's Broad Street Pump study of a London cholera outbreak in 1854 (Johnson 2006). Snow was the first to suggest that water be "filtered and boiled before it is used" (Snow 1855), and gradually, the widespread adoption of public water treatment ushered in the greatest boon in human health and longevity of any single technology, as economists David Cutler and Grant Miller argue (2005), accounting for fully half of the increased lifespan among city dwellers worldwide in the first half of the twentieth century.

Troesken estimates that by 1915, 50 percent of U.S. cities had at least 95 percent of their populations connected to public water systems, and 76 percent of all cities were distributing filtered or contaminant-free water (Troesken 2004, p. 40). Water and sewer services were broadly distributed to residents of all races, because white residents and

public health officials feared "disease spillover" from black neighborhoods in "salt and

pepper" cities, as Thomas Hanchett calls them (1998).

On New Year's Day, 1914, the Georgia newspaper, *The Atlanta Constitution*

published a striking article on the subject, worth citing at length [Figure 3.5]:

> Whatever may be said as to the virtues, per se, of segregation it can at best
> be viewed only as a dubious palliative of the health situation. If, indeed,
> segregation of the negro would not itself vastly increase the danger to the
> white man...
> Why?
> Because from that segregated district negro nurses would still emerge from
> diseased homes, to come into our homes and hold our children in their
> arms; negro cooks would still bring bacilli from the segregated district into
> the homes of the poor and the rich white Atlanta; negro chauffeurs, negro
> butlers, negro laborers would come from within the pale and scatter disease
> with the same old lavishness; into that district would go the clothes of
> white families, to be laundered in environments possibly reeking with filth
> and disease. (Editors 1914, p. 6)

Barring total isolation of black and white communities – unimaginable to white

Americans who depended on black labor in even the most intimate spheres of the

economic system – the city was compelled to extend water and sewer systems to all, in

order to "choke off the stream of disease which one race is pouring into another."

Referring to the expertise of Dr. Charles Stiles of the public health service, the editors

continue:

> The disease germ knows no color or race line, no class distinction and has
> little respect for distance, when it can fasten on a human carrier. To purge
> the negro of disease is not so much a kindness to the negro himself as it is a
> matter of sheer self-preservation to the white man... grim, primitive self-
> interest... Segregated or not segregated, one law of sanitation and hygiene
> for both races, one law applied rigorously and without exception! Any other
> doctrine means the dismantling of every health safeguard the white man
> sets up for his own people. (Editors 1914, p. 6)
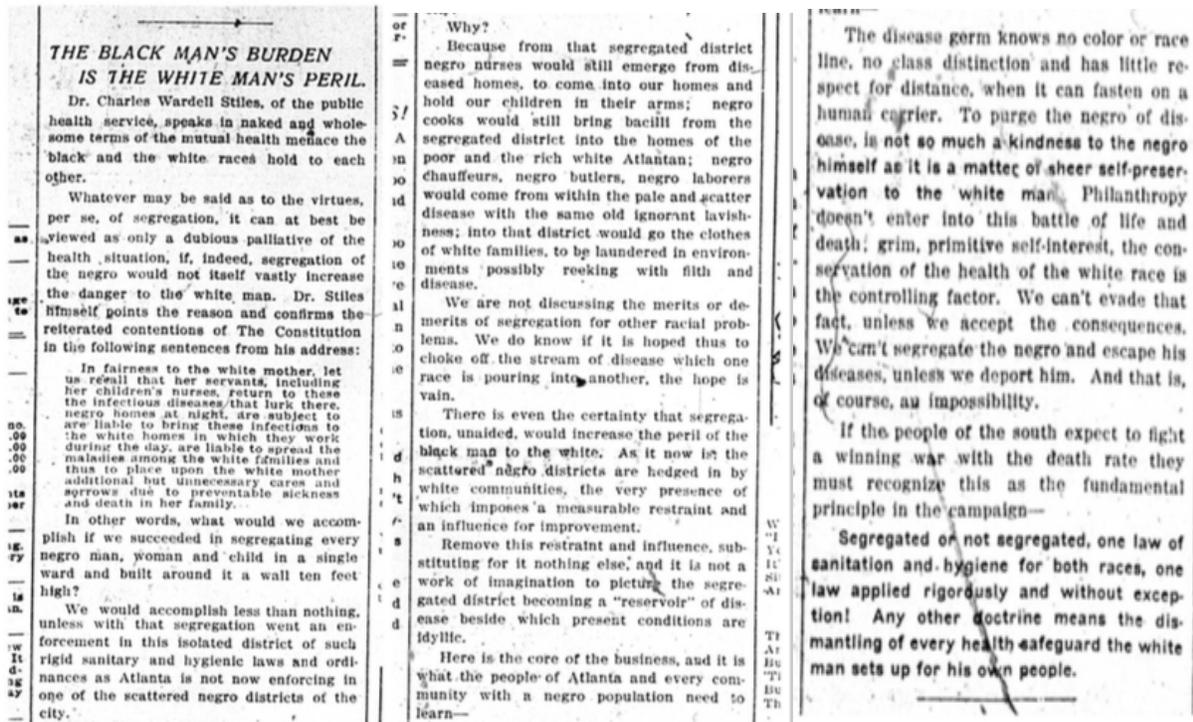
Figure 3.5: "The Black Man's Burden is the White Man's Peril," Column from *The Atlanta Constitution*, January 1, 1914 (Editors 1914)

As this newspaper column reveals, the insights of germ theory did not 'cure' even health professionals of their racisms. Indeed in a separate address, the president of the Atlanta board of public health, went further, explaining that disparities in mortality derive from innate differences among "negroes, with their notoriously unhygienic and insanitary modes of living, and their established suspectibility to disease, especially of infant classes" (Galishoff 1985). Dr. Wolff biologized susceptibility to disease as an inherent part of race, rather than an effect of space. Yet he, too, because of his racism, argued that every effort should be made to improve the hygenic surroundings of black communities, since "[this] affects the city reputation while threatening the health of white persons" (Editors 1914).

If late 19th century germ theory allowed for an understanding of our proximate entanglement and interdependence in urban space, the knowledge of pathogens transmitted by (liquid) water rather than (gaseous) miasmas also instilled a sense that it could be contained, amplifying the power of public health professionals (see Porter 2005). Control of water was thus central to a modern project to tame nature and sanitize race by building networked infrastructures in racially-segregated urban space.[69] The enclosure of water in service of maintaining the flow of the modern city is at once a matter of sustaining salubrity and of lubricating the circulation of capital.

Today, high segregation in cities with centralized wastewater treatment removes the self-protecting incentive among white communities to widely distribute and staunchly protect water and sanitation access for all. Returning to this history is both a recognition of the endurance of racism and also of the flexibility of racialization to fit the geography of urban space. The radically different layout of race across this regional landscape thus enables different water policies to take hold, producing new hydrologic and hydrosocial politics. This can be seen as a form of bluelining. Through the concept of bluelining, I am suggesting that the suburban sprawl of today makes a certain imagination of 'spatial immunity' seem possible for elite communities, for whom water no

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[69] This logic was applied widely across colonized cities as part of the West's 'civilizing mission.' Charisma Acey writes that in Lagos, Nigeria, modernizing narratives centered paradigmatically on cleaning up 'filth' and disease enabled racial zoning, used to keep people of "like sanitary standards" together (Acey 2007). "Sanitary citizenship," as Charles Briggs and Clara Mantini-Briggs write, remains a distinguishing factor in the distribution of rights and privileges around the world (2003).

longer seems a source of shared sanitary susceptibility, eroding the force of the commons

by diminishing the biological and material interdependence undergirding it.[70]

The cross-racial inclusion in water and sanitation systems thus depended on the

geography of spatial proximity and the premise of racialized risk. If new disease risk is

today concentrated by proximity to a shutoff, this also means that the non-proximate are

insulated from risks that once concerned early sanitarians. The suburbs have a 'spatial

immunity,' but not a complete one.[71] If immune from modes of transmission studied by

HFHS (2017), they are perhaps not immune to other circuits of disease spread, for

example Hepatitis A spread through food service workers in the city; and certainly not to

the bioaccumulation of pesticides, pharmaceutical byproducts, and a growing ocean of

unregulated toxins.

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[70] I say imagination because these public water systems are nonetheless interconnected and remain interdependent, even if the degree of vulnerability is not evenly distributed across the network. Suburban customers are certainly 'immunized' from the enforcement of shutoffs and the racially-violent enforcement mechanisms that accompany it, as I explore further in Chapter 5. However, the water is often treated to the same standards. While the wealthy have more resources to buy and replace filters, these are selective barriers not total disinfectants and decontaminants. Bottled water is also a poor substitute for shared safety standards, as it is regulated as a food by the FDA, with lower standards than the EPA regulates tap water. Furthermore, as even the 1914 *Atlanta Constitution* editorial observed, food- and water-borne diseases circulate not only through a 'point' source, like the tap, but throughout the service sector, overwhelmingly worked by poor laborers. In Detroit, the outbreak of Hepatitis A virus – currently the largest such outbreak in Michigan's history – was traced back to the city's nearly-eponymous gentrification headquarters, a Whole Foods grocery store. Residents used this as a symbol of the interdependence of everyone on safe and affordable water. No research has yet explored the relationship between the Hepatitis A outbreak and the water shutoffs.

[71] In Baltimore, for example, David Harvey notes the paradox that, while African American women cross these boundaries daily to clean some of the world's most famous hospitals (including Johns Hopkins), they are unable to access health services when they are ill because of a lack of health insurance. Meanwhile "life expectancy in the immediate environs of these internationally renowned hospital facilities is among the lowest in the nation and comparable to many of the poorer countries of the world" (Harvey 2000, p. 136).

Bluelining

As water mediates the physical and financial pressures of the city, it has become reconfigured as a medium of the 'new urban renewal,' making and remaking a racialized geography of dispossession in Detroit. This transformation reflects not only a reassessment of policy issues like water access and rights, but a reimagining of the politics of water as an actor in the city's political ecology. Understanding this requires a reconsideration of the nature of politics and the politics of nature (Latour 2009), or attending to the materiality of dispossession by accumulation alongside the economics of accumulation by dispossession.

Critical urban studies emphasizes the mutual constitution of water and society, adapting the physical model of water's hydrological cycle (evaporation, condensation, and precipitation) to theorize water as fundamentally *hydrosocial* (Gandy 2014; Swyngedouw 2004; Linton & Budds 2014). Hydrosocial relations are at once produced through histories of struggle, social action, institutional administration, and a complex array of uses, and in turn operative in the remaking of those social relations through which it is produced. This literature has paid special attention to water's materiality, or the ways in which its physical and chemical properties permeate and mediate complex social forces (e.g., Gregson & Crang 2010; Strang 2014). Some of this work has challenged the perception of

water as an inert object of nature, "H_2O," and instead frames water as an active participant – or actant, in Latour's terms – in social relations.[72]

While the notion of the hydrosocial cycle has proven quite productive in the urban studies literature – particularly with respect to its metaphoric and material relationship to the circulation of *capital* (Harvey) – I follow anthropologists Tom Perreault (2013) and Chris Sneddon (2007) in recognizing that the cyclical model of hydrosocial relations may obscure what does not change. While water itself (H_2O) circulates, some hydrosocial remains accumulate in place, ranging from water-related knowledges and water rights to biotoxins and algal blooms (Perreault 2013). Sneddon, in a study of freshwater fisheries in Cambodia, has argued that processes of capital accumulation "always necessarily involve transformations of nature" and called for more attention to "the specific biophysical relationships that are sustained or disrupted via such transformations" (Sneddon 2007, p. 186). He situates this move as a poststructuralist extension of Marxist writings on nature-society relations, wherein scholars take political-economic drivers of environmental change as necessary but insufficient to explain the cultural, technoscientific, spatial and embodied consequences of transforming nature.

Perrault's work, following suit, examines the bioaccumulation of contaminants and sediments in the mining watershed of the Bolivian Altiplano (2013). These contaminants effectively remove water from the public sphere, even where privatization, marketization, or a restructuring of water access rights has not been implemented; thus, he argues, we

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[72] Bakker's distinction between H_2O and 'water' is useful here. "Whereas H_2O circulates through the hydro-logical cycle, water as a resource circulates through the hydrosocial cycle – a complex network of pipes, water law, meters, quality standards, garden hoses, consumers, [and] leaking taps" (Bakker , p. 774).

should attend to "dispossession by accumulation" in the material sense as we continue to examine "accumulation by dispossession" as a strategy of legal and economic enclosure of water for capitalist modes of production.

We might say contemporary urban life is structured in full color, rather than the black and white ink of law. For *DFC,* the idea is to redefine the city's vital infrastrucutres, replacing gray paving with green and blue topographies, erasing Black communities. In this it reflects a new politics of 'the color line,' refracting W.E.B. DuBois' defining problem of the twentieth century transitions into the twenty first.

Bluelining suggests that 'the color line' is not (only) an effect of ideology, or a juridical boundary, but (also) a material force flowing from and formative of the racial-spatial organization of urban life. In the ethnographic vignettes that follow, I try to describe the material transformations of space and race engendered by and through water, as well as elucidate what persists in the wake of the transformative hydropolitics I encountered in the context of Detroit's redevelopment.

Spring

April 2014. It was five a.m. when Sam began making coffee. A mother of five, Sam uses the early morning hours to prepare lunches and wash the family's clothes. Whether it's mac n' cheese, or rice and beans, she'll have a pot of water on the stove boiling before sunrise. Water costs less early in the morning and late at night, she tells me – off-peak hours. "So the kids shower at night and I work in the morning – so long as there's coffee." Her habits are set to the rate of water, her domestic labors tied to its price.

It is because she was up this early that Sam was saw the men in the truck pull up to her front lawn. They drove a bright red Silverado with a circular medallion on the door. In the center it says HOMRICH and around the circle it reads DETROIT WATER COLLECTIONS PROJECT. Sam would take about fifty photos of this truck, documenting its movement frame by frame in an album titled, "Homrich in my Hood." Her camera was one of the first tools she reached for, along with her phone, when she saw the truck pull up. Without hesitation, she took herself outside and stood on top of the water meter, just at the edge of her lawn before the street. From this area, known as a "hellstrip," Sam was standing at a nexus of public infrastructure and private property, guarding her home's water supply. "That part was easy enough," she said, before continuing:

> They just shrugged their shoulders and walked away. But I then watched
> them, like, 'nevermind!' And cross the street. And turn off my neighbor's
> water – she must be about 80, 82? – and then turn off the next neighbor and
> the next, and the next. Neighbor after neighbor, like that.

Sam's photographs chronicle the two contract workers as they open their doors, step out of the vehicle, grab a couple of long rods from the trunk and set to work. The men, both older Black men in all navy, black caps and badges, are shown surveying the grass. One holds a multimeter on a yellow rod to detect where water is flowing; the other a steel rod with a curved lug nut and forked handle – the "water key" that turns the box off at the meter. She photographs them scratching their heads, making a call, and poking at the soil of the house next door. She gets the license plate: CA57413. She photographs them all the way to the end of the block, where only the tail lights of the truck can be

seen. Many of the water boxes are already spray-painted with blue lines on the curb to mark their location.

> I knew I was in jeopardy of getting my water shut off," Sam later told me. "We just came out of that polar vortex. The only thing that got paid was the energy bill that winter. *And* my pipes burst, along with my entire neighborhood. It was because — we knew — we knew we were late.

The previous winter was the coldest on record in Detroit's history. A gust of wind from the Arctic moved across North America with fierce cyclonal momentum. A low of -9 degrees Fahrenheit was recorded midday in December, with wind chills below -30 degrees for months. Folks could barely leave. Schools were closed. The City issued emergency warnings for those living alone, and those living without heat. The polar vortex was equally ruthless to the city itself: power lines downed, drowned in snow; roads susceptible to fault lines from the expansion and contraction of frozen water within them; pipes, like Sam's, cracked open, leaking icy rivers onto streets and into basements. These rivers would re-freeze in the streets, creating the infamous road hazard, black ice.

The distribution of shutoff practices matters – to pipes and people. Shut offs are not enforced randomly, but spatially. Workers are sent to a block or neighborhood with a list of homes 'eligible' for shut off, and proceed, as Sam documented, to turn their water supplies off in a line. This economizes their time, but puts the pipes at higher risk, with water more likely to freeze as its endpoints of use and flow in an area are disconnected. Unlike most other physical infrastructures, water pipes age faster with non-use. The physical chemistry of H_2O is unique in that it expands when it freezes (ice floats in your glass) because the lattice structure of hydrogen bonds holds the atoms farther apart.

Water that sits motionless from a disconnection will reach its freezing point sooner, creating pressure on pipes, which have their own material capacities to withstand pressure. When the leak happens on the resident's side of the water and sewer supply line, it's reflected on the household bill.

The spatial concentration of shut-offs can also put residents at higher risk. Another cruelty of this practicality is that residents cannot knock on a neighbor's door to fill up pots or buckets, do laundry, or otherwise pool their resources. A study by Henry Ford Health Systems in partnership with We the People of Detroit found that living on a shutoff block increased the risk of being hospitalized for a water-related illness by 150%, whether or not your household was the one shutoff. This correlation remained even after controlling for poverty and has nearly the same effect size in the other direction, so that those admitted for water-related illnesses were more likely to live on blocks with higher shutoff incidence (Plum et al. 2017).[73] The sickness caused by water shutoffs is thus spread not only within the household but across the neighborhood, an increasingly relevant spatial unit for social life in shrinking cities.

The concentration of pathogenic exposures in shutoff areas is then part of the bluelining of water shutoffs, an accumulation in bodies that proceeds alongside the dispossession of water rights, rituals and routines. The blue lines that mark home water meters have come to signify these exclusions in multiple registers, as if branding residents with the blame of not adequately responsibilizing as a bill-payer, the indignity of not

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[73] I discuss this study at length in Chapter 2.

being able to shower or flush regularly, the risk of disease, the threat of punishment, the stamp of disavowal.

I found myself talking about the blue lines with a group of women at a water ceremony on the Detroit River. Tonya told us about how she'd taken action the day she found one spraypainted on her curb: "I keep records, you see, so I knew my bills were right. I took them downtown, showed them every letter and a photocopy of all the checks I wrote, and I made them come and clean that paint off my sidewalk. Yessir. You can't piss on me and call it rain." Another woman, Khadijah, told an older story: "Back in the day, they used to mark our houses like that when we moved into white neighborhoods. I still remember my daddy walking out to see this black X on our driveway. He was red hot mad but I think really he was scared. He went out at four in the morning and put a black X in front of every house on our street before the sunrise." That the utility's practice for marking homes so directly evokes a racist practice of tagging Black families in white neighborhoods suggest the endurance of violent racial exclusion from the city, through lines of another color.

Like A Scarlet Letter

Khadijah's father's fear that his family had been targeted for racial violence was not unfounded, certainly not in Detroit. In 1925, an infamous trial unfolded when a young Black couple bought a house in a primarily white neighborhood, and their white neighborhoods organized, through homeowners associations and vigilante mobs, to force them out. Though this preceded the federal survey and subsidy of racial residential segregation, "unofficial but firm" color lines divided the city, restricting African American

homeownership primarily east of downtown, in the so-called Hastings Street corridor. The day Dr. Ossian Sweet and his wife moved into their a bungalow on Garland Street, a crowd of white people gathered, growing to more than eight hundred by midnight.[74] Constant vigilance and harassment was directed at the Sweets until one night, when bricks were levied at the house. Seventeen Detroit police officers looked on without intervening, until his brothers returned home and were mobbed by the crowd. Shots were fired in both directions: two by a police officer, aiming, he admitted "at two Negroes he saw dimly on the upper back porch of the Sweet home," and two into the crowd, fired by Dr. Sweet's brother, killing one of the white men.

The officers charged the Sweets with conspiracy to murder and conspiracy to assault with the intent to kill. The Mayor joined in public opinion, blaming the Sweets for "endanger[ing] life and property" by moving into a white neighborhood, calling the doctor "an enemy of his race as well as an incitant of riot and murder." Four decades later, in 1963, a white mob assembled again to harass a Black couple moving into an 'all-white' suburb of Dearborn, just twelve miles from where the Sweets had been attacked. The police looked on without interfering, despite the intensifying violence directed against the two Black men and pregnant Black woman, who as it turned out were simply hired to unload the boxes of a white man who had rented the property.

It is the parallels between these incidents, forty years apart that animates David M. P. Freund's inquiry into the transformation of white racial politics regarding residential segregation across the middle decades of the twentieth century (2010). Freund finds that

[74] It was later revealed that the 'unwelcoming' committee on the Sweet's move-in day was originally assembled by a newly-formed Waterworks Improvement Association (Freund 2010).

very different racial logics and languages were used to advance very similar segregationist aims, arguing that 'naturalized' notions of racial hierarchy based in pseudoscience and outright prejudice shift towards distinctly more 'coded' discourses that turned to 'objective' features of market trends and property values that rarely mentioned race at all (2010, pp. 16-17). In this, Freund echoes the Sugrue, who shows in great detail how white northerners used their presumably race-neutral status as "citizens," "voters," and "property owners" to achieve segregationist ends (1996).

Prewar neighborhood associations blanketed the streets with flyers, lobbied for municipal codes and regulations to keep out people of color, warning that Black neighbors would "threaten the good health conditions and environment" (Sugrue 1996, p. 14). In reality, in the 1920s, the relative proximity of black and white residents improved the health of all urban dwellers because it encouraged universal sanitation rather than allowing services to be segregated, as I explore below. Still, racism remained veiled as a matter of health and safety, paradoxically undermining both by encouraging segregation and calling on the police to enforce it. A letter from a Dearborn woman following the 1963 incident exemplifies the sentiments of racist white folks of her time: "We have all seen what can happen to a good, well kept neighborhood when taken over by Negroes... Their treatment of property and their behavior is like a slow disease killing off a once healthy neighborhood" (qtd. in Freund 2010, p. 3).

That biological incompatibility, in the final analysis, were used to justify prewar racial isolationism is particularly ironic in light of recent findings that urban integration was perhaps the greatest boon to public health for black and white residents alike in the

prewar years, as we will see. A 1920 editorial in the *Property Owners' Journal* claims: "There is nothing in the make-up of a Negro, physically or mentally which should induce anyone to welcome him as neighbor," and goes on to claim "The best of them are insanitary" and that they are, by nature "entirely irresponsible and vicious" (qtd. in Freund 2010, p. 16). By 1964, these myths of inherent racial difference had been intellectually disproven, but their popular stamp remained, reimagined in claims of a 'culture of poverty' that shifted attributions of racial inequality from biology to behavior, but still overlooked the systematic exclusions of black people (not to mention the structural negations of blackness). Reifying segregated neighborhoods through 'market imperatives' allowed whites to advance racist policy while concealing, perhaps even from themselves, the racism rooted within.

The Sweets' first trial ended in a hung jury, followed by a retrial of Henry Sweet proceeded, in which he was acquitted. After that prosecutors dropped the charges against the other seven defendants. Though the NAACP and others celebrated the verdict as a public relations victory, the private lives of the Sweet family were devastated in the wake of the events. Their two-year old daughter, Iva, died shortly after the trial, and within three years, Gladys Sweet herself died, at age twenty-seven, of tuberculosis, which she believed she contracted in jail. Henry, too, died of tuberculosis. The house sat vacant for a few years, and in time, Sweet was swallowed in debt. Dr. Sweet ultimately took his own life by suicide (Boyle 2007).

At issue today – nearly a century after the Sweets' attack and arrest in Detroit, and more than fifty years since the 1963 lawn mobbing in Dearborn – is what logics and

languages of race, rights and citizenship are used to explain, and in many ways expand, the spatially-structured racisms of northern cities like Detroit? One difference revealed by contemporary water politics is that whereas homeowners of the postwar decades manipulated the language of rights, claiming an "inherent right" to live in neighborhoods of 'racial harmony' and actively pursuing segregation from the standpoint of property-owners and citizens, in the postindustrial present, the question of rights has been all but evacuated entirely – replaced largely by the imperative of debts.

The city, the water department, and the courts have rested on the finding that there is no Constitutionally-protected right to water, and reduced the relation of a resident, or citizen, with respect to the city to the transaction between 'customer' and 'provider'. Water justice activists counter this by claiming the human right to water (which is proving to be unsuccessful as a legal protection in U.S. courts). What water politics reveal is that beneath and beyond citizenship, there is another 'natural' logic re-inscribing residential segregations, one that carries in the hydrologic cycle the contradictions and externalities of capitalism that are deposited in racially disparate geographic and social patterns, only to be re-cycled through our hydrosocial relations.

Fall

One August afternoon while canvassing, we met a man who had recently had his water reconnected. It had been shut off on a Friday, and since he was unable to make it to the 'customer care' center on Saturday, it remained off until the following Tuesday. He had registered into a payment plan with the city, having to pay a sum upfront and agree to pay the current bill in full and an escalating percentage of the remaining debt each

month. That was many months ago, but as he was describing their experimentation with different water uses over that long weekend, it emerged that just last week, his house had seriously flooded with stormwater and sewage. It was a very heavy rain. For a few days after, where I lived, there was standing water at the curb of the streets, so that passengers would have to leap onto the curb from a parked car, or wear very sensible shoes.[75]

This gentleman, Paul, had moved back to the city to live with his mother, now in her seventies and wheelchair dependent. There was almost no one else on the block. Circling around it — 22 homes in all — only two doors were answered. On the next block, which is to say the houses across the street, several homes were draped with prints of lives that had lived there. A woman's eye and a clip of her hair were expanded to fit a front door, set beside an official notice stuck to the outside of her mailbox [Figure 3.6]. If she was staring back from "vacant" space, she was also staring right at Paul and Darnella.

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[75] Because it's the oldest homes that are most likely to flood, the damage quite literally pools in urban residential areas, for the most part sparing new commercial and suburban construction. In Detroit, this tends to affect the oldest residents, both in terms of tenancy and age, who are at the same time least able to move. Detroit has the second-oldest housing stock in the country, with 89.8% of its homes were built in 1969 or earlier (second only to Buffalo, NY, at 90.3%). In fact, Detroit built a quarter of its current housing in just one decade, from 1950-1959, more than any other city, rapidly adding seaboard style brick three-bedroom, one-bath single family homes that have defined its urban landscape. Few other cities have this style and pattern of so much single family housing, across such a large area, and of such an old age; this was less of a problem when the homes were nearly all occupied, the streets were swept, and the rains were lighter and less frequent. What was once the planned manifestation of the American Dream now appears as something of a picturesque nightmare for metropolitan planners.

Figure 3.6: Posters plastered to vacated Detroit homes, uncredited artists. Author's photo, 2016.

The house had flooded from the toilets down, Paul tells me, so the upstairs wasn't

so bad, just a sheen of water they could mop up, but the flow of what was coming out

downstairs was heavy enough to cover the floor and fall down the back stairs. The

basement was flooding all its own, from the pressure of the rains overwhelming the sump

pump. All you could hear was rain from any room in the house, and the city for that

matter.

I stayed indoors most of the weekend, grateful to not have to think about our house soaking in sewage. I took shelter in the warmth and wifi of our apartment, though actively showered less for fear of being struck by lightning. Our 26-year old landlord bought the 2-unit house I lived in for $100, and owned at least 20 other houses. He told me he never paid a water bill because the house came from auction without a meter, and in any case, he believed (as a wealthy white man) that if the water department shut us off, he could reconnect it simply and without penalty – "it'd just be a slap on the wrist," he told me.[76] Meanwhile, Black Detroiters feared felony charges if caught quote – unquote "stealing water," even as the city found new ways to charge for rain (Kurth 2019).

Paul invited us to see the basement for ourselves. We exchanged greetings with Darnella, seated in dusty rose-colored armchair, and descended downstairs, to a floor cleared out but for the washing machines and an old metal bed frame. The smell of bleach was thick and disorienting in the small, hot space. "We had to toss everything," says Paul, gesturing to the bed frame and a mattress no longer there, "scrub the walls and everything." You could see why. Along the walls, a water line marked the height of the flood, nearly three inches high.

The results of a house flood like this one can be disastrous. In 2014, FEMA authorized $157 million in disaster funds to go towards relief and repair of some 10,000 Detroit area homes (FEMA 2014). A student I met had volunteered with the American Red Cross at the time, and described the exhausting process of clearing out and cleaning out basements across the city. All fabric, paper, wood; anything electrical; appliances,

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[76] Penalties were often extremely punitive, though unevenly enforced, as I explore in Chapter 5.

couches, shoes, stacks of books, letters and pictures — "God forbid, carpets" — water-

logged and fit for a landfill. For the families, this often meant the loss of beloved things,

stored away in boxes and bins. For the volunteers, though, this meant more to sort and

carry away. "You're like movers, but at a funeral," Jeremy said. "People are happy you're

there, because the work is shit, but you know it's really sad, too." "Shit work," he said,

"hauling all that soggy shit" — which of course he meant literally.

A great fear among families, aside from or in addition to their often great grief, was

their fear of being at risk for disease. Residents are told to sanitize the house with bleach

after exposure to sewage, with its cargo of bacteria, viruses, and parasites, as well as oil,

debris, industrial chemicals and pesticides. Left unaddressed, these basements can grow

infestations of toxic molds, especially dangerous for those with asthma or immune

systems weakened by chronic disease. I ask him what the water was like: "Trust me, you

don't want to know. It's all kinds of muck. Everything that comes out of a person and

some things that don't."

Winter

From the tenth floor of a downtown high-rise, you can see the river stretch out

into the city. The snow beautifully dots the landscape as you look to its urban horizons;

but as I descend to street level, my view changes. What seemed like a scattering of snow

now looks like fields of ice, obstacles in my way in the bitter cold.

As the snow falls, it covers the city in a thick, even blanket. And as anyone who has

lived in a cold city knows, it doesn't last long. The white cloak is routinely trodden

underfoot by cars, animal, people and wind — except where it isn't. As the days since

snowfall proceed, the ground becomes a ledger of traffic in the city. In my neighborhood, there are six houses from our apartment to Woodward that have no footprints at all, or just the tiny imprints of birds. They are scattered between the lived-in houses, which often look no better or worse than those stately brick two-stories that sit idle. Two houses down, the untouched snow registers a bitterness in me, a sense of betrayal. In the bitter cold, I feel we have all been exposed — located in our presence or absence for anyone to see. There are no footprints next door, and certainly not in the empty lot on the other side. The snow tells in which homes where there is no one home, no one to leave footprints or tire marks, or step out to look up and down the block. Homes that were protected by their indeterminate status are now exposed, to scrappers and squatters and surveyors.

The snow has the effect of making everything seem clean and pristine, belying the truth about the thousands of vacant, and occupied, homes with flowing leaks and fomenting infestations. Water's shape-shifting across seasons and cityscapes imposes varied conditions as a vector of health and of suffering; it also offers new imaginations of order and disorder, cleanliness and filth, stagnancy and movement. The seasonality is marked by water in as much as water indexes the possibilities for life in each season.

I notice the beached boat in an empty lot beside my house, reminding me that Detroit was, and is, a river city. The busted truck that's parked beside it is a second monument to environment-altering economies past.

Summer

It's 6 p.m. and I am walking home from Woodward, making my way across the pavement, counting the sidewalk squares: 167 if I go east then north, or 172 if I go north then east. At the end of the block, water is spewing from a fire hydrant cap like when you put your thumb on the end of a hose, but so much higher. A woman is standing near it, taking a closer look. "Well that's quite a leak," I say as I pass. "Yeah, I just saw it and called the city." "What did they say?" I asked. "I don't know, just left a message." We pause and stare together. "Do you want me to try to report it on that app, See Click Fix?" I ask. "No, it's alright. I called them. If they don't come it's because they don't care to."

The next day, I see the family from the other direction as I walk towards the bus. The boy with his shirt off is giggling like a chipmunk running in and out of the stream. The boy with his shirt on is squishing water out of his diaper and laughing, too. Mom is standing at the sidewalk as I pass by. "Well, looks like they're having a blast with that," I say, with a smile of appreciation and a tinge of envy in the eighty degree heat. "Yeah," she says, "it's still been going. I called them again this morning, but with this heat, I said why not. It's hot! So they been running in it for three hours." I noticed the large puddle of smashed grass around the hydrant, the current of water running down the street, the swampy sound of the boy running through, and the wet and dry mud on her flip flops, running well up past her ankles.

These leaks are a major source of the Department's estimated water 'loss' of 30 to 80 million gallons a day. At $400/million gallons, the costs are astronomical (Smith 2019) – especially in proportion to the small sums for which people are shut off for 'bad debt.'

This excess is only legible as debt to the city, needing to be contained to curtail costs. But this excess, which can be a cause for disaster and despair in the wrong season, becomes a site of ecstasy and enjoyment for these kids, in this season.

It took three days for the hydrant to be shut off. By then, the grass was gone from the path of the water. At full blast for a day, that kind of hydrant could lose over 500,000 gallons of water. "Good thing it's just a leak," she said.

Blues Infrastructures

Many urban anthropologists have turned to studying water as the historical stability of wastewater infrastructure as a fountain of development and natural monopoly of the state has been thrown into sharp relief. Coincident pressures of financial and climatic change are motivating new forms of organizing waste-water infrastructures in the global North, remaking space, race, and capital in cities like Detroit. As a means of tracing these hydrosocial rearrangements, I have explored the provisional concept of bluelining.

Bluelining is a form of the production of space by and through the reorganization of urban water. It is largely a mechanism for ensuring spatial fixes for capital accumulation, pursued through dispossession by state force, but may also be achieved through dispossession by the accumulation of contaminants or other harmful exposures. Bluelining, as I have tried to illustrate across the seasons, is a hydrosocial process also subject to the movement and materiality of water itself – its intensifying rains and polar

vortex snows. It is a form of segregation achieved not only through policy and law, but also the 'extralegal production' of the racially-determined diminishment of life chances, also achieved through the impact of racial capitalism on the 'nature' of the environment itself.

The harnessing of water through the administration of enclosure has been foundational to the patterning of life in the capitalist city. These patterns are made legible in maps of waterways, wastewater routes, watersheds, and weather patterns; in institutional policies and codes; and in routines of urban life, both human and nonhuman. The study of these patterns helps us understand the social geography of Detroit, where the reproduction of racial exclusions and dispossessions is mediated through the movement of water— or lack thereof. Water is so elemental to the structure of urban life that its roles are largely invisible, except when unexpected disruptions, leaks, or disasters force a recognition and mobilize energies of repair of our taken-for-granted infrastructures.

Indeed, infrastructures tend to show up only when something goes wrong, as many have noted. For Lauren Berlant, an infrastructural failure is a "glitch" that speaks to an interruption in social and political life. "All times are transitional times," she writes, "But at some crisis times like this one, politics is defined by a collectively held sense that a glitch has appeared in the reproduction of life" (2016, p. 393). The repair or replacement of a glitch, the work of figuring out the terms of transition, is the work of social life. But as Berlant emphasizes, not all repairs are reproductive; some return infrastructures to their invisible functionality, while others create new infrastructures for "managing the

meanwhile within damaged life's perdurance" (2016, p. 394) (394). For her, the notion of 'the commons' is not a utopian solution to the social antagonisms of the state and capital, but a means of mediating the ambivalence of distributed insecurity, irregular fairness, and uneven exposures. Berlant turns to queer theory to attend to the affective dynamics of the nonreproductive making of life, a way of learning to live with what's broken.

I follow Berlant's conceptualization of infrastructures as "the movement and patterning of social form," and have attempted to show how the materiality of water as it is piped through the city is produced by and reproduces socio-spatial patterns of enclosure and exposure.[77] By way of conclusion, I want to draw on black studies to examine the perdurance of what Sharad Chari calls "life-that-survives" (2017) in the wake of capitalist and biopolitical foreclosures.[78]

Living with what's broken, with being broke, is what Fred Moten and Stefano Harney call "debt," an individualized relation of contractual exploitation that cannot be repaid, or repaired (Harney & Moten 2013). Because it is irreparable, Moten and Harney, too, eschew the commons concept, with its fantasies of cohesion, for that of the undercommons, where refusal to seek recognition in this regularized economy requires that 'we' inhabit dysregulation, disorder, improvisation, and joy. It is about living in the wildness. Director Brown could not understand why one 'little old lady' in Detroit would

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[77] My aim is not to evaluate the efficacy of blue infrastructure, but rather to look at its social and spatial effects. — to examine how it maintains collective living even, or especially, in moments of vital challenge, and how it animates sometimes competing political visions of repair. To think infrastructure this way is to emphasize its constant construction as an assemblage of social, material, discursive and natural forces that sustain life, if unevenly.

[78] Chari has richly elaborated upon the blues as a soundscape for 'life-that-survives' the twinned machinations of capitalism and biopolitics, but while he argues that these structures of oppression continue to 'haunt' black geographies, it is unclear what kinds of permanence the blues have beyond survival.

choose this wildness instead of accepting a buy-out of her home so that it could be turned

into 'productive' blue infrastructure:

> Frankly, we need to get people out of some neighborhoods. When there's one house left on the block, it just doesn't make any sense. To provide 122 services, from the lights to the stop signs to the roads, to these unviable neighborhoods. But some folks won't move. We're not gonna make you move. We're not gonna use eminent domain. But we need to find the right incentives to get people to move. We own so much land and so many houses. I could give you a house worth five times the value of yours to live in a viable neighborhood, but some people are gonna stay put. So at some point, I can give you a house for five times the value, give you two years to move, or we cut you off. And if you want to live in the wilderness, that's ok too, go right ahead - we'll give you a propane tank and wish you the best. But that little old lady, why does she want to live on an island? (2017)

Thus the undercommons is not a space of exceptional resistance or critique, but the

spaces we already inhabit – the wild islands – the ordinary, extraordinary associations

that refuse the order of debt (Halberstam 2013). Like Berlant's commons concept, then,

the undercommons proffers nonreproductive infrastructures in the wake of the regularity

of debt and glitch (see also Sharpe 2016).[79]

AbouMaliq Simone, writing from Johannesburg, sees the mobile and provisional

intersections of residents with objects, spaces, and practices as a means of facilitating life

in the city against the specter of decay. His notion of "people as infrastructure" eschews

the portrayal of Johannesburg as a place of ruin by emphasizing the durability of

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[79] Elsewhere, Jovan Scott Lewis has explored subversive modes of capitalizing on the position of exclusion by inverting the debt relationship upon which modern blackness is constituted in and through the economy; in Jamaica, criminal scammers manipulate development and its histories to generate alternative energies of 'postcolonial repair' through theft (2018b). Along with the provisional, adjacent, undercurrent infrastructures I describe here are more directly disruptive 'guerilla' efforts in Detroit to not only tap into the water system but to take it apart, introducing interruption into those whose lives are insured against it (see Kinder 2014); for these acts, genres of hip hop might better capture the epistemological resistance to the social refusal of black life – a suggestion for which I thank Ian Whitmarsh.

improvisational connections among the marginalized (2004, p. 407). Detroiters call this "making a way out of no way," and it offers similar possibility for thinking beyond the narratives of ruin that overdetermine imaginations of the Rust Belt. Moreover, it allows for a recognition of the practices of care that keep communities afloat amidst abandonment, to survive the bluelining of black life, as the activist Charity Hicks demands:

> I mean the church cutting the grass across the street is actually improving the safety and the quality of life in the neighborhood. But the tax dollars and not paying for cutting of the grass, lawnmowers, the time of the deacons and trustees. But deacons and trustees care. The church cares. Grandmothers all over care. *We* pick up trash, cut grass, recycle, look out, sweep up glass that's broken in the road; *we* tell people don't do things that are wrong and improper. I want the city, and Detroit Works and Detroit Future Cities, to not just believe in us, but demonstrate we are worth something by processes and intentionality that effectively affirms what's already happening. (Levy, 2014)

Always and already, life in the Motor City is mapped and remapped by the energies of social actants that refuse to be erased from urban space. As Newman and Safransky observe, the maps of city elites focus on blight, while residents' mapping projects highlight spaces of collective social life: "street corners where 'friends hang out', 'fishing holes' and walkways along the Detroit River were identified... Some residents mapped the ways people cared for land in their neighborhoods despite the fact that much of it was actually owned by absentee landlords" (2014, pp. 22-23). In Sam's neighborhood, residents organized to pool their resources together that summer after the shutoffs. Her front yard became a water relief station. They stocked bottled water (in 250mL bottles and 2.5gallon jugs); a large orange water cooler; clean, refillable glass jars; plastic cups; bags of ice; baby

wipes; hand sanitizer; granola bars and PB&J; hot veggie chili, with soups and spoons; chalk and sign-making supplies; and bleach. Volunteers were organized to canvass the neighborhood with information and resources; kids were tasked with writing down a water relief hotline number on each plastic bottle.

Within days, a march was planned. Nearly 100 people walked the streets of the North End neighborhood out to Woodward Avenue, Detroit's central artery, and occupied it – blocking traffic in both directions. Protesters chanted "By Any Means Necessary, We Will Fight! Water Is a Human Right!" and "Detroit Water Belongs to Us! / We Won't take these racist cuts!" The march strategically targeted a visible infrastructure, the roads, under which the waste-water pipelines run; and it performatively demonstrated the risks obtained in bodies, not only by articulating demands, but by putting those very bodies-at-risk into the public sphere (Butler 2011). Their improvised network of persons and resources produced a provisional infrastructure in the wake of their disconnection and potential dispossession from vital public infrastructures. If not a replacement or repair of the injury of mass shut offs, they provided at least a 'patch' to the glitch in the social fabric of the community and witness to the disruption of life in the city.

Assembling Blues Infrastructures

One of the most powerful traditions of witness to the despair of African American life is the theory and practice of the blues. "Consider some of the things the blues is about," writes Baldwin. "They're about work, love, death, floods, lynchings; in fact, a series of disasters which can be summed up as the "Facts of Life" (Baldwin 2011 [1964], p.

80). The blues sings testament to the sorrows of individual and collective tragedy as lived in the Black community, but it is also a praxis for living and singing nonetheless. The blues is not inherently pessimistic, as Richard Wright noted: "No matter how repressive was the American environment, the Negro never lost faith in or doubted his deeply endemic capacity to live. All blues are a lusty, lyrical realism charged with taut sensibility" (qtd. in Woods 2017 [1998]).

For Clyde Woods, the blues is not only an enduring aesthetic tradition but also a theory of social and economic development and change, articulating at its heart "a desire to develop communities independent of plantation monopoly" (Woods 2017 [1998], p. 20). A foundational premise of this observation, and pursuant scholarship on black geographies, is that the plantation form has persisted as an organizing rubric for black life and labor in the American South and beyond (Hunter & Robinson 2018).

Woods' focus on the plantation economy as a means to monopolization of land, water, and the means of production echoes, while not directly referencing, Marx's theory of 'primitive accumulation,' from which Harvey advances the idea of "accumulation by dispossession." It is the original referent for dispossession as an institutionalized legal and extralegal enclosure of resources sustained by exposing Black workers to terror and deprivation (Woods 2017 [1998], p. 5). While much more could be said here about the relations of enclosure and exposure that have persisted and permuted through the Great Migration and subsequent urban-suburban regionalizations, I want to simply end by considering what Woods believed the blues epistemology could offer for black study in particular and the social sciences more broadly.

Woods was sharply critical of the role that social scientists play in in declaring the death of African American communities and people. Even the most well-intentioned, with critical analyses of race and power, he argues, often consider the work of study to be the enumeration of social hardships and inequalities. "Have we become academic coroners?... engaged in the macabre art of calculating the precise moment when the last black farmer will perish" he asks. "On the other hand, is the patient really dead?" (2002).

Can we see the actions of threatened residents as producing infrastructures for collective living in the wake of dispossession? I think of the sound of the children splashing in the errant hydrant, their dance as an expression of joy in what's broken. I think of Sam's counter-surveillance, turning her camera back on the city as it marks houses for shutoff, or the stare from across the street. Of the little old lady who won't move for money. This is a politics that exceeds and evades the logics of property and rights, assembling "people as infrastructures" to compensate for the withdrawal and failure of public services provision. These are 'blues infrastructures' that buoy life lived in the wake of cycling and accumulating racial dispossessions.

In the current of Detroit's redevelopment, increasing emphasis has is being placed on the importance of place as a primary determinant of health. Practitioners of racial and environmental justice work today argue that in the U.S. today, your zip code – not your genetic code – is the most telling factor for your health outcomes (Dwyer-Lindgren et al. 2017). The concentration of sickening exposures and deprivation of sustaining infrastructures in certain spaces derives from a toxic legacy of racial, residential segregation. The differential exposure to poor health again returns us to Ruth Wilson

Gilmore's definition of racism: "the state-sanctioned or extralegal production and exploitation of group-differentiated vulnerability to premature death" (2007). Water is one medium through which racism has been (re)entrenched in the geography of urban America.

If enclosure was the dream of modern urban planners, exposure to the 'externalities' of their policies is the reality shaping contemporary urban life. In this story, the exposure is no longer just to waterborne pathogens, but to a multiplicity of water-mediated harms, from lead and other toxins to foreclosure and other debts (however wrongly calculated). Considering the politics of water anew allows us to read these exposures together as effects of social and political power distributed through racialized urban geographies and better attend to the ethics and dynamics of what medical anthropologist Ennis-McMillan calls "suffering from water" (2001). It also allows us to see what residents do *with* water outside the binds of policy, producing new politics.

"To a great extent in postwar America, geography is destiny," writes Thomas Sugrue (2014, p. xl). I have argued that to a large extent, it is also a matter of *density*, as these exposures are layered on the fabric of urban space. Black geographies point us to a legacy of theorizing the relationality of race and space, rather than risk taking race for granted in narratives of segregation. If blackness is the structural position of being constitutively exposed, black communities are those who live (on) as subjects of these dense exposures. Against the density of social death, Black Detroiters buoy social life, assembling new infrastructures out of a cultural, spiritual, and material repertoire in which collective living on is an art and a practice.

The (Un)Certain Life of Water (In)Security
Emerging Contaminants and Emergency Management

> *"Water used to be something we could trust... I don't know about*
>
> *you, but I don't want to live at threat level yellow all the time."*
>
> *-- Michigan Department of Environmental Quality engineer*

The Oxford English Dictionary tells us that security means to be free from danger, but also free from care. Interestingly, its etymology and mythology even more neatly illuminate the duality of security and insecurity. From the Greek *asphaleia,* the word is connected to the Greek god Poseidon, Asphalios, god of the seas. Asphalios is at once the stabilizer of the earth, and the one capable of shaking it to its core (Dillon 1996, p. 121). Water has long been understood, then, as a dual force: a source of stability with the potential for catastrophe. This legacy places water at the mythological core of (in)security, and allows us to extend this analysis into a contemporary account of water insecurity.

This chapter works to show how a militarized approach to security engenders new forms of insecurity that permeate old landscapes of race, class and geography. It also shows how water evades and overflows the logics of security set out by modern (bio-)political governance, belying regulatory regimes based on scientific certainty, political

economies structured on insurable risk, and biological sciences presuming a normatively 'healthy' body bound from its environment. Instead, water reflects another material-semiotic relationship between life and its milieu, and refracts contemporary governance strategies to secure 'life as usual.'

"No age has been as insecure and mortally endangered as this our own insistently secured one," writes Michael Dillon at the outset of *The Politics of Security* (1996). As Dillon describes, this is not (only) because an absolute increase in danger in our times, but emerges from the nature of security discourse and practices, which define, specify and even elaborate the threat it is determined to extinguish (1996, p. 121). The effect however is not a simple elimination, but a dialectical negation and creation, because security changes the thing secured. As Dillon notes, "The flower picked is not the flower given. So the state secured is not the secured state" (1996, p. 122).

Dillon is one of many scholars who, following Heidegger, emphasize this dialectic production of insecurity within security. I follow this relationship ethnographically, examining how efforts to 'secure' water have become paradigmatic of the entangled uncertainties to which contemporary security techniques are attuned. Though often contrasted to freedom, security necessarily involves constraint, sometimes (re)producing insecurity to variable effect.

Figure 4.1: Aerial Image of Wurtsmith Air Force Base by United States Geological Survey (USGS 2006)

Michigan is often mapped on the body – specifically, in the palm of the hand. Ask a Michigander where they live, and if they don't live in the state's Upper Peninsula, they will turn over their right hand and point to a spot on the map. Lansing is dead center, with Flint just a tad up and over. Detroit sits at the base of the thumb, where its crease runs into to the side of the palm, not unlike the southern end of I-75. Looking at your right palm, if you follow that curve called the 'life line' north from the wrist, you will end

up near the whereabouts of Oscoda, Michigan, the home of Wurtsmith Air Base. Decades

after the base's closure, the site continues to affect the life of the community, now a

source of slow violence rather than a site for rapid defense.

Originally home to the Chippewa peoples, Oscoda (from the Chippewa

ossin meaning pebble and *mushcoda* meaning large prairie) was part of six million acres

ceded by / seized from the tribe under the Saginaw Treaty of 1819. The small town that

American loggers and hunters built on the site was all but destroyed a hundred years later

by a fire that left only 14 homes standing. Soon after, the Air Force approached with an

offer to buy the scorched earth for a small base, originally named Camp Skeel, and had it

in operation by 1923 (WAFB.net n.d.).

Wurtsmith is sited between two waterways, with the winding Ausable River to the

South and the man-made Van Etten Lake to the east. The Western end of the Ausable

River has water justice issues of its own. Residents there have been fighting to keep

Nestlé's Ice Mountain water brand from extracting hundreds of thousands of gallons of

water from the river without paying either for the water or providing benefits to the

surrounding communities (AP 2009).

Aerial images of the base accentuate its domineering posture in the landscape. A

paved runway stretches into Huron National Forest, while two working centers sit along

the river; on the south side are operations and recreation, to the north, the storage,

salvage, and emergency services. Though the projection of concrete into the forest says

much about the imperialist bent of the region's settlement, it is the north cluster that best

encapsulates the story of containment, contamination and control that I want to trace in this chapter.

It is on this part of the base that crewmembers lived on "fifteen minute alert," ready to fly nuclear-armed B-52 bombers (and the KC-135s needed to refuel them mid-air) at a moment's notice. Servicemen rotated through the bunker on high alert for one week out of every three, and each week, an alarm would sound; the team would not be told whether or not it was a drill until the planes were in the air. These nuclear drills were used for both preparedness and deterrence throughout the decades of the Cold War, and complemented by regular drills on the ground, particularly fire response (Norton 2017). These realistic simulations included real fires, extinguished with a powerful chemical mix called Aqueous Film-Forming Foam (AFFF). If the drills of the Ready Alert Nuclear Strike Force cast the longest shadow *symbolically* on our contemporary sense of security, remnants of the "A-triple-F" drills continue to ripple materially as substance and sign of our collective insecurity.

Developed by the Navy in the mid-1950s, the foam is a chemical mix of synthetic per- and poly- fluorinated organic compounds whose toxicity was not established until well after the end of the Cold War (Grandjean 2018). Of particular interest are perfluorooctanesulfonic acid and perfluorooctanoic acid (PFOS and PFOA), which have become the subject of Michigan's latest mediatized water crisis. These chemicals were put into use not only by the military, but in mass-produced commercial products, including DuPont's nonstick coating Teflon and 3M's stain-resistant fabric spray, Scotchguard.

These chemicals, known together as PFAS, have been found at 131 military bases around the country, and suspected to be present in many more (Michaels 2017).

PFAS have also been detected at industrial plans, disposal sites, civilian airports and firefighter training sites in 22 states [Figure 4.2]. Until recently, they were also used in food packaging, including popcorn bags, pizza boxes and takeout containers, migrating into drinking water systems affecting an estimated 16 million people. In fact, PFAS are believed to be present in the bloodstreams of one-third of the U.S. population, in addition to wildlife amphibians, birds, and mammals, and in every body of water contiguous with the Great Lakes (Michaels 2017) – a testament to the reach of circulation of these products in the market as well as the environment.
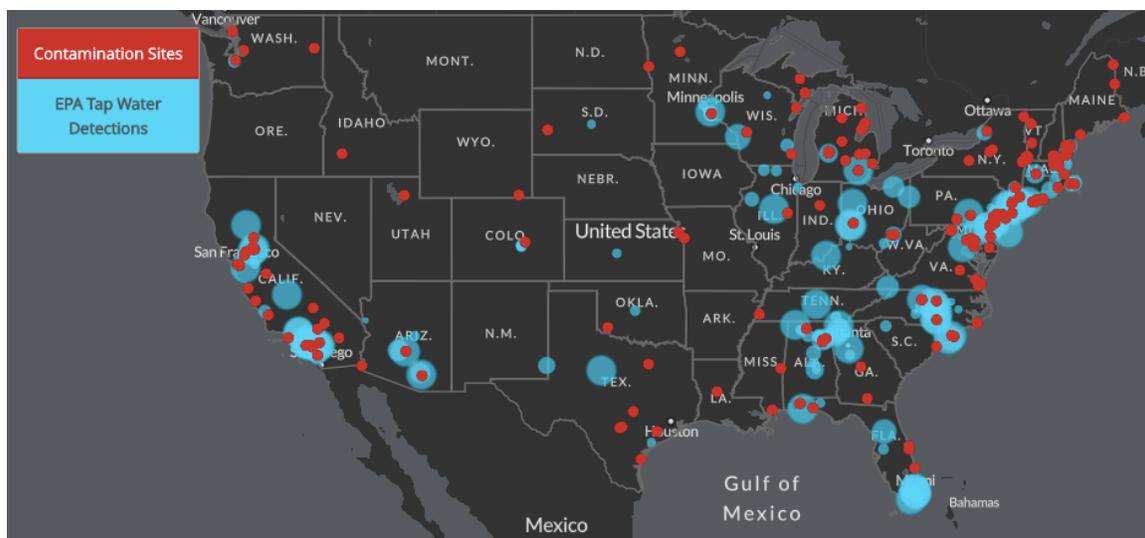
Figure 4.2: Infographic marking PFAS Contamination Sites and Tap Water Detection (EWG 2018)

The PFAS class of chemicals is believed to have multifactorial effects on human development and physiology, though definitive research remains lacking. They are

believed to affect impact kidney, liver, and thyroid function as well as reproductive systems in men and women; they are also associated with neurologic and behavioral disorders (including attention deficit hyperactivity [ADHD], autism and schizophrenia) as well as autoimmune diseases, such as diabetes and multiple sclerosis. To date, the studies in humans and animals remain "incomplete and inconclusive" (EPA 2018).

Without comprehensive toxicology reports, these chemicals have for decades been under-reported and under-regulated in American waters. In the U.S., chemicals without demonstrated negative effect are considered inert or innocuous until proven otherwise. More still, without a broad base of evidence, sick veterans, family members, and nearby residents have little to no recourse for their exposure. As with all toxic tort cases, definitive data is both vital and hard to come by, barring most legal routes for redress.

Wurtsmith Air Base has among the highest PFAS levels in the country – at one point registering 73,636 times the 'acceptable' limit established by the EPA (Cummings & Twenter 1986; Union of Concerned Scientists. 2018). Since the state began testing the water in 2010, it has issued 'do not eat' advisories for both local deer and trout from nearby Clark's marsh. Residents have for years been trying to get the Air Force to pay for decontamination of PFAS, but the Air Force has been reluctant to accept responsibility, as PFAS cleanup efforts are estimated at nearly $2 billion, not including the many sites beyond the 131 confirmed that are likely polluted (Knickmeyer & Press 2019). Adding to these costs, the Veterans' Administration would assume enormous expenses in healthcare liabilities if they were extend free coverage for service members and families impacted by contaminated water on bases, as they did at Camp Lejune (Reynolds 2018). The

Department of Defense itself operates more than 100 drinking water systems, serving 3.4 million people.

Residents primarily use private well water for domestic purposes, registering their objection to the high cost of public water alongside some distrust in the system. As word of PFAS contamination has spread, residents have demanded that the Department of Defense distribute bottled water to those who cannot drink safely from their groundwater taps. The federal government has offered vouchers to help residents connect to the nearest municipal water system, but has refused further containment measures. Though groundwater PFAS contamination exceeds Michigan state limits, because average levels do not breach the federal action limit, the Air Force has refused, claiming sovereign immunity from state or local laws (Carmody 2019).

Securing Life

My interest in this site is that its water troubles tell a story about the undercurrents of insecurity that flow from modern security regimes. Its history helps trace a transformation in the paradigms of security under which contemporary life is grasped and governed.

The Wurtsmith watershed enfolds the toxic legacy of militarism into the poverty of the postindustrial present. In this chapter I explore this history, exposing a security apparatus that is unable, or simply unwilling, to manage the forms of insecurity that characterize contemporary life. This is particularly so as the form and future of these insecurities are fundamentally uncertain and increasingly interdependent. I first examine the paradigm shift in security logics after the end of the Cold War, considering the global

emergence of 'human security' twinned to development programs on the one hand and the domestic emphasis on 'critical infrastructure' tied to urban planning on the other.

This securitization reimagined risks as unknowable and uncontrollable. Making "secure" shifted from planning and prevention to anticipating and preparedness (Collier & Lakoff 2015). I illustrate these logics through an examination of the relief efforts in Flint, attending to the production of insecurity within state efforts to secure uncertain futures. I then return to the question of contamination, attending to how vital systems security can deal with insecurity and uncertainty on a pervasive level, as ubiquitous environmental pollution encounters widespread economic precarity. Having pointed out what is neglected under an 'all-hazards' approach to security, water contamination shows how this neglect ripples as insecurity throughout one's life, and the life of a community. I look at the resources offered by the Environmental Protection Agency to deal with this disruption of 'life as usual' by way of conclusion.

But this is only part of the story. To understand the full force of the state in 'securing' the state of insecurity in which we live, we must also look to cities. The next chapter takes these themes two hundred miles south, back to Detroit, to explore the 'soft' and 'hard' policing techniques that impose and maintain radical racial inequality in access to water among the urban poor. In many ways, Oscoda is intimately a part of the narrative of 'Rust Belt ruin', and yet is also set apart from how the externalities of modern capitalism and military security are racially concentrated in the urban core. The face of the security state looks different in rural America, but its force nonetheless taints the water, running into every stream of life.

A caveat is in order at the outset: this chapter is not meant to suggest that the armed services have no role to play in promoting public safety through water governance, or that what falls under the banner of critical infrastructure projects are not, in fact, critical. To the contrary, the Army Corps of Engineers in particular has a long history of peacetime hydrologic service, repairing dams and strengthening seawalls, storing emergency drinking water supplies, managing riparian navigation, and guiding coastal restorations.[80] The Corps also plays a large role in flood control and emergency response, including in the wake of Hurricane Katrina and after the Flint water crisis was declared a national emergency. Each of these relief efforts was beset with its own limitations and failures, though explicating them is also not the purpose of this work. The point is to examine the interrelation of security and insecurity in contemporary postindustrial governance, and to explore water as an object and method for this inquiry.

Security and the Space of Life

To begin, I turn to Michel Foucault to explore security as a prominent apparatus of contemporary biopower, and then to his mentor Georges Canguilhem to consider the concept of the milieu as a space of uncertain reality to which techniques of security are applied.

Foucault's later works begin to distinguish security as a distinct apparatus (*dispositif*) of power within (late) liberal regimes. Foucault first addresses techniques of security in his 1977-1978 lectures at the Collège de France (2007 [1978]), not long after

[80] The Army Corps of Engineers is allocated by Congress through the Energy and Water Development their budget – including $50 million in Michigan. Of the $43,766,000,000 allocated for 2018, half is classified as defense spending and half as non-defense (Senate Report 115-258 2019).

publishing the *History of Sexuality, Vol I* and *The Will to Knowledge*, in which he

introduces the concept of bio-power. In these texts, Foucault traces a critical

transformation of the sovereign's juridical power to "take life or let live" into biopower, "a

power to foster life or disallow it to the point of death" (Foucault 1990).[81]

Because of this formulation, biopower is often presented as a coherent force

opposed to sovereignty. In fact, as Foucault elaborates, biopower is composed of two

distinct forms of power, discipline and security – neither of which replace sovereignty,

but adapt and incorporate juridical powers of right into new apparatuses of control.

Nevertheless, there is a gradual shift towards security as part of a general move from the

modern system to the contemporary one. As power shifts to invest in its subjects, rather

than repress them, in order to increase their productivity, techniques of control do not

disappear but appear in new forms to maintain the positive values of governance – "order,

health and wealth" (Buzan 2008, pp. 148, n6).

"The contemporary" is not a distinction drawn by Foucault, but rather is drawn

from one of his most prominent interlocutors, Paul Rabinow, who defines it as "a moving

ratio in which the modern becomes historical" (Rabinow 2017).[82] Contemporary

governance is not concerned so much with prohibition of certain social wrongs or

rehabilitation of the wrongdoer – or, having already established these, is more concerned

with understanding the pattern and distribution of phenomena and establishing

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[81] I offer a brief discussion about modern biopolitics and state racism in the first chapter, taking seriously
Achille Mbembe's criticism that Foucualt underemphasizes the racial violence at work. Mbembe's concept
of necropolitics names the power not only to 'disallow [life] to the point of death" but "to dictate who may
live and who *must die*" (Mbembe 2003b).
[82]   See also (Rabinow, Marcus, Faubion, & Rees 2008; Collier, Lakoff, & Rabinow 2004).

acceptable limits (Foucault & Ewald 2003 [1976], p. 246; 2007 [1978]). The disposition of security is neither positive nor negative; it is realist. Foucault sketches this progression again with respect to space: sovereignty is concerned with capturing a territory, discipline with structuring a given space by classifying and ordering its elements, while security attempts to plan a *milieu* "in terms of events or series of events *or possible elements*, of series that will have to be regulated within a multivalent and transformable framework" (emphasis added, Foucault 2007 [1978]).

Foucault emphasizes the mutability of the milieu as the space for governing life at the level of its 'effective reality'. The concept itself comes through physics as well as biology, as Georges Canguilhem details (2001). For Newton, the milieu referred to a substance that is able to translate action at a distance, with ether as the prototype; water offers a salient social milieu for this mechanistic model. For Lamarck, the milieu refers to "the set of living things around it" to which an organism senses, responds and adapts. The milieu for Lamarck is the source and site of variation, in famous opposition to Darwin, for whom it is the antagonistic relationship between living things and other living things that drives evolution. In Canguilhem's reading, the legacy of Darwin's work is to push the physicochemical milieu into the background. Attending to the milieu as an active, entangled and transformative sphere of life, Foucault picks up on it as a domain for the new techniques of security.

I consider water as just such an 'anthropogeographic' milieu, a paradigmatic source and site for the governance of life. Water not only shows in theory how security as an apparatus of power is organized around and within the space of life, but also helps tell

a story of transformations in American in/security since the end of the world wars. Let us

return to Wurtsmith to situate this theory and history in the golden age of capital.

Arsenal of Democracy: Security & the golden age of capital

Wurtsmith Air Base played a key role in WWII. In addition to training American

pilots to land on the frozen Van Etten lake and housing a unit of the Tuskeegee Airmen

(also known as the "Black Panther Pilots"), the base trained pilots from the Free French

Air command, assisting them in re-colonizing North Africa after it had fallen under Vichy

control (Norton 2017). To this end it represented a tricolor vision of international freedom

and security; allied capitalist nations resisting fascist authoritarianisms worldwide. Not

only did the war remake and globalize this vision of international security, it also

fundamentally reworked the structure of the American economy – most notably across

the Rust Belt [Figure 4.3].

As the United States prepared to enter the war, Franklin Delano Roosevelt

delivered a notorious address to the nation over radio broadcast. The President

encouraged American industry to steer its operations towards the production of

implements of war – "the planes, the tanks, the guns, the freighters which will enable

them to fight for their liberty and for our security" (Roosevelt 1940).

Figure 4.3: General Motor's Willow Run plant, named for the nearby creek, produced one B-24 bomber every hour during WWII. Architect Albert Kahn called this "the largest room in the history of man" (Corps 1940)

In 1942, all automobile assembly lines in metropolitan Detroit ceased production of civilian vehicles to manufacture military vehicles. By 1944, metropolitan Detroit was the leading supplier of military goods in the United States, and likely the major outfitter of the planes and weapons used at Wurtsmith. In three years, between the attack on Pearl Harbor and the end of WWII, metropolitan Detroit produced about $29 billion of military output and employed approximately 610,000 people in military production (Hartig 2006; Hartig & Wallace 2015).

The strength and security of the nation was based in manufacturing military weapons, FDR argued, as he praised the centers of capitalist production as the world's Arsenal of Democracy. In the same breath he warned, "The nation expects our defense industries to continue operation without interruption by strikes or lockouts" (Roosevelt

1940), suggesting that organized labor was in itself, at least at the time, a threat to this security, rather than its own source of popular strength. Moreover, although industrial production of planes, tanks and cars may have been a boon to the national economy, they continue to take an enormous toll on our environmental history, and have left devastating economic scars as the currents of capitalism have changed [Figure 4.4].

While it is impossible to calculate the historical footprint of automobile pollution relative to other industries, the model of resource-intensive mass-manufacturing began in Michigan with these companies. Cars, in turn, are the leading drivers of demand for oil and gas – in turn driving demand for U.S. military aggression abroad and extractive drilling at home (Nieuwenhuis & Peter 1994; Melosi 2004).

Figure 4.4: General Motors' Tilton foundry, photographed here in 1969. Built to make axels for military vehicles during WWII, the plant was closed in 1995. The slogan, "Victory is our Business," was printed on the buildings, visible from I-74, throughout the 1940s. (Crane 2018)

The contradictions and conflict in this vision of American modernity are reflected in the emblematic *Detroit Industry Murals*, painted by Mexican artist Diego Rivera for the Detroit Institute of Arts. The avowedly communist artist was commissioned with the financial backing of the famously capitalist entrepreneur, Edsel Ford, during the ascension of the automobile empire in the interwar years. Designed for and permanently installed in the atrium of the Detroit Institute of Arts, the 27 panels place the human toll of manufacturing, military, and medical advances in relief through a series of juxtapositions.

The Ford Motor Company had been selling both commercial and fighter planes since the early 1930s, and Rivera likely witnessed the manufacture and shipping of aviation equipment from the auto plants he studied for the paintings (Downs 1986). He also visited pharmaceutical plants with much interest, juxtaposing a vaccination scene in the style of the nativity against a scene of masked workers manufacturing chemical weapons.

Figure 4.5: Detroit Industry Murals, details from west side, fresco (1932-33), Detroit Industry of Arts. (Sullivan 2010)

On the west wall [Figure 4.5], a panel depicting the twinning of commercial and military aviation shows a labor strenuously hidden behind a repair on one side and a fatigue-faced fighter removing a gas mask beneath the bomber on the other. Beneath them, a face is split to show flesh on one side and bones on the other, representing the duplicity of life and death entailed in the modern capitalist project. On the fresco below, swimming fish appear to frown as they cross a waterway that connects agriculturalists of the American south to industrialists of the north, with their racing speedboats. Elsewhere assembly-line laborers, both Black and white, turn green from the sickening effects of work, while bourgeois onlookers and factory overseers alike watch over them. Rivera placed himself among the laborers being poisoned by modern industry.

If Rivera was particularly attuned to the consequences of work and warfare on

laborers' bodies, considerations of the slow but deadly accumulation of the waste

products of industry on the environment were perhaps only suggested. Directly opposite

the aviation panels, the observer faces a fresco on the east wall of a human embryo

growing in the womb [Figure 4.6]. A woman cradling corn sits next to fresh vegetables; on

the opposite side is a panel of man and machine. Rivera had originally planned to feature

a seed in the east wall's center; the plan was changed after Rivera and his partner, the

painter Frieda Kahlo, suffered a miscarriage related to serious injuries she sustained in an

automotive accident (Rosenthal 2015). That their personal tragedy reflected the themes of

the murals did not escape Rivera's notice. The artists' homage to the lost life in the image

suggests that life develops in the uncertain milieu of modernization, between nature and

machine.

Figure 4.6: Diego Rivera, Detroit Industry Murals, detail of east wall fresco (1932-33), Detroit Institute of Arts (Sullivan 2010)

When Detroit declared bankruptcy in 2013, the city's creditors pressured the

publicly owned Detroit Institute of Arts to sell its collection in order to pay off the city's

debt—the largest portion of which was held by the Detroit Water and Sewerage

Department. Among the major financial hardships for the water department is the need

for costly infrastructure upgrades in order to meet discharge regulations for untreated

sewer overflows and toxic chemicals running into the Great Lakes. Ironically, the

paintings that so strikingly depict of the toxicity of Fordist capitalism and the dangers of

fueling American militarism were considered for sale in order to cover the downstream

costs of routine water treatment. Though the *Murals* themselves were technically not

salable because they are installed in the building, they became the symbol of the DIA's

potential liquidation and the lengths to which the city would have to go in order cover

the enormous expense of maintaining water security.[83] None of these calculations even

included the rising costs of addressing "contaminants of emerging concern."

A Human-Induced Contaminant Crisis

     The concern over PFOA, PFOS and other 'emerging contaminants' is sharply rising

in Michigan today. Though the chemicals have been indiscriminately poured into the

Great Lakes for decades, they received little attention until the Flint water crisis alerted

Michigan to the extreme fiscal, social and political costs of water contamination. In the

wake of Flint, and the Detroit shutoffs, water has become a major issue in Michigan state

electoral politics, with emphasis on infrastructure upgrades, environmental

contamination and equitable access. As water has become a more crucial matter of

political concern, this out-of-the-way waterfront town has recently become a center of

clean water advocacy.

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[83] Another symbol of the DIA's possible liquidation during bankruptcy was Howdy Doody, a marionette puppet who was the star character in the 1950s children's show by the same name. Several water activists argued the city *should* sell the art piece, valued between $400,000-500,000 if it would prevent the water department from shutting off households. The Emergency Manager assured the public Howdy Doody would not be sold, as Attorney General Bill Schuette issued an opinion stating the DIA's artworks – unlike water, ad even DWSD's water infrastructure – are "held by the City of Detroit in charitable trust for the people of Michigan, and no piece in the collection may thus be sold, conveyed, or transferred to satisfy city debts or obligations" (Schuette 2013).

State legislators in both major parties have combed through drinking water quality reports under pressure from an increasingly scrutinous public. In 2018, a reporter with MLive filed a Freedom of Information Act (FOIA) Request to retrieve a now-contested report from a scientist with the Michigan Department of Environmental Quality. Titled "Michigan's Contaminant Induced Human Health Crisis," the 93-page report describes the widespread presence of PFAS chemicals as a serious problem for the state, and warns:

> Virtually nothing is known about the toxicity and environmental fate and transport of these chemicals. We are essentially running a large toxicity study and using the human population as guinea pigs. (Delaney 2012, p. 2)[84,85]

Nicknamed "forever chemicals," we do know that these chemicals do not biodegrade in the environment, as they are composed mainly of carbon-fluoride bonds, the strongest of covalent bonds. Moreover, PFAS persist in animal tissues as well, having an exceptionally long half-lives (2-9 years) in humans. These chemicals bioaccumulate through ingestion of contaminated water as well as consumption of fish and fish-eating animals, accumulating at each trophic level of the food chain (Giesy & Kannan 2001).

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[84] If the human population is used as "guinea pigs," wildlife fish and bird populations have become its sentinels. We rely on animal studies – of endocrine disruption in fish, masculinization in snails, changes in immune function in aquatic mammals and so forth – which may be harbingers of threats to come, but are not themselves easily extrapolated to human populations. Long an emblem of American freedom, the bald eagle population ironically has become intensively surveilled as a key species for monitoring chemical contamination in the Great Lakes (Fox 2001).

[85] In a linked issue paper, Dr. Richard DeGrandchamp presents an equally harsh diagnosis of the problem and the possibilities for its study and control, writing: "Contrary to the generally held belief by the public that governmental regulatory agencies rigorously study and protect the U.S. general population from the toxic effects of the more than 80,000 chemicals now in use in consumer products, this is a misplaced assumption. The vast majority of those chemicals in use today have never undergone toxicological testing...Lacking toxicity information on most chemicals forces scientists to wait until there is an outbreak of illness, and only then is it possible to link the illness or medical condition to chemical exposure, essentially using the general population as "human guinea pigs."... Simply put, there is no "control group," since all Americans have been exposed" (DeGrandchamp 2012, p. 9)

Though the exact etiologies of the chemicals in humans remains unclear, this is in large part because they have not been sufficiently studied, with studies having been efficiently suppressed by industry and government scientists alike. 3M, for example, knew of their accumulation in fish populations in the 1970s and knew them to be toxic, characterizing negative effects on the immune system in internal documents (3M 1979; Lerner 2018). Little was published in scientific journals about these chemicals until the 1980s, perhaps because chemicals so resistant to breakdown were wrongly presumed to be biologically inert (Grandjean & Clapp 2014). More recently, a 3M report on a study of its workers showed links between PFAS exposure and elevated cholesterol and triglycerides (risk factors for heart disease) in 2001, but downplayed these effects in its published paper two years later (3M 2001; Olsen, Burris, Burlew, & Mandel 2003; Lerner 2018).

Even the state of Michigan's own 2012 paper warning of this "contaminant-induced human health crisis" was "largely ignored" within MDEQ, receiving attention only after the FOIA disclosure (Ellison 2018). The paper's author, Robert Delaney, a 30-year department employee, advised a slew of "urgent" proposals, including a multi-agency task force, state-sponsored dosage-response studies, statewide blood sampling and incidence mapping, and testing of food, drinking water, and water reserves for contamination. Of the 15 recommendations Delaney made, the only action taken thus far has been for statewide surface water sampling.[86] The EPA has since affirmed there are health harms

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[86] In a 1965 report, the need to take "immediate action" to confront water pollution was also evident: "Huge quantitates of waste products contained in this discharge [municipal sewage] change the Detroit River from a basically clean body of water at its head to a polluted one in its lower reaches. These waters are polluted

associated with PFAS, though remains vague about impacts other than increased

cholesterol. Other scientific studies have attempted to characterize the human health

effects, ranging across body systems [Figure 4.7].

Table 2. *Examples of CEC Categories and Associated Effects*

Use Category	Where has it been detected?[1]	Suspected health effects from environmental exposure[2]
Antibiotics	Groundwater, surface water, wastewater treatment plant effluent, land applied biosolids, potable water, recycled water	Antibiotic resistance in disease causing bacteria complicating treatment of infections
Disinfectants	Wastewater treatment plant effluent, treated potable water, ground and surface waters, recycled water	Genotoxicity, cytotoxicity, carcinogenicity
Fire retardants	Rivers down gradient of landfills and PBDE manufacturing sites, sewage sludge, natural waterways, sediments, bioaccumulation in fish, whales and other aquatic organisms	Endocrine disruption, indications of increased risk for cancer
Industrial additives	Industrial and household waste, soil	Can be toxic to animals, ecosystems, and humans
Life-style products (Caffeine, Nicotine)	Potable water, groundwater and surface waters affected by sewage or wastewater treatment plant effluent	Can cause cellular stress, negative effects on reproductive activity in animals
Nonprescription drugs	Wastewater treatment plant effluent, surface water, potable water, recycled water	Unknown health effects
Other prescription drugs	Potable water, recycled water, groundwater, surface water, wastewater treatment plant effluent, land applied biosolids	Increased cancer rates, organ damage
Personal care products	Ground-waters, surface waters, sewage, wastewater treatment plant effluent, biosolids, aquatic sediments, biological samples (bioaccumulated in fish tissues)	Bacterial resistance, endocrine disruption
Pesticides	Groundwater, surface water, potable water, recycled water	Endocrine disruption
Plasticizers	Surface water	Endocrine disruption, increased risk of cancer
Reproductive hormones	Surface waters, potable water, recycled water, wastewater	Endocrine disruption
Solvents	Groundwater, soil, potable water	Endocrine disruption, liver and kidney damage, respiratory impairment, cancer
Steroids	Surface waters, groundwater, potable water, recycled water, wastewater, sewage, effluent, biosolids	Endocrine disruption

1. This column indicates locations at which the category of CEC has been detected and/or studied and not necessarily the limit of their distribution.
2. For many of these chemicals, listed effects result from very high levels of exposure.

Figure 4.7: Table showing categories of "Contaminants of Emerging Concern" and their 'suspected' health effects. (Raghav, Eden, Mitchell, & Witte 2013)

bacteriologically, chemically, physically, and biologically, and contain excessive coliform densities as well as excessive quantities of phenols, iron, oil, ammonia, suspended solids, settleable solids, chlorides, nitrogen compounds, and phosphates." These are the major organic and inorganic pollutants in the management of peri-urban watersheds, representing human excrement as well as industrial effluents (mostly from Steel, Paper, and Auto manufacturing plants) and have complex interacting effects: high levels of phenols and ammonia reduce the effectiveness of chlorination, a mainstay of sewage treatment to reduce bacteria to a safe level. The report warns that declining levels of dissolved oxygen are approaching "the danger point" (EPA 1965).

Yet the technicalities of water policy and the shadowy nature of Michigan's notoriously corrupt government may mean that opening up existing regulations in this political climate may backfire against health and conservation advocates, as industry lobbyists may sneak through measures that regress, rather than advance, protections. Senate Bill 1244, introduced by a Republican as an environmental conservation measure, would tie cleanup efforts to federal standard, but in turn preventing the Democratic majority from tightening standards as the scientific basis of evidence mounts. It would also bar the chemicals from being tallied together; in name, this ensures standards are set for each compound, but in practice, it doubles the allowable toxicity limits.[87]

Threat Level Yellow

Alongside the state's inability or unwillingness to regulate these contaminants in the haze of scientific secrecy, there is also an equal and opposite concern about publicly exposing the ubiquity of these chemicals in drinking water systems. At a 'roundtable' meeting with state and municipal water experts, community leaders, advocates, and utility directors, concerns about the distribution of information were widely expressed. A debate emerged over "just how safe" people should expect their water to be, and "just how much" people should know.[88] One major city's utility director stated flatly: "Look, the

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[87] Though EPA Administrator Scott Pruitt declared PFOS contamination a 'national emergency,' he at the same time led efforts in the federal government to retreat from its regulatory role, and even to paper over its place as an arbiter and archivist of scientific records. At the 2018 EPA summit, Pruitt had the Associated Press forcibly removed by security guards, a symbol of the department's general disavowal of transparency under the Trump administration (AP 2018). With the safety of U.S. climate data at risk of deletion to support government denials, projects like the Azimuth Climate Data Backup Project are engaging in "guerilla archiving" of climate science reports (https://www.azimuthproject.org/).
[88] As Kim Fortun describes, there are two ways in which the subjects of environmental risk are conceptualized in regard to information. Risk communications experts operate from the assumption that

days of pure water are over… Folks should know that all water use involves risk." He

wanted to continue publishing figures on contaminant monitoring, system capacity, and

financial solvency of system in the department's annual report, even though he

acknowledged these disclosures generate "nearly zero" public attention. Others feared

such disclosures could fuel public panic, and argued that too much information might

confuse and overwhelm people, especially as their "agency" in the matter was limited.

An engineer with the State of Michigan Department of Environmental Quality

asked permission to 'take off' her professional hat and offer something of a confession:

"I'm embarrassed, frankly, that I've worked in this field for a decade and all this snuck up

on us…. Water used to be something we could trust. That's where we were and now we

aren't. I don't know about you, but I don't want to be at threat level yellow all the time."

Figure 4.8: Plumes of PFAS foam over Michigan waters (Cole 2018)

people need to know conclusive information in order to divert panic; in this they are paradigmatic modern
figures who represent a belief in scientific certainty and consider uncertainty a liability. On the other hand,
environmental information systems designers sought to make information – both conclusive and uncertain
– available to interaction by those subjects of risk. (Fortun 2009)

Insecurity beyond Illness

The emergence of diverse forms of water insecurity in the historically 'secure' global North – and in particular in the water-rich Great Lakes region – reflects the end of an era of American exceptionalism secured by military might and a broad middle class. In the decades since 'the golden age of capitalism,' the erosion of social security, the securitization of finance, and the proliferation of uncertainty have produced widespread insecurity throughout the country, concentrated in its now post-industrial corridor.

One Oscoda resident's story illustrates how these forms of in/security flow together. Stationed at Wurtsmith Air Base for 6 years, Shirley Coolidge has developed one health issue after another over the 16 years since, all of uncertain provenance and prognosis. Within four years, Shirley had two miscarriages, alongside irregularity, cramping, and menstrual clotting. Over the course of the next two years, she struggled with shortness of breath, persistent fatigue, constant cough and a strange nasal discharge. Eventually, she was unable to complete her yearly run and was 'med boarded' out of service. Two more miscarriages followed. As Shirley dealt with a cascade of mysterious symptoms, each time she had to navigate the fractured U.S. healthcare system. Symptoms with nondescript origins (migraine, fatigue, generalized itch) were often dismissed by providers, who saw no way to treat her or could not authorize coverage. Even as a veteran, Shirley struggled to have her treatments covered, finding it difficult to link her symptoms with scientific certainty to her exposures.

Like so many residents, Shirley's insecurities certainly include, but extend beyond, these health effects. Reports of the water contamination have significantly affected the local economy, already quite impoverished by present standards as well as compared to its own past. The average income in Oscoda today is a fifth below an already poor U.S. average, and the unemployment rate is double that of the country. Reports of water contamination further depress local property values. Known for its beautiful scenery and recreational and fishing activities on the river, fears of a loss of cultural life accompany fears of a decline in tourism. "I never thought the activities I loved most would be what made me sick," she wrote.

The effects of water insecurity foment a vicious cycle, as the depressed economy in turn makes the town quite indiscriminately welcoming to new companies. Most recently, Oscoda subsidized a foreign plastics producer to build a new plant, a fount of contaminants of emerging concern that will no doubt run into their local waters. I return to 'contaminants of emerging concern' as a representative category of contemporary insecurity in the final part of this chapter, but want to stay closer to the transitions of security, as a concept and a condition, in American society as 20th century prosperity recedes and 21st century precarity sets in.

Wurtsmith base closed in 1993, at the end of the Gulf War. As the tensions of the Cold War have thawed, and the temperatures of the planet warmed, security concerns have also been transformed. From conventional security studies, often housed within political science and international studies, the narrow focus on armed national defense

began in the 1990s to integrate concerns with international economic development under the rubric of 'human security.' I turn to this discourse next.

Water: What Kind of Security?

Water security is undoubtedly a vital and persistent concern for all living beings, but as such, is an inherently situated and relational concept. Though it has no universal form, it has become a near-universal term to refer to problems of water quality, quantity, and access. In a review of the term, Cook and Bakker find that the use of the "water security" frame has increased precipitously since 2001, in both the natural and social sciences, and in academic and policy realms. In fact, they record that the term appeared in fewer than five publications in any discipline before the year 2000 (Cook & Bakker 2012).

Water security writ large comprises four domains (adapted from Cook and Bakker): (1) threats to drinking water supply systems (From contamination, lack of access, or terrorist attacks), requiring monitoring, emergency preparedness and investment; (2) threats to economic growth, particularly with respect to food security and energy security, with a need for technological innovation and water consumption; (3) threats to water-related ecosystems; and (4) increased hydrological variability in the context of climate change, implying the need to develop governance and social strategies for dealing with uncertain futures . The authors collapse these wide-ranging concerns into this broad definition of water security: "an acceptable level of water-related risks to humans and ecosystems, coupled with the availability of water of sufficient quantity and quality to

support livelihoods, national security, human health and ecosystem services" (2012, p. 96).

Why this sharp turn towards security as the global framework for thinking about water? The answer relates to the rise of security concerns in the years after the September 11 attacks, but more fundamentally, tracks back to the turn towards 'human security' as an organizing framework in post-Cold War international relations. Human security was intended to move security thinking away from a world defined by known military threats to one attuned to more complex and uncertain dangers.

The first major statement to outline this turn is the United Nations Development Programme's 1994 *Human Development Report:*

> The concept of security has for too long been interpreted narrowly: as security of territory from external aggression, or as protection of national interests in foreign policy or as global security from the threat of nuclear holocaust… Forgotten were the legitimate concerns of ordinary people who sought security in their daily lives. (UNDP 1994, p. 22)

The UN goes on to outline its proposal for 'human security':

> Human security can be said to have two main aspects. It means, first, safety from such chronic threats as hunger, disease and repression. And second, it means protection from sudden and hurtful disruptions in the patterns of daily life – whether in homes, in jobs or in communities. (UNDP 1994, p. 23)

Critics of the terminology of course object to the breadth of such a term, but given the relational dynamics of hydrological and hydrosocial dangers and promises, it has become necessary to think 'water security' through a multi-scalar framework that incorporates biological, cultural, social and ecological concerns.

Indeed, though claims of impending 'water wars' circulate widely in popular imagination and the popular press, scholars generally dismiss this representation, noting

that cooperation and negotiation dwarf conflict in interstate disputes over water.[89]

However overplayed the notion of wars fought over water may be, there is a strong tradition viewing water as a weapon in war, as well as strategic intrastate provision and withholding of water to control populations. Michigan residents allege that the disconnection of Detroiters en masse is such a 'weaponization' of water, and part of a practice of dispossessing poor, Black communities from their homes and land, imposing a kind of 'water apartheid'. I discuss these concerns in Chapters 1 and 5, but contextualize them here within the broader discourse of 'water security'.

In all of these discourses, what characterizes contemporary water security is the growing emphasis on "hybrid" threats of increasing complexity and diffuse risk. Even classic security concerns, narrowly defined, have widened to respond to a combination of insurgency, civil conflict, terrorism, pervasive criminality and widespread civil disorder (Hoffman 2008). What they do not consider are the underlying determinants of these militaristic threats, nor the accessory dangers of physical, emotional and ecological insecurity that are coproduced. Water is a symbolic and material medium for a broad range of insecurity concerns, reflecting the strategies of governance used to secure them.

National meets Natural Security

Under the auspices of human security, security becomes even more difficult to define, as it can encompass so much that it may seem in the end to signify nothing at all. This is certainly at the heart of critiques of new directions in critical security studies. On

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[89] In separate papers, Gleick (1993) and Wolf (1998) argue that the earliest recorded armed conflict over water – 5000 years ago in Mesopotamia, between Umma and Lagash – is also the last.

the other hand, a capacious concept of security not only responds more 'realistically' to the complex challenges of contemporary societies, but also provides fruitful ground theoretically for exploring the dialectics of in/security. I find the openness of security particularly generative for thinking about contemporary water governance, and find water equally salient as a medium for thinking security.

Traditional security studies, developed from 'strategic studies,' is a field oriented to 'problem-solving' issues of armed conflict and international relations by evaluating interests and dangers through a "realist" lens. This normative framework began to crack in the 1980s and '90s as challenges from poststructuralist and feminist scholars questioned its fundamental assumptions. Richard Ullman argued that the focus on military security "conveys a profoundly false image of reality" in a 1983 paper that became the first major wedge into the orthodoxy of security studies. He went on to explain how this 'false image of reality' is "doubly misleading and therefore doubly dangerous":

> First, it causes states to concentrate on military threats and to ignore other and perhaps even more harmful dangers. Thus *it reduces their total security*. And second, it contributes to a pervasive militarization of international relations that in the long run can only increase global insecurity. (1983, p. 129)

For Ullman, the established political landscape in the United States, as elsewhere, skews towards military concerns because they evoke more fear in, and therefore more support from, the general public. National security becomes an umbrella justification for necessary expenditures, while nonmilitary threats to the nation's security are

overlooked.[90] He compares U.S. preparations for two 'low-risk, high-cost' possible events: nuclear attack by the Soviet Union and an earthquake along the San Andreas fault. While the former would have many more casualties, the latter would certainly disrupt regional if not national security and is many times more likely to occur. However, the federal government at the time spent 47 times as much on nuclear preparedness as it did on "comprehensive emergency preparedness planning" for earthquakes, and still much less than that on measures that would minimize damage from an earthquake (1983).

Over the latter half of the 20th century, nuclear preparedness measures informed and became joined to disaster response efforts, drawing on the same practices of vulnerability assessment and crisis management, and eventually becoming administratively combined. It was President Carter's administration that first moved to integrate disaster and attack preparedness into a single 'civil defense' agency, the Federal Emergency Management Agency (FEMA). The catalyst for this consolidation was the nuclear accident at Three Mile Island in 1979 (Adamski, Kline, & Tyrell 2006). Strikingly, the radiation release was the result of an industrial accident rather than an international attack, revealing the fallacy of militarized defense at the expense of domestic maintenance.

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[90] Though the invocation of a state's "total security" might overly portray security as a finite, zero-sum enterprise, Ullman's incisive insight suggests instead that militarized security logics involve a vision of reality wherein discrete dangers can be controlled or suppressed by might. In turn, priorities skew to certain types of dangers while others are ignored. If the water contamination caused by the Air Force's routine anti-nuclear drills reflect this most literally, the water contamination in Flint represents another version of skewed security rationales exacerbating the insecurities they intend to conquer.

As the specter of technological accidents merged with growing concern about terrorism within the United States during the early 1990s, President Clinton steered FEMA to an "all-hazards approach," integrating disaster relief, industrial accident response, and homeland security preparedness. The protection of the nation's "critical infrastructures" became a central concern of homeland security, which only grew in significance after September 11. Soon after, a new Department of Homeland Security was created, and FEMA restructured under its direction. Budgeting for homeland security, which had doubled from 1996 to 2001, nearly doubled again in two years, reflecting the (re)prioritization of military defense as the heart of national security (FEMA 2006). The downfall of an all-hazards approach to security is that it at the same time allows all hazards to emerge, responding to rather than preventing emergencies.

Tying this history to Foucault's genealogy of power, Andrew Lakoff and Stephen Collier have advanced the concept of "vital systems security" as a distinctive form of planning and management of collective security problems emerging after WWII (Collier & Lakoff 2007; Collier & Lakoff 2015). They contrast this mode from sovereign state security (associated with 'hot' and 'cold' interstate conflict dating from the treaty of Wesphalia [1648]) and population security (concerned with the health and welfare of the citizenry, from the turn of the 19th-century). At the nexus of "critical infrastructure protection" and "homeland security," with 9/11 and Hurricane Katrina as paradigmatic events, vital systems security operates in relation to complex vulnerabilities stemming from modern technological and capitalist progress (2015). Importantly, risk is

reconceived, as there are dangers that cannot be calculated and managed in the present

with insurantial models (O'Malley 2004), as Ulrich Beck suggested (1992; 2009, p. 5).[91]

Underlying modern risk societies is the presumption that science and technology

will be able to control the risks it predicts (Jasanoff 2009), as assumption that has become

increasingly untenable in the contemporary era. Instead, there seems to be a proliferation

of what François Ewald calls nonrisks (2002) and Donald Rumsfeld famously called

"unknown unknowns" (Rumsfeld 2002), futures that cannot be calculated and thus

cannot be mediated by the means at hand. This *uncertainty* is not only qualitatively

different from risk, but becomes the substrate for a distinct form of contemporary, as

opposed to modern, governance (Samimian-Darash & Rabinow 2015).

Following Foucault, Brian Massumi argues that governance powers today extend

so far into the 'space of reality' that they stretch the very meaning of biopolitics (Massumi

2009). The governance of life has become "environmental," he argues, increasingly

attuned to emerging effects, rather than causes. The figure of today's threat "is

indistinguishable from the general environment" (2009, p. 154). In other words, the milieu

is the site of threat as well as the space of intervention, where "The overall environment

of life now appears as a complex, systemic threat environment, composed of subsystems

that are not only complex in their own right but are complexly interconnected" (2009, p.

159). Masumi reads this transformation into a telling verbal slip Barack Obama made

while announcing his Administration's new "*natural* security officials" (Obama 2008).

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[91] Beck suggests we have recently entered a period of "second-order, unnatural, human-made, manufactured uncertainties and hazards beyond boundaries we are confronted with" where those in power must "feign control over the uncontrollable" (2002, p. 41).

More than simply annexing the civilian sphere into the military, the indiscriminate, ubiquitous sphere of threat "in this uncertain world," as Obama described it, renders any a priori distinction between nature and culture untenable. Hence we have a Department of Homeland Security equally prepared to respond to terrorism and "catastrophe be it manmade or natural" (Obama 2008).

As uncertainty becomes both a means and an end of security techniques in the contemporary, 'vital systems security' regimes address precisely those events that are forseeable but not predictable, foregoing calculation for containment. As Lakoff and Collier's framework suggests, this form of security is concerned with the vulnerability of 'vital systems' (key infrastructures, institutions and public services) and the readiness of response systems. Thus its key rationality is *preparedness*, the ability to contain a disaster before it becomes a catastrophe (Collier & Lakoff 2008; Collier & Lakoff 2007); and by making it possible to bring future threats into the present it also operates under a key temporality of *anticipation* (Adams, Murphy, & Clark 2009). I want to draw on each in relation to the Flint water crisis below.

"All-Hazards Matter"

Of course, the vitality of water systems is not in and of itself a new concern. In 1941, FBI Director J. Edgar Hoover wrote, "It has long been recognized that among public utilities, water supply facilities offer a particularly vulnerable point of attack to the foreign agent, due to the strategic position they occupy in keeping the wheels of industry turning and in preserving the health and morale of the American populace" (Hoover 1941, p. 1862). The threats considered by Hoover's report (arson, 'time bombs', power

disruption) anticipate precisely the kinds of low-probability, high-consequence events that 'critical infrastructure' protections are designed to manage. However, by the state's own measures, Michigan's water infrastructures face threats of an entirely different nature. In the 2018 "Report Card," drinking water infrastructure was given a score of "D-" for its ongoing 'service delivery challenges' including: Aging infrastructures; Pollution and hazardous materials from point- and non-point sources; Compromised surface waters; Reduced urban (domestic) demand compared to expanded demand from extractive industries ("e.g., bottling, irrigation, oil/gas recovery"); climate and weather change (American Society of Civil Engineers 2018).

Under contemporary "critical infrastructure" perspectives, it is the very vitality of water – to biological life, but also to economic functioning and social order – that makes it so vulnerable, not only to attack in the postwar imagination, but also to glitches, hacking and terror in postindustrial times. Then as now, the routine failures of disrepair and the political economic engineering of dismantlement are rarely considered 'critical' security threats. These are the security concerns of residents whose lives are rendered multiply insecure by the downstream consequences of these threats. Indeed, the most critical threats to this vital system are internal, constitutive of its increasing scale and complexity: the materiality of its degradation, changing demands of industry and population, mismanagement of debt finances, and inadequate safeguards to handle toxic contamination and climate-related changes. A security regime oriented to 'control' of external renders such slow, unspectacular dangers invisible, diverting attention as well as resources from them until and unless they precipitate as an emergency. At the same time,

by performing preparedness exercises and proliferating 'security talk,' such governance regimes feed a sense of insecurity among the public.

Arguably, the Flint water crisis exposes how the federal government's 'all-hazards' approach nevertheless excludes the hazards of racial and environmental injustice faced in cities and towns across the country, and particularly in the post-industrial corridor. Flint emerges as an interesting case study in this space because it represents neither a foreign attack nor natural disaster as conventionally imagined. *Instead, an exceptionally negligent manifestation of otherwise routinized neglect created a city-wide crisis of water contamination*. Social theorist Henry Giroux has called it an act of "state terrorism" (2016). The two-year gap between the fateful decision to switch the city's water source and the initiation of relief efforts throws the 'preparedness' of vital systems security into sharp relief. It took two years of local organizing, citizen science, and investigative reporting to translate the security concerns of residents into those considered 'critical' to a state organized around particular forms of threat assessment and redress. Recalling the discussion from an earlier chapter on 'Black Lives Matter,' the 'all-hazards' approach erases the disparate burden of water insecurity faced in the Black community. Instead it appears as an "All Hazards Matter" campaign, which necessarily leads to an elite assessment and privileging of certain dangers over others, but in the name of all.

Still, because the poisoning was not considered a 'natural disaster,' it did not qualify for federal disaster relief at all under the Stafford Act—despite multiple appeals from the Mayor of Flint and the Governor of Michigan. Instead, relief depended on the Michigan National Guard and the American Red Cross, with some technical assistance

provided by FEMA. That the Red Cross – the nation's oldest and largest provider of

private relief – became a primary provider of service to Flint further signals the extent to

which the federal government's reorganized security practices leave nonmilitary dangers

marginalized. The Red Cross has traditionally refused to service 'unnatural disasters,'

from unemployment to drought relief, arguing that only in 'true natural disasters' could

"victims of circumstance" be distinguished from the "willfully and maliciously" needy

(Dauber 2012). The augmented role of the Red Cross as a charitable provider of relief in

Flint, followed by the private contracting of millions of dollars of infrastructure repairs,

echoes the presence of volunteer relief organizations working alongside private

contractors in the wake of Hurricane Katrina. As Vincanne Adams argues, this is more

than a story of the decline of the welfare state alongside the rise of (state-backed) crony

capitalism; "the two have become entwined in new ways: crony capitalism now makes

money on the welfare state" (Adams 2013, p. 13).

Thus, all-hazards preparedness leaves only certain dangers assessed and redressed.

The use of scenario modeling in preparedness planning reflects on how and for whom the

state seeks to preserve life. Before Hurricane Katrina, for example, scenarios run about a

fictional Hurricane Pam were premised on current demographic data about the number

of infirm or immobile residents who would not have the means to evacuate themselves

ahead of time. After the scenario, as Clyde Woods has shown, no plans were made to

provide transportation for those without; instead body bags were sent with emergency

relief aid (Woods 2017). Thus the underside of the power to secure vital infrastructures is

the constitutive insecurity of what – and who – is not deemed vital. The state, in its

calculations, accepted and authorized a certain expenditure of (black) life in order to preserve 'the life of the population'. It allowed the storm to happen, by neglecting maintenance to these levees and instead concentrating training and money on all-hazards preparedness.

In Michigan, the Flint crisis precipitated the State's systematic neglect of housing and water infrastructure, of municipal financial solvency, environmental injustice and even the semblance of democratic accountability. By imposing the source switch and refusing to pay for treatment, Flint, too, accepted and authorized an expenditure of black life in the present in order to secure the future.

Anticipation

As with any security discourse and practice, the object of security is changed as it becomes secured. In Flint, this becomes legible in the consideration of the city's children, who were changed as state subjects and objects of security as lead panic set in. In part this transpired through the temporal logic that attends contemporary security regimes, the logic of anticipation.

Contemporary time is marked by a sense of disaster on the horizon that we act upon in the here and now. Vincanne Adams, Michelle Murphy and Adele Clark describe anticipation a potent affective regime structuring our political present: "Through anticipation," they write, "the future arrives as already formed in the present, as if the emergency has already happened" (2009, p. 249). As the active management of the future becomes thinkable in the present, the object of anticipatory action is projected into ever-earlier stages of development, making the child a key site for anticipatory intervention.

This is emphasized in Cindy Katz' (2008) account of childhood in the United States following the political-economic upheavals of the 1960s and 1970s, and climate of what she calls "ontological insecurity." Characterized by heightened anxiety about the future, this insecurity has become mediated "in and through concerns about children and the nature of childhood" (2008, p. 6). Childhood, she argues, has become a paradigmatic space for "mobilization around social panics and the definition of social ills," with the child increasingly invested with affective, anticipatory concern. Anticipation is an affective regime in the sense that "the anticipatory regime cannot generate its outcomes without arousing a 'sense' of the simultaneous uncertainty and inevitability of the future, usually manifest as entanglements of fear and hope" (Adams et al. 2009, p. 249).

I turn now to the affective entanglements of fear and hope as they inform institutional arrangements of mental health care in the context of regressive changes to the provision of water and/as welfare in Flint, Michigan. I'm interested in how logics of anticipation structure care through the representation of the potentially sick child as a potential criminal, madman, or terrorist – to be contained by the very logics of security and "techniques of preparedness" that give rise to these uncertain figures in the first place.

We now know that nearly two years after decisions were made to switch the City of Flint's water source without paying for proper treatment, independent testing by residents and researchers revealed that there were elevated levels of lead in the water. These levels were in fact, dangerously high – higher than what the state had publicly reported; well past the "action level" set by the Environmental Protection Agency; and in

some cases, high enough to classify the water as "toxic waste." This is the water that a

friend's kids had been drinking for over a year, until they started developing rashes and

sores and "acting weird" in school. I asked her kids at a rally once, still six months before

the corruption was exposed and the 'crisis' was recognized:

> "Why are you guys here today?"
> "Because we're being poisoned," the older one, 7, said with a shy turn of the
> lip.
> "That's awful. Does it hurt?"
> "Not now but before, Joey got a rash."
> "I'm sorry Joey. What about now?"
> "Now it's gonna make me bad in school," the four year old replied.

It was unclear to me whether Joey meant bad in the sense of 'bad grades' or 'bad

behavior' but what is clear is that he was internalizing anxiety about the future as the

condition of his present: *now* it's *going to* make me bad. He, too, has adopted anticipation

as a mode of thinking about his childhood.

It is estimated that 99,000 Flint residents have been exposed. Though this toxic

water contains multiple kinds of contaminants, which affect people at all stages of life,

lead has figured most prominently in the "mediatization" (Briggs & Hallin 2016) of this

crisis because of its particularly pernicious effects on children's neurological

development, and the particular salience of childhood as a register of our cultural

anxieties and ontological insecurities. Within weeks, city, state, and federal states of

emergency were declared and an immense amount of institutional attention was

mobilized to respond to what is now widely recognizable as the "Flint water crisis." But

what exactly is in crisis?

Lead toxicity has long been known to alter human development, and in fact was a recorded concern of Roman water engineers as early as the 1st century BCE. In the United States, lead abatement programs have become a cornerstone of urban public health programs over the past twenty years, focused primarily on addressing remnants of lead paint in older homes and neighboring soils. This form of exposure is already endemic across the U.S. – particularly in the manufacturing cities of the Northeast and Rust Belt, where the housing stock boomed before lead paint was outlawed in 1978. A Reuters investigation found over 3000 zip codes where children under 5 had blood lead levels as high or higher than those in Flint (Pell & Schneyer 2016). Flint and other postindustrial cities could be read with respect to lead as already in a state of "crisis ordinariness," to borrow Lauren Berlant's term (2011), because of the endemic exposure to leaded paint in homes built in the industrial era.

In a special report on lead poisoning, the World Health Organization says that the element's effect on young brains are "untreatable and irreversible" (World Health Organization 2010). In populations that have had widespread exposure to lead, the report notes "there results a substantial increase in the number of children with diminished intelligence and mental retardation" accompanied by "a substantial reduction in the number of children with truly superior intelligence" (World Health Organization 2010, p. 26). The CDC estimates that between 2008 and 2010, its Childhood Lead Prevention Program helped reduce the number of children ages 1-5 with blood lead levels over 1 microgram/deciliter by 3 million, saving $26–57 billion in "lifetime productivity earnings" alone. These estimates are based on predictions of the supply and demand of labor, and

do not include the cadre of "anti-social" effects attributable to lead, including – according

to the CDC – "attention-deficit/hyperactivity disorder, juvenile delinquency, criminal

behavior, and an increased need for special education" (Centers for Disease Conrol n.d.).

This latter set of negative symptoms – though only demonstrable through

epidemiologic correlation – creates unique causation for action under security logics of

anticipation. It is no longer the distributed effect of lead on the IQ of the population at

large, but the individualized effects of lead on kids who may become not only sick, but

also dangerous. What I want to highlight here is the changed character of state

intervention, moved from the domain of economic productivity, through new biological

correlations, into the register of public safety. Despite the fact that the World Health

Organization report says that the element's effects on young brains are "untreatable and

irreversible," anticipatory governance requires that we *do something*.

Flush with anxiety and fear about the future, state agencies assembled resources to

monitor and manage Flint's children. The Mayor's state of emergency declaration reads in

part:

> Whereas the City of Flint children have experienced increased blood lead
> levels since the switch to the Flint River; and Whereas; this damage to
> children is irreversible and can cause damage to a child's IQ, which will
> result in learning disabilities and the need for special education and mental
> health services and an increase in the juvenile justice system… Now
> therefore, I, Mayor Karen W. Weaver declare a State of Emergency in the
> City of Flint, effective December 14, 2015. (Weaver 2015)

In this statement, current exposure is extrapolated into future effects, with criminality

and mental illness being presumed as certain "need." Unlike with PFAS, whose uncertain

biochemical etiologies allows the state to do nothing, the establishment of lead as a

hazard to human health compels the state to do something. But does it enable them to do anything? In its first public response, the City has gestured towards not only illness but incarceration as an end for many of these children. Time will tell how assessments of neurobiological impact are conducted, how they relate to this exposure event, and whether the juvenile justice system will make adjustments to criminal statute in light of these predispositions, but the historical record is not promising.

Mother Jones' Kevin Drum investigated the relationship between lead and criminality in a 2013 piece. He wrote:

> Needless to say, not every child exposed to lead is destined for a life of crime. Everyone over the age of 40 was probably exposed to too much lead during childhood, and most of us suffered nothing more than a few points of IQ loss. But there were plenty of kids already on the margin, and millions of those kids were pushed over the edge from being merely slow or disruptive to becoming part of a nationwide epidemic of violent crime. (Drum 2016)

It is the registration of the lead crisis as dangerous – more than danger *to* the kids (which lead in homes already forebode), but the potential for danger *by* these kids – that makes the Flint water crisis as a nationwide emergency fueled by racialized social panic. The anticipation of this threat to the nation authorizes the kinds of "techniques of preparedness" that Lakoff foregrounds (2007), a preparedness that may elide the possibility of *prevention* in its urgent orientation to the future.

The lack of prevention is not only exposed by the 20-month gap between the event of the switch and the initiation of state action, but also by the types of redress that are authorized by the emergency. The state expanded Medicare eligibility and nutritional benefits (food stamps) on an emergency basis, so that access to primary care and mental

health care becomes available *after* the fact of toxic exposure. At the same time, it creates a registry for "continuous monitoring" of the population that will "guide important health decisions and recommendations for the City of Flint and the State of Michigan for years to come" (Burke 2017).

"Connecting children to primary care providers who can follow their health as they grow and develop is a critical component of this response and recovery effort," said the Assistant Secretary of Health and Human Services, Dr. Nicole Lurie, demonstrating how monitoring children into the future is authorized by the state as a response to crisis, rather than a prophylactic measure. Primary care is no longer temporally prior – no longer primary. Under anticipation, preparedness takes the place of prevention, so that resources are reorganized to respond to an event, trauma or illness "as if it were already here" – making this kind of preparedness almost paradoxically speculative and reactive.

It appears as if we have become prepared for the dangerous potential of sick children (in a world of endemic exposure), rather than committed to preventing these children from ever getting sick. Indeed, it overlooks the way in which these children have been left to live in toxic homes. Moreover, the poisoned child now elicits further fear, not sympathy, another potential object of future catastrophe to be managed in the present. Of course, such a fear rests on the presumption that the children were 'healthy' before, safe before, unexposed before. Meanwhile, thousands more unregulated 'emerging contaminants' flow through the drinking water system.

Emerging contaminants pose an exemplary problem for vital systems security in its orientation to uncalculable risks and uncertain futures. The ubiquity of their presence

and toxicity nonetheless never reaches the level of hazards to which an all-hazards approach is warranted. Instead, contamination persists as an undercurrent of vital systems (in)security in the present.

Contaminants of Emerging Concern

At a systems level, just as Wurtsmith shows evocatively how security exercises can produce insecurity, Flint exemplifies how security regimes can invisibilize insecurity, confining care to a last resort. Flint reveals how the child exposed can become governed as a source of danger, a threat to be anticipated, while Wurtsmith shows how contemporary insecurity ripples out from sites of modern security, transforming the subject's sense of self and producing an 'emergency of emergence' to which the state must respond. I return now to the chemicals flowing through Wurtsmith to explore this ontological dimension of water in/security with respect to PFAS and other contaminants of emerging concern.

The perfluoryl chemicals are among the most recent additions to a rapidly growing list of "contaminants of emerging concern" –a catchall category for unregulated chemicals that enter the water system (Klaper & Welch 2011). The EPA estimates that one to three thousand new chemicals may be added into the economy, and in turn the environment, each year. The major classes of CECs are: Personal Care Products (shampoos, detergents, synthetic fragrances) and Pharmaceuticals (flushed pills, excreted byproducts, and in pharmaceutical plants' wastewater), which run into streams and seas alongside industrial and military waste products – including fire-retardants, plasticants, and pesticides. From

training ground to testing ground, the base and its surrounds are actively monitored for elevated levels of this class of chemicals.

Contaminants of emerging concern are of *special* concern in the Rust Belt basin, from eastern Minnesota to western New York. Many flow into large water bodies through municipal wastewater plants; treatment plants are only required to treat a small subset of chemicals before discharge. Moreover, in the event of storms, many urban systems are flooded beyond capacity, spilling runoff and untreated wastewater into waterways in large volumes, as explored in Chapter 3.

The government monitors only about 40 emerging contaminants, in addition to the 90 that are monitored and regulated by the EPA. It is widely acknowledged that these standards are outdated and insufficient. The reasons are political, temporal, and historical. The United States' regulatory system is fundamentally reactionary, a byproduct of the strong hand of corporate polluters in early environmental legislation and insufficient scientific understandings of pollution, not unrelated to the distorting influence of corporate research. Waterways were thought to be a 'naturally-cleansing' medium for toxic substances, encapsulated in the pithy but profoundly wrongheaded maxim: "the solution to pollution is dilution" (Tarr 1996). A continually hampering aspect of this legacy from a public health perspective is that a definitive record of human health impacts must be established before chemicals are removed from the environment. By contrast, the European Union and many nations operate under a "precautionary principle," where the burden is on corporations to prove that a chemical is nontoxic and establish safe levels before any of it may be released into the environment.

In 1978, an industry study of PFOA exposure in monkeys showed lesions in bone marrow, spleen and lymph nodes, suggesting immunotoxicity. A parallel study that year had to be aborted due to mortality among the monkey subjects at all doses (as low as 10 mg/kg/day) (cited inGrandjean 2018). Both studies were kept from the EPA until the year 2000, meaning more than two decades of investigation have been lost with no limits on the volume of chemicals released into waterways. By the time this research got underway, it was impossible to find an unexposed control group, as these chemicals were detectable in blood samples across the general population. Not only do they have a very long half-life in the body, they are transmitted to infants through umbilical cord and breastmilk, persisting intergenerationally.

Current guidelines from the National Toxicology Program state that PFOS and PFOA are now "presumed" to constitute immune hazards to humans, citing "moderate" evidence, as all studies are observational, not experimental. Moreover, the compound toxicity of multiple exposures from chemicals in this class complicates the attribution of effects and thus the potency of regulations directed at specific molecules. Though some guidelines have been tightened over time, many remain "orders of magnitude above" harmful exposure levels (Grandjean 2018). The studies that we do have show significant immunologic effects at levels well below the background exposure of the general population, including decreased efficacy to many common vaccinations. These low-dose but pervasive exposures thus risk undermining the archetypal intervention of modern biopolitics, as Foucault described with respect to smallpox vaccination (2007 [1978], p.

88), adding an infectious edge to the intergenerational transmission of chemicals that are already omnipresent in the environment.

Based on present information, the EPA recommends, but does not require, that the combined concentration of PFOS and PFAS in drinking water should not exceed 0.07 parts per billion. Most Americans have 2-9 times this concentration in their bloodstream (EPA 2018). These levels, however, serve no diagnostic purpose because there remains no way to relate exposure to effect, in either direction. An EPA memo to physicians reads: "If your patient has concerns about an exposure to PFAS, you may face the challenge of helping your patient cope with the uncertainty of potential health effects from a PFAS exposure" (EPA 2018, p. 9). Indeed, uncertainty has become the major symptom and sign of contemporary (in)security.

The circulation of contaminants of emerging concern through local and international waters reflects the ubiquity of uncertainty in contemporary governance. If for Foucault discipline refers to techniques of power applied in contained spaces or 'total institutions' (prison, home, school), security techniques are those that deal with spaces of flow, unbounded as well as uncertain. "In a word," writes Foucault, "security mechanisms have to be installed around the random element inherent in a population of living beings so as to optimize a state of life" (2003 [1976], p. 246). These techniques presume randomness without reducing it to risks that can be counted and controlled. Instead,

uncertainty is at the heart of the milieu, and the flexible regulation of emerging concerns

is at the core of techniques of security.[92]

Life as Uncertain

The CDC issues guidelines to the public, for people concerned that they may be

affected by contaminants, established or emerging.[93] Its banner reads: "Environmental

contamination in your community can disrupt life as usual. Feeling stress is a normal

reaction to this unusual situation" (CDC 2017). The materials describe how environmental

contamination can cause stress, how to identify signs of stress, and where to seek help if

stress is negatively affecting what it calls "life as usual." The vague phrasing belies a

romantic ideal, central to modern planning and governance, that noncontamination is

the norm, and contamination the 'unusual' exception. But water tells a different story.

Water tells the story of how the waste products of modernism – secured by a military-

industrial project and the smooth flow of capital – accumulate in rivers, spread

throughout waterways, and saturate life across species. Contamination is usual, not

unusual. Most of us have PFAS in our bloodstreams at higher-than-recommended

exposure levels with 'uncertain' effects. Even as this situation, however unusual, becomes

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[92] Paradoxically, as modern governance has sought to lubricate circulations of capital in wider circuits, incorporating each and every life into the economy, the modern dream of integration is belied by its increase in complexity and contingency. Dillon and Reid take up the problem of emergence in relation to liberal governance and security problems in their work, *The Liberal Way of War* (2009). For Dillon and Reid, the introduction of complexity into the biological sciences disrupts the understanding of life to which modern biopolitics is oriented. Instead, governance regimes must adapt to life that is always changing in its process of becoming – requiring a kind of constant 'emergency governance'. Dillon and Lobo-Guerrero call this problematic "the emergency of emergence" (2008).

[93] With the publication of this pamphlet and the setup of 'disaster distress' hotlines, the EPA is attending to how subjects of risk are potentially sickened not only by the object of risk analysis (here, PFAS), but by the burden of uncertainty itself.

normalized as a 'background' level of contamination, there are communities for whom

even exceptionally and dangerously unusual exposure levels are in fact the norm. So, "life

as usual," is not as the government suggests, life without stress, disruption, or threat, but

life that emerges in relation to the unusual, and that must always respond to the

uncertain.

Beside an image of a woman of color with her head in her hands and a dejected

look, the pamphlet details why one might feel stressed because of environmental

contamination:

> You may feel unsafe at home… You may fear for your children's health… You
> may feel uncertain about your present and future health… Your family and
> community may have conflict… You may feel frustrated by the long
> investigation… You may lose trust in government, community leaders,
> organizations and businesses… You may have financial concerns. (CDC
> 2017)

As Michelle Murphy notes, the "infrastructures of environmental racism… concentrate

chemical violence in some bodies, and security in others" (2008). For Murphy,

environmental racism is one way of sensing and naming how relations of place, history

and power are mediated materially, not just metaphorically, by the circulation of

chemicals. These "chemical relations," a riff on Vanessa Agard-Jones' "chemical kinship"

(2013), name how living beings become differentially composed by an interrelated system

of settler colonialism, industrial production, and resource extraction that continues to

structure race, class, and gender through differential embodiments of harm. As chemicals

saturate our atmospheres and economies, they also saturate our bodies, though they are

unevenly concentrated. Concentration here works across scales, and across disciplines:

from the physical terms of molecular density in aqueous solution, to physiological concerns with dose-dependent absorption and metabolism (properties that differ across species), and the temporal sense of an accumulative past saturating the present and structuring the future.

If early twentieth century environmentalism was marked by the fatally flawed thinking that "the solution to pollution is dilution," twenty-first century environmentalism is consumed instead by the problems of uncertain concentration. The double meaning of solution, as both "fix" and "mix," becomes potent as a way of thinking this transformation: the fix of indiscriminately dumping industrial discharges has produced a mix of contaminants whose metabolism and management have become new matters of concern. Though the specific consequences of contaminants of emerging concern are uncertain, it is clear that they have lasting impacts, on the natural and social world. These appear in the material signs of endocrine disruption, property devaluation, habitat devastation and stress-related fatigue that affect human and nonhuman communities. As Murphy explains, "This material, not metaphorical, entanglement in environmental violence is a condition of being alive today" (2008).

Like Murphy, I want to follow Indigenous feminist scholar Eve Tuck's call for "suspending damage" as the operative and myopic framework for describing people most affected by environmental racism (2009). This does not mean a refusal to acknowledge ways in which worlds have been wrecked by the toxic legacies of capitalism, some more than others. On the contrary, it requires us to un-see the artificial distinction between life and damaged life, or land and damaged land, which presumes that there are pure, empty

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or untouched places and peoples. Such a framework, Tuck argues, can underhandedly contribute to the marginalization and pathologization of those lives and lands that "damage-based research" seeks to protect by reinforcing the link between marginalized communities and depletion, ruin or hopelessness.

I hope to have shown that naming damage produces a need to secure it – a need wrapped up in particular valuations of the dangerous and the normal. As these attributions are tied to the communities put in danger by the structural violence of the security state, the racialized logic of security as a paradigm of governance becomes more clear – as the next chapter explores further.

I see the construction of environmental contamination as a "disruption" of "life as usual" in this EPA pamphlet as not only an (ethical) oversight but a(n empirical) falsehood. Just as it overlooks the normalization of environmental violence for some lives more than others, it presumes that 'usual' life is undamaged and uncontaminated. It is an empirical error as much as an ethical violation to overlook the structural repetition of this group-differentiated exposure to death – the very definition of racism in Ruth Wilson Gilmore's formulation (2007). As the material politics of living in contemporary times reveal, life as usual is constitutively uncertain. In the following section, I turn to the management of this uncertainty in the urban milieu, and its relation to policing as a governing apparatus perpetuating this racialized in/security.

Policing the Water Crisis
Coercion in the Place of Care

Arresting Charity

Early one morning, after turning on the tap only for it to spurt and sit idle, Charity

Hicks walked outside to find contractors shutting off the water to several homes on her

street. A renowned water justice advocate, Charity recognized the emergency quietly

unfolding. She ran out in her housedress to ask that the contractor wait so she could warn

her neighbors, offering them time to fill up the bathtub and jars of water for their

families' immediate needs. Her closest neighbor was pregnant, she told him, but the man

refused. When Charity asked to see the termination orders for her and her neighbors, "He

told me they are on the computer and he couldn't produce them," she told the *Voice of*

Detroit (2014). "The guy went to his car to look up the orders I thought, and I followed

him so he could show me on the computer. I was leaning up slightly into the car to see,

and all of a sudden he peeled off, hitting me and causing me to fall down and hurt my hip

and gash my foot, which began bleeding." A gallon-sized plastic container fell out of the

truck as the driver hit a bump speeding off. Soon, that discarded, disregarded water jug

would become criminal evidence used against her.

Hicks called 9-1-1 to report that she had been hurt in an assault. "The police came,

looked at my foot, and then told me they were going to charge me with felonious larceny

for stealing city equipment. They said if they were going to believe anybody, it would be the city. All of a sudden, I became the perpetrator."

The two officers, both men, both white, arrested her in front of her home without allowing her to get dressed. She says they kept referring to themselves as "good ol' boys" and jesting that she was "pretty articulate" for a Detroiter. Charity was taken, "virtually naked, with no shoes, no socks, no underwear, no keys or other belongings" to Mount Road prison, where she was fully disrobed and strip-searched. There were two "holding areas" – one for those charged with misdemeanors and one for felonies. Charity was penned in on the felony side, along with hundreds of women in a single cell, with no water: "There was one urinal and no water to drink or wash with, and there was human waste including menstrual blood all over the floor. I asked for socks or shoes because of the wound in my foot, but got none. No water, no beds, no nothing. We had to use the urinal with no regard to our health and safety," she recalled. Charity's health and safety was not only risked by the city shutting off her household water supply, but further compromised by incarcerating her for questioning their authority to dismantle her neighborhood.

This story, told and retold among community members of the water movement, was almost too horrific to believe. It became central to the activists' understanding of the stakes of the struggle, to their analysis of the relation between water and life for poor urban populations, and especially for Black women. It shows that the connection of water and life is not only mediated through the biological necessity for vital functions, but the biopolitical and existential status of black life in the eyes of the state. It was an especially

dramatic, but not altogether unique, portrayal of how forcefully the state acts to

dispossess the poor.

The story of Detroit's shutoffs is more than the story of the erasure of a century of

public health precedent by neglecting sanitary infrastructures and denying water to the

poor, and more than a story about the elimination of the safety net protections of a strong

welfare state. Increasingly, as Charity's arrest shows, these erasures and eliminations are

coupled with the expansion of a carceral apparatus used to contain the damage and

disorder that result.

Hicks herself was acutely aware of the contours and consequences of this mode of

governance, as she explained in an interview with Detroit filmmaker Kate Levy:

> This winter, for almost all of these vacant homes, pipes froze and burst. So
> we've got water running, just all over Detroit, in buildings – commercial,
> industrial, residential – and at the same time, a massive massive residential
> water shutoff campaign. It's... it's inordinate. It's abusive. And the quality if
> you look at it internationally, it's a form of genocide. It's a way to... it
> criminalizes you for being alive. (Levy, 2014)

That water is universally recognized as essential to life crystallizes the structure and

stakes of a system in which cities are rendered increasingly unlivable for the poor, who

are rendered increasingly poor by the securitization of cities under neoliberalism.

Many scholars have characterized neoliberalism as a "roll back" of the state (Kelsey

1993), describing a retreat from the provision of public infrastructure and services in favor

of the private sector. Certainly, neoliberalism's philosophical and economic belief in the

"allocative superiority" of markets and its skepticism of the state's capacity to manage

social welfare and achieve collective goals have underpinned sea changes in the economic

landscape of the United States since the 1970s. However, the neoliberal state's withdrawal

is not as total as many of its critics make it seem; alongside this "roll back," new forms of discourse and practice "roll out" (Peck & Tickell 2002). Indeed, the dramatic retrenchment of the state requires that new managerial and institutional practices must be created to administer and enforce social service denials. This encompasses both the symbolic violence of devaluing the commons and articulating new social relationships, as well as the structural violence of expanding punitive strategies to impose order in the absence of social security (Bourdieu 1971; Bourdieu & Wacquant 1992).

This chapter is an exploration of how the "roll back" of water service in Detroit is maintained by a complementary "roll out" of carceral 'containment' strategies. Antipoverty activists and feminist social workers have long contended that welfare is used as a pacification measure for those written out of capitalist labor markets, predicated as they are on a highly gendered division of labor and compensation. Famously, Frances Fox Piven and Richard Cloward have suggested that public relief has served to regulate the poor, not assist them (1993 [1971]). For these scholar-activists, welfare is a strategy of social containment, carefully calibrated to keep the poor in a relation of dependence where they are locked into a system that nonetheless exploits them. Welfare rights activists know this paradox all too well. While they protest the discrimination, indignity and oppression built into the welfare system, they nonetheless fight to preserve welfare out of necessity. Put another way, the political and philosophical mission of welfare rights activists is to fight for the freedoms *of people* on welfare, which is ultimately a freedom from dependence on welfare – not for rights to, or reform of, the system.

So far this dissertation has explored how legal architecture of rights pertaining to individual citizens fails to protect communities from multiple, converging forms of postindustrial water insecurity.[94] But this must be understood not simply as a limitation, or oversight, but as an imposition, actively enforced by the same (neo)liberal state. What's more, it is a harm enforced in the name of care, a punishment imposed in the name of protection.

Through activist engagements, intimate conversations, and ethnographic observations, I became increasingly attuned to the spectrum of repression that 'secures' these emerging water insecurities – from the 'soft' policing within social services to the 'strong' tactics of arrest and prosecution. This connection in particular follows the pioneering work of welfare rights activists who trace this continuum repeatedly, raising these issues at every microphone and meeting, drawing on decades of sustained activism. The leaders of Women on Welfare (WOW) are "organic intellectuals" of the black radical tradition and neoliberal transition who not only speak to the role of racial capitalism in sustaining marginality through force, but simultaneously organize to protect and sustain those who are most affected.

Drawing on their work, as well as published works in the sociology of policing, feminist critiques of welfare, critical race theory, and the anthropology of neoliberalism, this chapter follows a long line of scholars and activists concerned with the criminalization of poverty in the shadow of (social) security. With respect to the water shutoffs, these concerns took two primary forms: objection to law enforcement 'securing'

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[94] This is particularly true for communities of color and constitutively true for black communities.

exclusions from this public good and vital human resource; and outrage that the state could use Child Protective Services (CPS) to remove children from their homes if they could not afford to pay for water. Few policy accounts of the water shutoffs emphasize the encroachment of police into public water governance, though nearly all of them mention the possibility of child removal.

These events speak to the underside of public health and safety under the auspices of austerity. The stories in this suggest that *the water shutoffs are not only a means of enforcing fiscal discipline, but familial dependence* – an old and ugly story of how race, class and gender inequality are structurally produced and maintained.

In Part I, "Policing the Water Crisis," I examine the use of 'strong' police tactics in enforcing mass disconnections. I relate these practices to broader rise of militarism in the administration of social dispossession under neoliberalism, drawing on Ruth Wilson Gilmore, Jordan Camp, and other critical race scholars. With the classic work of Stuart Hall, I argue that the state maintains its legitimacy and hegemony amidst political-economic crisis by producing 'moral panics' and defining 'deviant' populations amidst this water crisis. Finally, I describe the policing of civil disobedience with respect to the water shutoffs, and show how water activism undermine the terms of 'necessity' and 'disorder' on which the neoliberal security apparatus depends.

In Part II, "Ending Water as We Know It," I situate the current water justice activism within the history of Black women-led welfare rights organizing, and place this organizing within the broader civil rights and Black power movements. The often-unrecognized role of poor women's urban activism within and alongside these

movements takes on new salience under neoliberal conditions, as the retrenchment of welfare provisions has been increasingly sustained by an expansion of the penal punishments (Wacquant 2009), most notably including the removal of children from homes without water. I draw on several months of fieldwork spent volunteering with organizers and members of WOW, assisting with casework and investigating the scope and impact of family separations due to water disconnections. While stories of state "child snatching" abounded, the official record was filled with silence and denial. Still, families are reorganizing their lives out of fear that their children may be remanded to state custody because they cannot pay their water bills. The contrast pushed me to consider the power of rumor in the policing of urban disorder, as a force of suppression as well as subversion.

In the weeks following Charity Hicks' release, rumors spread like wildfire – not only about her arrest, but about her death. I know this not because I was there, but because when I arrived in Detroit the following year, there was still talk of how Charity's death was undoubtedly a tragedy, but might not have been an accident. Someone said as much to me at her memorial-turned-spiritual gathering for the water justice movement. The sentence rolled off their tongue like hot molasses – which is to say, it stuck in the mouth.

Two months after her release, Charity was invited to speak at a national summit on food and water security in New York City. She spoke about the commodification of the commons and about the need to resist the privatization of water, earth and air with the incisiveness and elegance she was known for. After leaving the auditorium, Charity was

struck in a hit-and-run accident while waiting for a bus. The tragedy sent a shiver

through the water justice community. Whispers that the incident was a hit on her life –

an assassination – reflected not only a pervasive distrust of the police (the driver was the

son of a deceased NYPD officer), but amplified a running fear among Black activists that

speaking out, even on an issue as seemingly innocuous as water justice, could cost them

their lives.

Part I: Policing the Water Crisis

The use of policing to routinely surveil, cite and criminalize residents who cannot

afford water is one of the most pernicious examples of what sociologist Loïc Wacquant

calls "punishing the poor" (2009). For Wacquant, the withdrawal of public services and

social supports under neoliberalism has produced a widespread social insecurity that the

state in turn attempts to 'secure' with the 'strong arm' of carcerality. The criminalization of

poverty thesis is not new, but the overt criminalization of public water access in the United

States certainly seems to be.

In a previous chapter, I shared the story of Sam, a mother of five whose house was

cut off from water, alongside many of her neighbors, in a single morning. In this chapter,

I want to frame that event with an example of what happened the day before her shutoff.

The Day Before

The day before Sam's block was shut off, the Detroit Water and Sewerage

Department posted a tweet from their official account. It reads: "If you're stealing water,

we're coming after you…" [Figure 5.1].

Figure 5.1: Tweet posted by the official Detroit Water and Sewerage Department account

The post garnered a mix of public comments, most of which express shock and outrage at the Department's approach. Several users make appeals to the human right to water in retort. This tweet was in fact published just weeks after the UN visited Detroit for violating the human right to water by charging unaffordable rates and disconnecting those too poor to pay (WDIV 2014). One account, billed as an "intersectional feminist blog," posted: "we are reporting your account for threats, harassment and intimidation." Another reads, sarcastically: "At least they will get water in prison!" pointing to the sad irony that only people who are incarcerated have a constitutionally-protected right to water. Still others took it as an invitation. "You want free water? Take a bucket to the lake," reads one comment. Another user reports a neighbor by address that they believe to be "stealing" water. Of all the comments, DWSD replied only to this allegation, asking the commenter to "Please send further details."

The tweet included a link to an Associated Press report of a three-day period in which "Detroit's water system cited 79 customers for illegal use." From those 79

customers, DWSD levied $21,750 – an average of $275 each, and a far cry from the $90 million the Department is pursuing (AssociatedPress 2014).[95] Though the news article takes the illegality of this water use for granted, this framing merits pause from the beginning. Leaving aside that the reporter takes the Department's word for its figures, and capitulates to referring to Detroit residents primarily as "customers," that their use of water was 'illegal' cannot be presumed. Residents regularly contest erratic and inaccurate bills, but rarely have their debts adjusted. While electric and steam utilities' rates are regulated by the Michigan Public Service Commission – leading to a $27.2 million refund to electric customers for overcharged rates this year (Zaniewski) – municipal water companies are exempted from external review. There is no system for assessing whether the rates they charge are legal, or accurate – though they have been shown to be unaffordable, a violation of international law. Indeed, for those customers who cannot afford these rates, the department itself operates in violation of international law (but not domestic law – see the Introduction) by denying them basic water use. Given the circumstances, it would be more accurate to describe this water use as 'unsanctioned' rather than 'illegal.'

Nonetheless, within Michigan state law the Department has been successful in

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[95] No mention is made of the allocation of that debt between residential and commercial accounts. Two months prior to the report, a list of outstanding debts owed DWSD was published, showing that the worst offender of delinquent payments is the City of Detroit itself, with Palmer Park alone owing $422,295.40 alone. These accounts are not subject to shutoff or citation – while poor families are being squeezed for a few hundred dollars they clearly did not have to pay the bill in the first place. A management company for four Detroit golf courses, for example, was given a one-year contract extension despite its outstanding bill of $588,000.[95] Experts expressed concern that the courses would suffer irrevocably from even short droughts of a week without watering under the stress of players' foot traffic. Mike Illich, owner of the Detroit Lions and a major private developer in the city, owes upwards of $8 million to the water department. The State of Michigan owes DWSD $5 million (Kurth 2016).

alleging 'illegal' use and in turn charging fines and threatening arrests.[96] Fines for running

water 'illegally' start at $250 for the first offense, then $500 for the second and $660 for the

third. Customers are also charged to have the water officially reconnected. Even the

lowest fine is still higher than the $150 someone might owe to have been put in shutoff

status.[97] Still, service would not be restored unless the 'debt', any late fees, the fine, and

the restoration fee are paid. Customers unable to do so must come up with the $350 to

restore service ($450 in Flint), and 30 percent down on the rest – at minimum. Residents

also had to appear, in person, to a DWSD 'Customer Care' Center to have service

reinstated. For the poor, the elderly, and the children most affected by the shutoffs, in a

city without reliable public transportation, this is often a tall order. For those on

probation, immigrants who are undocumented, or others fearful of encountering law

enforcement, transportation concerns were just the beginning.

At the downtown office, two armed guards stand at the entrance, one watching the

metal detector and one watching the waiting room. This intimidated many people, afraid

that presenting to the water department to pay the fine was a "trap" that could get them

arrested. Some activists with the PWBC offered to go as surrogates, but DWSD insisted

that the bill holder had to be there in person – and discuss their accounts alone.

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[96] In defense of its discriminatory enforcements, DWSD claimed that infrastructural hurdles are higher with commercial accounts, which are often served by larger meters that could require temporary street closures to access. Equally if not more likely, as Maureen Taylor argues, it is because commercial customers can stall or stay their disconnections by tying up the matter with appeals. For these corporations, the legal costs are often far less than what is owed, none of which is collected by the city. It goes without saying that the poor do not have the luxury of lawyers to forestall their disconnections; often, they struggle to secure the legal and political power to protect themselves from further water-related criminalization.

[97] Late fees, by Ordinance, were required to be placed in a fund to help others who cannot afford their bills, though Emergency Manager Kevyn Orr was accused of violating this mandate (Bukowski 2014). Fines, however, had no such requirement at all. DWSD in turn was financially incentivized to levy these fines and the reconnection fees that followed.

Translators, partners, caretakers, children and advocates were not allowed to help the bill-holder speak with the "customer care" representative, even as the accuracy of charges were regularly contested and widely challenged.

Activists who passed out flyers with information about meetings, resources, and emergency water delivery were thrown out and threatened with arrest, told the payment center was "a place of business," (therefore granted rights to refuse service or expel 'customers'), despite the fact that it is a public office in a public building. Each of these policies made it more difficult for people to understand their bills and their rights, and were understood by residents as bureaucratic barriers to safely securing water access.[98]

Shutoffs are unevenly enforced within the city, as well as across the region. A study by grassroots activists showed that suburban municipalities served by DWSD were more lenient before imposing shutoffs, allowing their (whiter, wealthier) customers to be further in debt or overdue on their payments before disconnecting their service (We the People of Detroit 2016). Within the city, the permissiveness of reconnecting your own water was perceived very differently by white and Black residents [Figure 5.2].

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[98] When the Department of Justice was sent to investigate the murder of Michael Brown, an unarmed Black teen, in Ferguson, MO by a white officer who was never charged, what it found was a wildly discriminatory practice of "targeted" fines and fees levied against the African American community. The city of Ferguson was using these fees to cover the costs of the court system, to which Black Missourians were disproportionately exposed, and to fund the municipality's general budget. Some states have laws discouraging cities from using uniformed officers to collect petty fees, but not Michigan. Missouri actually does have such a law on record, but it covers only state, not local ordinances, so municipalities can keep any revenues generated from fines and fees imposed over local law (DeVore 2016).

**Race and Water Shutoff Policies
in Southeast Michigan**

← Most Lenient Shutoff Policy   Harshest Shutoff Policy* →

Shutoff Policy Data Not Available

● 25 African-American People

*Municipal water shutoff policies were rated on a scale of 1-24 based on several
critera: whether or not a municipality will shut off water for overdue bills, the
number of days a bill must be past due before water will be shut off, whether or not
a municipality provides payment plans, and whether or not a municipality allows
for "discretion" in deciding to shut off water.

Figure 5.2: "Race and Water Shutoff Policies in Southeast Michigan." An infographic showing leniency in shutoff policies as well as population demographics, showing enforcement policies are harshest in predominantly African American areas. From *Mapping the Water Crisis* (We the People of Detroit 2016)

Local networks among neighbors are often activated in the event of a shutoff to get

household water restored. The tool needed to turn on a meter could be bought at general

hardware stores for less than $30, and often people know someone who knows someone

who has one. Some activists anonymously posted a guide for how to reverse a shutoff,

encouraging people to work in numbers and deny involvement if approached. The guide

also encourages residents to fill the main with cement afterwards, "locking the water in

the 'on' position."[99]

However, many residents warn that it's a felony if you get caught. State law does indeed specify criminal penalties for tampering with water, steam, electric or gas distribution, whether corporate or municipal, and the charge increases from a misdemeanor to a felony if the value of the resource used exceeds $500 (MCL 750.282 1931). It is unclear how many prosecutions have been pursued (a FOIA request was denied), but clearly, the perception of susceptibility to such punishment of is unevenly distributed.

In my Detroit apartment, we did not have a water bill at all; upon signing the lease, we were told lights and gas were our responsibility, and that the landlord would handle the water. Once when the landlord came over to fix something, I asked him about it again: "It says we're responsible for utilities, but we've only gotten the DTE bill transferred into our names?"

> L: Oh, there is no water bill.
> N: As in, you're paying for it?
> L: As in, it's just hooked up right to the city. There's no meter, so there's no bill.
> N: Well what if we get shut off?
> L: Just call me and I'll come over and reconnect it. I've got the thing in my truck right now. It's just a big long wrench, basically, you can get at Home Depot.
> N: You don't think the city will notice?

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[99] Few water justice activists (with the notable exception of Charity Hicks) advocate these counter-tactics publicly. In fact, they often distance themselves and the group from appearing to ask for free water, mindful of claims that they are 'freeloading' off the city and taxpayers because there is a cost to water treatment. Instead, they point out that the current rates force the poor to pay much more than their "fair share" or face the life-threatening consequences of a shutoff, while corporate accounts run astronomic debts and companies like Nestlé are able to profit from millions of gallons of Great Lakes water they extract for free.

L: Well without the meter they have no way of knowing we're drawing water. And with the meter, it's a lot of money and it's just easier this way. I figure if they show, it's just a slap on the wrist. They'll put in a meter and just give me a slap on the wrist.

Lucas, our landlord, owned more than thirty houses in the neighborhood. At 26 years old, he moved from Los Angeles to invest in the 'revival' of Detroit, starting a family-owned limited liability corporation to buy up properties to rent. Whenever people offered me a ride home, it was easy to point out where I lived, because the side of the house was painted with a 'hip' abstract mural overlooking the empty lot next door.

I told Evelyn about this conversation when she dropped me off after a WOW meeting the next day. I didn't even have to mention that Lucas is white. Her reply was sharp: "Well you tell that kid he needs to shut his damn mouth! That's not how it works for the rest of us. We've had people brought up on charges—*real* charges, okay? We do that, and we're [treated] like terrorists." The racialization of privilege and insecurity becomes especially palpable when questions of police-enforced security arise, and often become a further dividing force in communities that struggle with basic needs. Evelyn, who is not poor and not Black, has been a welfare rights scholar and organizer long enough to know that security and insecurity are demarcated differently along racial lines.

The 'Whose Security?' State

As neoliberalism has become the dominant political-economic philosophy of contemporary governance, securitization has become a key modality of understanding and responding to attendant social and spatial transformations – particularly in cities (Caldeira 2000; Harvey 2005; Smith 1992; Smith & Cowen 2010). From the 1960s, as

American studies scholar Jordan Camp argues (2016), international security discourses of the Cold War era have been translated into domestic security and surveillance tactics to control unruly urban populations.[100] The reclassification of black dissent, for example, as an 'internal threat' to national security elevates the sense of urgency to "contain" and "suppress" the danger, but obscures the real danger – the unsafe and unequal living conditions to which the poor are subjected. Instead, it enables an expansion of a policing and prison system with in-built "structural" racism (2016, p. 61), and allows for the proliferation of symbolic and material repression constitutively premised on black exclusion and continually discriminatory against Black people and other racial minorities (see also Chapter 1).

Among the consequences of this "neoliberal racial security regime" has been the characterization of social protest as political insurgency and everyday struggles for survival as dangerous lawlessness (Camp 2012; Gilroy 1991). Potent examples of such appeals, and the dangerous avenues of repression they authorize, emerged amidst the struggles to stop the Keystone XL and Dakota Access Pipelines. In 2016, permits were granted to private corporations to build these massive oil pipelines beneath dozens of rivers running through Native lands, violating local sovereignty and threatening water security (Brown, Parris, & Speri 2014; Parrish & Levin 2018).

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[100] For Camp, this "neoliberal racial and security regime" emerged from a bipartisan consensus forged during the Cold War. As such, it is part of a 'continuum' of security strategies of 'containment', rather than a novel phenomenon of the late twentieth century ushered in by the rise of the Right. The Right's revanchism – an expression of racial revenge as much as of fiscal retrenchment – has not inaugurated, but instead only accelerated the ongoing repression of black freedom in the name of security.

Indigenous-led resistance to these projects mounted over a period of months, with demonstrators refusing the label "protestors" and instead calling themselves water *protectors*. Yet their peaceful resistance was met with militarized opposition. State and federal agencies deployed not only police, but private security firms, to disband and delegitimize peaceful demonstrations.[101] Police deployed water canons, teargas grenades, and bean bag rounds against the Standing Rock Sioux tribe; another private security firm set attack dogs on several peaceful demonstrators – with news cameras rolling— all in the name of "deal[ing] with safety and security concerns" (Juhasz 2017; DN.org 2016; ACLU 2018).

In previous chapters, I show securitizing strategies for governing water systems as "critical infrastructures" not only obscure but often produce critical forms of water insecurity, as well as how neoliberal governance of water is remaking the racial and spatial landscape of postindustrial cities. Here, I look at how threat, force, and fear become part of 'securing' the dispossession of hundreds of thousands of residents from public water provision. Together, these analyses speak to a broad complex of security

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[101] Energy Transfer Partners, the company building the $3.8 billion Dakota Access Pipeline, hired a private firm formerly contracted by the U.S. military and State Department for counterinsurgency operations in Iraq and Afghanistan, to surveil and control demonstrators. The firm described water protectors as "an ideologically driven insurgency" that "generally follows the jihadist insurgency model," suggesting that the movement could be "defeated" through "aggressive intelligence preparation of the battlefield and active coordination between intelligence and security elements." Indeed, local, state and federal law enforcement agencies did coordinate with these private actors, including sharing daily intelligence updates and possibly private information. The use of private security firms may enable more seditious extensions of the securitization of dissent, exploiting loopholes in legal checks and balances designed to apply to state security forces. The state, however, is certainly complicit: the following year, in response to growing resistance to the Keystone XL's construction, the federal Department of Justice held an "anti-terrorism" training for local law enforcement to respond to "deal with safety and security concerns related to the Keystone XL project" – neglecting the gross safety threats posed by the pipeline itself(Brown, Parris, & Speri 2014).

practices including military action, aggressive policing, expansive surveillance, mass

prison-building, and domestic disciplining – the brunt of which is unsurprisingly borne

by the poor, by women, by people of color, and in particular by Black residents of the

urban North (Countryman 2007). At a community forum on the history of policing in

Detroit, a flyer on the wall made this point with just two words: *Whose Security?*"

Mugging in the Media

    The connection between U.S. militarism abroad and policing at home was made an

explicit part of the civil rights struggle by Dr. Martin Luther King – despite the rift that

his anti-war stance caused among his supporters. In "The Crisis in America's Cities"

(1967), Dr. King warned: The bombs in Vietnam explode at home. The security we profess

to seek in foreign ventures we will lose in our decaying cities." The address was given just

three weeks after 43 people were killed in Detroit amidst the "long summer" of 1967,

during which American cities erupted in street battles and were met with heavy

suppression from local police and federal forces, inaugurating new national regimes of

domestic militarism [Figure 5.3].

Figure 5.3: The National Guard was called in to keep the peace in Detroit, 1967 (Balterman 1967)

Consider the inauguration of the FBI's counterintelligence program, COINTELPRO, in 1956. Originally directed to suppress the rise of the Community Party within the United States, the program set its sights on the Black freedom struggle as it gained prominence in the 1960s (Browne 2015). The Black Panther Party was reclassed as a "national security threat," while antiwar protestors, student activists and labor organizers similarly became the targets of local and national law enforcement. The framing of these movements as forms of 'insurgency' speaks to security at the level of the nation-state in ways that seem to supersede classic narratives of race and criminality at the level of the neighborhood – even as these appeals are constructed from the shared

raw materials of racial animus and fell on the same historic arenas of racial segregation.

Detroit became, or rather remained, an epicenter of this 'counterinsurgency', as the city

had long been home to labor, student, and Black freedom struggles. Indeed, it was the

crisis of U.S. hegemony signaled by the fracture of Fordism in the American midwest that

Camp suggests precipitated these securitized moral panics around race and crime.

The suggestion is an extension of the work of Stuart Hall, who along with Chas

Critcher, Tony Jefferson, John Clarke and Brian Roberts undertook a critical inquiry into

the problem of "mugging" in the United Kingdom (2013 [1978]). In their 1978 *Policing the*

Crisis, the sociologists examine mugging as a social phenomenon, rather than a 'fact' of

crime, arguing that mugging itself is just a label "mystifying the deeper causes" of class

conflict, racial ideology, and trenchant poverty. "The on-going problem of policing the

blacks had become, for all practical purposes, synonymous with the wider problem of

policing the crisis" (2013 [1978], p. 332) – where the crisis is not what it is presented to be

(the 'rise' in mugging) but rather a crisis of hegemony for the state, which has come upon

its limits of capitalist exploitation without civil unrest.

If 'mugging' cannot be chalked up to any 'actual' increase in crimes of this kind,

they ask, what explains why it becomes seen as 'a new strain' of violent crime, talked up

with much fear? The authors turn to Stanley Cohen's now-classic *Folk Devils and Moral*

Panic:

> Societies appear to be subject, every now and then, to periods of moral
> panic. A condition, episode, person or group of persons emerges to become
> defined as a threat to societal values and interests; its nature is presented in
> a stylized and stereo-typical fashion by the mass media; the moral
> barricades are manned by editors, bishops, politicians and other right-
> thinking people; socially accredited experts pronounce their diagnoses and

solutions; ways of coping are evolved or (more often) reported to; the condition then disappears, submerges or deteriorates and becomes more visible. (Cohen 1972)

Cohen's contribution to the burgeoning 'sociology of deviance' field was to carefully elaborate the rhetorical devices and political tactics of media reporting that produce moral panics from ordinary experience, finding them remarkably similar to the reporting of physical disasters, from earthquakes to bombings.

Such a picture of mass mediatized moral panic is offered nightly by the local news, is circulated daily in stories like the one DWSD tweeted, that parrot state statistics, completing the circle of 'manufactured' facticity on which the panics over 'mugging' or 'stealing water' depend. Asked to comment about the Department's 'crack-down' on water 'theft,' DWSD spokesperson Greg Eno said proudly: "For a recent three day period for example, just prior to the 4th of July weekend, we had about 300, uh, suspected, uh, illegals. And out of those 300, about 200 were found to be indeed illegal" (Dahl 2014). This designation, "illegals," sounds like a dog whistle, wholly conflating the criminal with the crime.

The interview was part of a local news story – an 'investigative' report by a local anchor whose series on crime and fraud "exposes" only the lengths to which the poor must go to make a living: squatting, scrapping and panhandling. The construction of a 'moral panic' over these petty 'crimes' is hardly subtle.[102] "Squatters terrorizing

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[102] To the charge that moral panic theory is simply the expression of political correctness, with cases chosen only for their 'suitability for debunking by liberals', Cohen offers that there have been numerous moral panics around child abuse – something irrefutably and normatively condemnable. What I hope to show in this case of just such a moral panic is how even 'child abuse' is a fungible category, capable to be

neighborhood," reads one byline (Dalh 2015). In another segment she pulls up alongside people asking for money along the highway, questioning whether they "really" are homeless, or sick. The video teaser opens with a man's voice over a series of flashing images and a mystery-thriller soundtrack: "They're everywhere. Places you don't expect. Holding signs, and begging for your money (a cartoon of a piece of cardboard with the word "BEGGING" flashes into the words "YOUR MONEY")." "It's becoming an epidemic," we hear. The crew drives up alongside a woman while the reporter skeptically asks, "You have cancer? What kind?" to which the woman replies, "stomach," turning to face the camera with a morbid face and a mordant stare (WXYZ-TV 2016).

In her report on the water shutoffs, the tall, blonde reporter pulls up to a yard where two Black men are using a water meter key to restore someone's service. The television station's ticker reads, "New Illegal Water Enterprise Targets Detroit Water Shut-off Victims" (2014). She jumps out of the car with microphone in hand, and the men, withholding comment, walk away. She follows one into the house and waits. Her speech shifts from the country charm of Sarah Palin to grating Black caricature – asking one elder, "Didja pay 'em?" – and back to a 'neutral' news anchor to report the 'facts' of these "scammers." After sitting outside the man's house, the crew confronts the man again as he leaves the house, leaving their stakeout car. "Are you charging?" she asks. "No, I ain't

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manipulated for political purposes. Admittedly, then, if there are no a-political morals or panics, then I agree with Cohen that the classic question posed by sociologists of deviance, 'Whose side are you on?' retains its purchase, even if they "sound embarrassingly simplified to the postmodern consciousness" (Cohen 2011).

charging, woman!" he shouts. Indignantly, and drives away.[103]

Hall et al. argued that the shoring up of "moral panic" over mugging was developed as a strategy for consolidating a 'silent majority' "in support of increasingly coercive measures" to deal with social crises. For this, they wrote, the British had the Americans to thank, as the stereotypes of black youth, criminality and disorder that had already been codified in U.S. 'law and order' practices were "imported wholesale" (2013 [1978]).

The construction of "stealing water" as a new category of crime – one that threatens the solvency of the city and betrays the character of the country – is one such moral panic, trafficked on these same tired tropes of black criminality. What has changed is the degree and kind of security state discourses and practices that are prescribed for these petty 'deviances'. Unlike the British police in the 1970s, American police today carry deadly weapons at all times, and have wide berth in the justified use of force.

Remember my white landlord, who himself owned tens of houses running water 'illegally', and not only does the hypocrisy of this panic become clear, but its function as a mystification becomes salient. This mystification is not only of the political-economic crisis of the times, but of the regenerative racialization of exclusions imposed with force out of all proportion, as Fred Moten proposes:

> The racialization of already extant criminal activity allows its epidermalized "novelty" to be interpreted as crisis. But the criminalization of that activity, *in its relation to the normalization of modes of propriation whose brutality and scale dwarf any and every instance of "mugging,"* is the real problem because, in the end, it was never about this or that instance or collection of

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[103] She was eventually hired away from the station to become a spokesperson for a federal law enforcement agency.

instances of law breaking; it was, rather, about the social self-defense of jurisgenerative capacity of which mugging can be said to be a particular manifestation, noteworthy not because of its brutality or venality or degeneracy but only because its enactment of self-defense through (re)propriative acts are susceptible to a condition in which they reinforce the brutal axioms of ownership and exception. (emphasis added Moten 2018)

For Moten, mugging is forcefully repressed not because it enacts violence, but because it expresses self-defense, because it re-appropriates property, 'stealing' as a reversal of the ongoing theft of labor, property and culture – of water – protected by the violence of policing.

Surveillance, Sousveillance

This policing comes at considerable cost – not only socially, sowing historic racial tensions in the region, but financially, for a city that is enacting extreme austerity in every other sector – 'necessitating' the unprecedented surveillance of water service. Detroit spent $5.6 million in 2014 alone to contract a private company, Homrich, to execute the water shutoffs. This figure does not include the cost of DWSD's in-house staff, nor does it include the labor-time of the officers that the city sometimes sends to accompany these workers – as they did when Homrich went to shutoff a Yemeni family in Southwest Detroit [Figure 5.4].

Figure 5.4: Photo shared by Luís on Instagram, July 2015. The original caption reads: "The police are protecting the private company Homrich Demolition as they attempt to shut off houses, the woman who lives here is pregnant in my neighborhood. #lilibb #swdetroit #unitednations #detroit #detroitwater #detroitpolice" (2015)

This photo was captured and captioned, then shared by Luís, a young artist and activist engaged in local Black- and Indigenous-led food sovereignty, water justice and 'back to the land' movements. He told me that a few weeks prior, Homrich workers had come to shut off this family's water and he personally did what Sam did, standing on top of the box. He and his neighbors were waiting with cameras when the workers came back, backed by armed officers – one standing with his hand over his holster. In the photo you can see the contractors cut off the family's water, with five children watching.[104]

The 'random' accompaniment of police in the execution of shutoffs, the 'surprise'

[104] The Raiz Up, an art and activism collective, created a video of police accompanying private contractors as they shut off water to an Arab family in Southwest Detroit during Ramadan (Raiz Up 2015).

exposure by news cameras, and vague but serious threats that the water department 'is coming after you...' produce considerable paranoia among those subject to the sights of the state. The perception of generalized surveillance imposes its chilling effect in small doses: for example, while conducting research on the impacts of the shutoffs at a local food pantry most people refused to answer questions on a tablet computer, fearing that anything stored electronically or shared online could be seen, though they did agree to take our survey by hand. This not only bars people from accessing services, but it disincentivizes them from participating in research, sharing their stories, or otherwise protesting the abusive conditions to which they are subjected, further impeding the capacity of critics to produce counter-narratives that could stand up to these big-budget 'moral panics'.

Posts like Luís' are actively used to 'name and shame' the water department's practices and to deter, hopefully, [105] or record, at least, incidents of police brutality in the moment of armed officers encounters with people of color. In Detroit, activists went even further, actively using their cameras and phones to surveil the workers and officers executing these shutoffs. Steve Mann has developed the term "sousveillance" for these practices, inverting the prefix of *sur*-veillance to reflect the flipped power dynamics involved when people turn their cameras on more powerful groups or agents of the state (Mann 2013; Browne 2015).

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[105] In a surprising study, investigators found that societies with open press are less susceptible to pressure from human rights agency reports. Part of the discussion suggests this may be precisely because more democratic states can still easily manipulate the media (increasingly privately owned) in order to criminalize communities, while the perception that reports are reputable, vetted and impartial shield the state (Hendrix & Wong 2013).

One small group of activists started an online forum called "Where's Homrich?"

encouraging people to 'follow and film' the company carrying out the shutoffs. Using the

hashtag #WheresHomrich, posters were encouraged to share the location of shutoff

trucks, both as a 'heads up' to residents who may be targeted and as a call for backup, or

secondary witnessing. The strategy was meant to document the contractors' "no-knock,

no-warning" practices (potentially violations of residents' due process rights), but more

generally to annoy, shame, and perhaps deter the workers. More than once, these

anarchist documentarians succeeded in pushing the drivers back to headquarters, stalling

or stopping impending shutoffs.

Figure 5.5: Photo of a plainclothes Detroit Police Officer from the chest down, with a gun holster on his leg and the police car in the background, posted to "Where's Homrich?" (Anonymous 2015)

To the public "Where's Homrich?" Facebook page, a woman posted a photo of an officer accompanying a Homrich worker conducting shutoffs. Photographed from the torso down, what is shown is a black shirt, black boots, and green khakis, and a gun visibly strapped to his leg [Figure 5.5]. In her caption she writes that the officer tells her that if the driver gets into an accident, she would be held accountable. She documents and posts photos of the company executing a shutoff on an elderly couple in the 94-degree heat – proving the department violates its own policy of halting shutoffs when temperatures fall below 32 degrees Farenheit or rise above 90.[106] "Incredible," she writes above the photo of the gun, "They're highly invested in protecting Homrich. Who protects the people?"

The Director of the Detroit Water and Sewerage Department – formerly Detroit's Deputy Police Chief – was at one point confronted by City Council President Brenda Jones about reports that contractors themselves carry weapons when executing shutoffs. Brown denied it, saying that no one had been 'deputized' by Detroit Police Department to do so, but the need for such a public denial itself generated rumors about the lengths to which the city would go to impose these 'illegal' shutoffs.

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[106] Several eyewitness testimonies and videos show the Department violating this policy. Even if it were followed, it does not protect those living without water in these temperatures. I myself filmed the disconnection of a neighbor in 24-degree weather one December day in 2016. The DWSD employee – wearing a Santa hat – did not knock or post a notice, and did not stop upon hearing that two children lived in the residence (which I did not *not* know to be true).

Policing Inside and Out

Returning to sociologist Loïc Wacquant, it is helpful to recall that understanding the United States today requires recognizing that alongside market deregulation and welfare retrenchment, neoliberalism has used carceral force to sustain the disenfranchisement of larger and larger segments of the population. The result is a novel "workfare/prisonfare" apparatus that repressively regulates the very poverty that neoliberalism proliferates (Wacquant 2008; Wacquant 2009).

Wacquant suggests that this *combination* of governing strategies is often overlooked. Social welfare experts like Francis Fox Piven and Richard Cloward downplay the encroachment of punitive measures into poverty administration (1993 [1971]), even as they pioneered a scholarly theorization of welfare as a "disorder-modulating" and labor-regulating apparatus.[107] Scholars of neoliberalism, Wacquant argues, citing David Harvey, are similarly accused of overlooking the centrality of penal measures in the 'new government of social insecurity,'[108] even as Harvey notes that states increasingly use state police to "protect corporate interests and, if necessary, repress dissent" (Harvey 2007, p. 77). And finally, criminal justice scholars, including Michel Foucault, are said to ignore

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[107] Wacquant however argues that in an era of hypermobile capital and fragmented labor, their model "has been rendered obsolete" and displaced by the work of the police, the courts and the prison (Wacquant 2009, p. 291).

[108] Wacquant's reading of Harvey seems tendentious here. Harvey notes: "The neoliberal state will resort to coercive legislation and policing tactics (anti-picketing rules, for instance) to disperse or repress collective forms of opposition to corporate power. Forms of surveillance and policing multiply: in the US, incarceration became a key state strategy to deal with problems arising among the discarded workers and marginalized populations. The coercive arm of the state is augmented to protect corporate interests and, if necessary, to repress dissent" (Harvey 2007, p. 77; qtd. inWacquant 2009, p. 209) For Wacquant, this reading underestimates the force of the penal state by subsuming its tactics under the repressive rubric "coercion" and thus ignoring the productive proliferation of images, symbols and categorizations of public deviance. Secondly, Wacquant argues that Harvey restricts penal repression to dissident movements, whereas for Wacquant, the primary targets are the precarious factions of the proletariat.

the spillover of law enforcement strategies from the 'crime-and-punishment box' into social services writ large.

To these scholars, Wacquant more generally charges that they focus only on organized resistance movements and the increasingly forceful suppression of social justice work as sedition, whereas he wants to draw attention to the rise of penalization *within* welfare. As I intimate, these works are not as far from Wacquant's reading as he suggests. Still, all of these authors share a too-limited focus on the degree and kind of 'containment' strategies that have come to characterize contemporary urban governance under neoliberalism, as austerity has fully set in to cities like Detroit. The full impact of this governance, and the violence it wrought, became most visible in the idea that children's protective services could be mobilized as part of the racial-security regime in houses whose water had been shut off.

As women on welfare organized, in outrage, against the "snatching" of their children by the state if the water in their homes was off, they called social workers the "soft cops of capitalism." WOW members pointed the pervasiveness and perniciousness of forms of policing in their lives – a policing that complements but is not contained by the institutions of the police and prisons. That the logics and force of policing are felt through coercion and threat across in welfare offices, in the home and on the street.

Moreover, the scholar's inattention to the gendered and subversive forms of coercion subtending welfare is paralleled by an inability or unwillingness to recognize the resistance strategies of those subjected to the 'soft' side of poverty criminalization. Wacquant claims that these "precarious factions of the proletariat ...being squeezed by

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the urgent press of day-to-day subsistence, have little capacity or care to contest corporate rule" (2009, p. 310). The forceful work of welfare rights activists shows that nothing could be further from the working reality of these women, engaged in daily contestations with immeasurable care. Instead because their fight is directed in and at the level of 'day-to-day subsistence,' it is often overlooked.

During my fieldwork, I spent three months volunteering in the offices of Women on Welfare (WOW), a founding member group of the Water Justice Coalition in Detroit and a branch of the National Welfare Rights Organization. WOW is organized as a union of people on welfare, with several antipoverty allies, and the organizers who regularly volunteered there – Gigi, Victoria, Lorraine, Loretta, Evelyn, Sweetie, Charles, and Daniel – were lifelong members. Instead of a fee, people become pay an annual due of $35 to become members represented by these advocates. "And we're about the best friends you'll ever have," Lorraine would say, "You might not have known that when you walked in, but you will by the time you leave," Gigi would add. These women are notorious, infamous, and by equal measure, respected and feared among social workers, utility companies, housing administrators, and elected officials, having been fierce advocates for the poor for more than four decades.

As the classic sociologists of deviance have shown, as I've mentioned, every moral panic relies on a caricatured folk devil. In this story, the men who "terrorize neighborhoods" by squatting in empty homes, or the scrappers who the (white) television anchors charge are "picking 'our' city apart piece by piece" are gendered kin to one of the most feared and loathed folk devils of all: the so-called "welfare queen." In what follows, I

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track welfare rights advocates and women on welfare to show how the surveillance and incapacitation of families *through* welfare connects them to this domestic security apparatus. Women On Welfare's organizing against Child Protective Services reflects a radically different understanding of the subjects and objects of state security, and a critique of the intimate expansion of the security state into spaces of domesticity.[109] I begin with the story of a woman they call the Nightingale.

Part II. Ending Water As We Know It

At a church meeting along the Detroit to Flint Water Walk, a march organized to connect the struggles for safe and affordable water across southeast Michigan (discussed at length in the Introduction), Lorraine shared this story:

> Now, I want to tell this story very quickly about four little girls. And these four little girls were in the same church I started going to a long time ago. These four little girls have a mother that has a voice like a nightingale. And this Nightingale [their mother] was able to sing at the church and at the Y and just about everywhere; she had the most beautiful voice in the whole world. She lived in a two-family flat and her mom took care of the girls while she was away. And there came a time when the grandmother passed. And the Nightingale had two or three jobs. She lost the first one, then lost the second one, here comes the depression screaming through the country and she lost all three.
>
> And you know the children were in school, and kids can be really cruel, and those girls were going to school and the kids were saying, you smell funny.

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[109] If for Gilmore incarceration provides a geographical solution to the political-economic crisis (1999b), especially though not exclusively targeting Black men and boys, then these forms of 'house arrest' provide another, trapping women and children in turn in homes that are unsafe by removing the public infrastructures that supported social mobility and imposing new modes of surveillance to impose a stability. The power of the Prison Industrial Complex extends far beyond the walls of courts, jails and prisons, but is increasingly penetrating schools, homes, and neighborhood streets, an appendage of the administration of issues as seemingly banal as public utility connections.

So you know, the teachers got involved, then here comes Protective Services, and over a period of several investigations, all four of the girls ended up being taken out of the household... When the lights went off it was alright; when the gas went off it was alright; but when the water went off that meant they couldn't have the babies in the house anymore.

The first one, went into a foster care home where four hundred and sixty five dollars was paid for that child. The second one went to a different house; four sixty five was paid to *that* family for *that* child. The last two were small — one and two or one and three, something like that – so they took them both together. That's $465 times two. Well, when you look at the water bill it was twelve hundred and eighty dollars, I looked at it this morning on my way here. Twelve eighty is what they owed. Four hundred sixty five dollars times four is already 1600 dollars. Those children stayed out of their household for 18 months.

And for 18 months, they went to juvenile court; and the mama [the Nightingale] had to go get drug tested, because, you know, she must be on drugs. Then the mama had to go for psychological testing, because there must be something wrong with her. Then she had to go to threat management, and anger management, and all kinds of other management because there must be something wrong with her because she couldn't manage this. Now after 18 months — 18 months! – the children were finally returned to the household. After she had to struggle to try to find and get all four of her babies back home. Taking the bus halfway across the city one way, then down and back, all while working.

And I remember the first conversation they had, she had all of the children, they had bunk beds; they all got into one bed. They all slept in the same bed. That was the first time I was aware of what was happening to water and these water situations.

This story is instructive, both for its content and in context. Just by sharing this story in a public forum, as part of the movement for water justice, Lorraine inflects the campaign for safe and affordable water with the intimate stakes of these demands and stirs the collective consciousness of all of us marching for justice. Fear of Child Protective Services was a main reason that families in Detroit feared seeking help from the state when their water was disconnected, even in the rare moments when financial aid was

available. It is also why Flint families continued paying for water they could not drink, even as the rates they were charged for toxic water topped out at the highest in the nation. At $1200, it is not enough to say this family was too poor to pay for water. The water was made so expensive it pushed people, working class citizens and their children, into dramatic extremes of poverty, and spent more money than they purportedly "owed" to keep things that way.

Lorraine's story, then, is not only an appeal to listeners' sympathies, but also a rebuke of the economic logics so often used to justify neoliberal "reforms," reflecting, at minimum, a counter-productiveness within certain forms of state care under capitalism. The state spent more in one month by placing the children in foster care than their mother owed on her entire water bill. In the process, the four children were separated from a loving parent, whose life was stretched thin to bring her family back together. And while the nightingale's story is singular, it is not altogether unique. This mother was a hardworking woman whose employment opportunities were stripped away one by one. The economic buoyancy that held her family together, the unpaid labors of care performed by the grandmother, passed away alongside her, leaving the family exposed to this noxious form of state care.

WOW has been instrumental in 'demystifying' the economic fallacies undergirding austerity policies. Nearly a decade before the city resorted to mass shutoffs to impose water payments, WOW noticed more and more clients coming in who could not afford their water bills. They consulted Roger Colton, a municipal economist, who presented the Detroit City Council and Detroit Water and Sewerage Department with a Water

Affordability Plan in 2005 on behalf of Michigan Poverty Law Program, Michigan Legal Services and their clients, including Michigan Welfare Rights Organization (Colton 2005). The Plan proposes an income-based rate system to address not only the economic and social hardships that unaffordable water bills pose for low-income Detroit residents, but the manifold business problems that the current rate structure poses for DWSD and the city.[110] Colton showed that the city would recover more money by collecting smaller amounts from more customers than by pursuing "full-cost" recovery from those without the means to pay.

Colton's calculations reflect the outsized burden of water bills, far in excess of the international human rights standard for affordability, set at 2% of household income. In 2005, the average annual bill ($536) amounted to a water burden of 8.1% for an SSI household (receiving $552 a month) and 9.7% for a three-person TANF household receiving the maximum benefit of $459 per month – 400-500% higher than the affordability threshold (2005, p. 3).

The economist sets this in context with trends in real purchasing power for families in the state of Michigan. From the 1970s through the late 1990s, the poorest fifth of households gained only $1,210 (or 7.7%) after adjustments for inflation; the middle fifth gained $9,000 (18.5%), while the richest fifth gained $51,520 in annual income during that same period (49.7%). Compare this with figures showing that water rates have increased 119% in the last ten years. For the lowest-income households in Detroit, the water burden rises *above* 23% of annual income.

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[110] These are said to include increased credit and collection expenses; increased working capital expenses associated with higher arrears; and increased bad debt/uncollected expenses (Colton 2005).

The Water Affordability Plan was approved by City Council and $5 million in funds were allocated, but it was ultimately rejected by DWSD, which instead implemented a series of Assistance plans that try to help customers structure payments and receive credits. WOW noted in its report to UN Rapporteurs that "This DWSD plan consistently runs out of money and treats residents like potential criminals rather than low - income, struggling families" (Michigan Welfare Rights Organization 2015, p. 2).

The Department maintains that it is prohibited by law from imposing the Water Affordability Plan because doing so would "discriminate" against a class of customers. This is ironic given its defense of selectively disconnecting only residential customers, who are discriminated against vis a vis commercial accounts, as well as the uneven leniency concerning debts between the suburbs and the city, and of course the patent legacy of regional discrimination informing the spatial and racial demographics of whose water is ultimately disconnected. The ACLU has submitted briefs challenging this legal argument and supporting the implementation of the Water Affordability Plan (Fancher 2017). It has yet to be adopted, while DWSD spends its financial, political and moral capital on the punitive enforcement of shutoffs, while the Michigan Department of Human Services pursues 'protections' for children left in homes without water.

Following from Bill Clinton's promise to usher in "the end of welfare as we know it," contemporary extremes of neoliberal governance in Michigan may be ushering in the end of *water* as we know it. The encroachment of carceral punishments within the 'caring' arm of the state is most visible in the administration of welfare, where racialized claims of fraud and criminality have long been used to erode the redistribution of wealth

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supporting Keynsian capitalism. This is the larger story within which the contemporary contraction of water access is a part; the fact that this erosion of social protections has reached the level of water reflects back on this larger narrative, symbolizing the life-threatening logics of capitalist biopolitics that have always been at work, but are today taken to new extremes.

We don't know what the Nightingale's children experienced in foster care, but the statistics are alarming. In 2006, the State of Michigan was sued over its ailing child welfare system. The suit, brought by Children's Rights, claims that at the time, Michigan DHS operated the 7th largest foster care system in the country, but ranked 38th in the ratio of state and local spending to federal dollars. Fewer than 30% of all children remanded to foster care were successfully reunited with their families within 12 months of removal, far short of the national norm of 76% or more (Dwayne B. v. Granholm 2006). Children left in foster care experience a range of traumatic exposures and develop psychological symptoms at rates alarmingly like those of children who are incarcerated within the juvenile 'justice' system, giving cause to parents' concerns that putting their kids 'in the system' is like sending them to prison (Belseth n.d.).[iii]

After several weeks volunteering with WOW, members tried to connect me with the Nightingale for an interview, part of an effort to study the reach and impact of Child Protective Services in enforcing water shutoffs. But she was unreachable. Gigi thought she remembered she had moved; Victoria suggested she went silent after someone connected her name to the story. The fear of CPS imposes a chilling secrecy, freezing out one of the

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[iii] To the parents who have their children removed, there is little difference between foster care and juvenile jail – and indeed, the numbers reflect a horrible synchrony between these aspects of "the system."

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most important support systems that women on welfare have long used to survive their intensifying marginalization: each other. "This is probably THE most sensitive issue," Lorraine warns, "because these people have been so maligned, so betrayed, so afraid! You'd think everyone knows someone else but not necessarily! This is heavy. This is totally underground stuff."

Setting the Record Right

Having been the ones to organize support for several families whose children were threatened with removal due to water shutoffs, WOW decided to organize an investigation into the practice. As one of its collective researchers, my role was to support WOW by documenting cases of those affected by water-related child removal, analyzing the logic and motivations of the state's use of CPS, and building a base of evidence for a potential class action lawsuit contesting the practice. This proved a very difficult task, for reasons that will become obvious.

At every level of government, the practice of removing children from water-compromised homes was denied altogether – by social workers in state officers, by public defenders working within the juvenile justice system, and by politicians and spokespersons of the water department. On the other hand, the practice was repeatedly noted in human rights reviews and circulated in internationally-syndicated news outlets, who cited the Michigan Child Welfare Handbook.

Evelyn said they would probably deny everything. A longtime scholar of social work and welfare rights activist, Evelyn coordinated the effort and helped connect me to families, social workers and attorneys, "the good and the bad," to speak with. With

WOW, we set up a meeting with the officials from the state Department of Health and Human Services at the high school where Lorraine works. Loretta and Peaches picked me up, and stopped on the way to pick up food. We meet at the high school where Lorraine works as during the day, setting up on the far side of the gym. "Uh, young man! Young man. Would you come over here please and bring a few of those chairs with you? Ma'am? Ma'am, could you help him please?" WOW brought three trays of food, including several loaves of white bread and piles of hot sauce and mayonnaise packets, though there were only eight of us at the meeting. "Now come back in an hour and take a piece of chicken or some fish with you," Lorraine told the teens.

WOW spent the first half of the meeting pressing DHS on its allocation policies, bring up cases of members with disabilities who are not receiving the distributions they are entitled to, as well as challenging the Department for limiting State Emergency Relief funds (a one-time $175 relief check) to the months of November through March, during what it calls the "the crisis season." "We have crises in the summer, too! We have crises all the time," Victoria says. The state says these funds are intended to cover unexpected expenses rather than fill "ongoing or chronic" financial difficulties. It was usually the first form Ms. Gigi asked me to help clients fill out when they came in to WOW, as clients often cannot distinguish between emergency and ongoing financial events given the irregularity of their finances. It was also a form we could turn to no matter the citizenship status of the applicant, because although Michigan provides no supplementary benefits to non-citizens, everyone residing in the state is allowed to receive services that have been identified as "necessary to protect health and safety."

A 2017 study by the Federal Reserve showed that 40% of Americans do not have enough money to cover a $400 emergency (The Federal Reserve, Board of Governors 2018). Michigan's State Emergency Relief funds are most often used to help pay for utilities and funerals. Just beneath basic name and address information, the form for SER asks a series of questions about the criminal records and ongoing issues of household members. The first is: "Has anyone ever been convicted of a drug-related felony that occurred after August 22, 1996?" (MDHHS n.d.). That date is, recognizably to everyone at the table, the day President Bill Clinton signed the Personal Responsibility and Work Opportunity Act, enthusiastically and euphemistically promising to "end welfare as we know it."

PRWOA imposed a lifelong limit on how long one could receive benefits (four years) as well as strict work requirements (32 hours per week) for parents receiving aid. Welfare rights activists and scholars predicted it would serve as a means of ushering in a "downsized" standard of living across America, instantiating poverty wages as the new national norm (Baptist & Bricker-Jenkins 2001). Though touted as a means of discouraging dependency and saving collective resources, these requirements have since been shown to cost more to enforce than the value added by the labor (Swan, Shaw, Cullity, & Roche 2008, p. 135). They are a symbolic gesture, meaningless in terms of money even as money is the logic through which moral panics are generated to consolidate a 'moral majority' behind otherwise morally odious policies.

With the enforcement of water shutoffs, as with the separation of children, these expensive, counterproductive practices throw the true nature of antipoverty programs

into question. Welfare activists and critics predicted it would usher in 'the end of America as we know it,' sounding "the death knell of any government-supported vision of an equitable, egalitarian America" (Kreitner 2015). In a wider register, Michel Foucault recognized this would become the way of postindustrial societies:

> No doubt we can say that certain phenomena of marginalization are linked to factors of separation between an 'insured' population and an 'exposed' population. Moreover, this sort of cleavage was forseen explicitly by a certain number of economists during the seventies, who thought that in postindustrial societies the exposed sector would, on the whole, have to grow considerably. (Foucault & Bono 1986, p. 5)

In the wake of water's de-valuing as a common social good, the structural incapacity of the social services system to cover what is "necessary to protect health and safety" – let alone provide a decent minimum for every American – is set in sharp relief.

The Role of Welfare Rolls

Welfare enrollment rose rapidly in the 1960s, particularly after 1964, more than a decade after mass migration of the rural poor into American cities. Examining voting patterns, legislative initiatives, enrollment statistics and media accounts, Piven and Cloward famously argued that it was not until electoral pressures mounted that aid was expanded to the growing poor, to "solidify allegiance to the national Democratic party, and in order to quiet them" (Piven & Cloward 1993 [1971], pp. 286, n1). That is, welfare relief was not granted to satisfy the needs of poor people.[112] Instead, welfare relief was

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[112] In its foundational years, the allocation of direct assistance to women and children was met with little controversy; policymakers agreed that supporting mothers to stay in the home was a boon to the industrial economy and enhanced the labor power of the working husband of the nuclear family. This approach drew on a longstanding tradition of the English Poor Laws, which established a system of charity for those left out of the urban, industrial boom, but took unique form in the American context... A Wisconsin law

used politically to impose work-enforcing arrangements, expanding and contracting in response to the government's perception of the threat of civil unrest rather than in response to demonstrated and expanding need (1993 [1971], p. 197). "The placid poor get nothing, but an unruly poor sometimes get something" (1993 [1971], p. 338).

Their compelling analysis has nonetheless been met with resistance from welfare rights activists who feel the scholars position themselves vanguards of the poor overwriting the voices of the movement, as well as from feminist scholars who argue that their conception of poverty is surprisingly gender-neutral (see Brisman 2012; Gordon 1988b).[113] Their work fails to account for the gender divisions of poor relief and social control at the heart of their thesis: that urban disorders and demonstrations on the street primarily involved men, while demands on and from within the welfare system mostly came from women (Gordon 1988b, p. 620).[114] This oversight explains some of the

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mandating the state's care of the poor, modeled on earlier laws in Pennsylvania, Ohio and Michigan, read: "Every town shall relieve and support all poor and indigent persons, lawfully settled therein, whenever they shall stand in need thereof" (Berkowitz 1991, p. 1). The most controversial provision of the early American welfare state is now both its most expensive and most widely accepted: social security.

[113] Welfare policy has been the subject of bitter controversy over the last century of American history, in courts of law and public opinion, yet as it is discussed and debated today, "welfare" typically refers only to a fraction of the federal entitlements passed in the early twentieth century (Berkowitz 1991). "Welfare" has come to signify direct assistance for the poorest Americans, distributed through Temporary Assistance to Needy Families (TANF, formerly Aid to Dependent Children, or ADC), which in 2015, made up only 0.54% of the federal social welfare budget. Cumulatively, all cash and "near-cash" transfer programs amount to less than five percent of the federal budget. Another two percent is distributed as Supplemental Nutrition Assistance Program (SNAP) benefits, also known as "food stamps" – a major form of income support. The government also provides limited housing subsidies, while the patchwork of private providers of gas and electricity may offer credits for power costs, there is no "water stamp" voucher that offsets the rising rates for domestic drinking water. For those unable to drink and cook with their household water supply, as well as homeless and transient individuals, a significant portion of their food stamps is often used to buy bottled water.

[114] For Linda Gordon, the need for welfare among women, black and white, "arises primarily from the gap between the myth that women are supported by men and the reality that so many are not" (1988b, p. 621). On distinctly female experiences of impoverishment, migration and survival strategies, see (Giddings 1984; Jones 1985).

misrecognition of the depth and kinds of containment strategies pursued within the 'caring' apparatuses of the state, and the misunderstanding of welfare rights activism within and alongside social justice struggles of the 1960s and 1970s.

For the predominantly Black women leading the struggle, however, there was no confusion; as Johnnie Tillmon, former president of the National Welfare Rights Organization said, "As far as I'm concerned, the ladies of NWRO are the front-line troops of women's freedom. Both because we have so few illusions and because our issues are so important to all women – the right to a living wage for women's work, the right to life itself" (Tillmon 2002). For these women, welfare rights remains a life-or-death fight to end poverty. The strategies and tactics pursued toward this end are varied, as these women will resourcefully lean on every lever available in a constrained system. "You get what you are organized to take!" reads a 20-foot banner in the WOW office. Cultivating a grassroots movement remains central to organizing efforts, though legal and legislative ends are often pursued with mixed results and much resentment. Even the scholarly literature reflects the fundamentally oppositional role of the state in the eyes of these activists: "At this point in history, the primary work of legislative bodies is not to meet the needs of people but to produce weapons of mass destruction called policies and the budgets to deliver them" (Bricker-Jenkins 2004, p. 109).

To historian Rhonda Williams, welfare rights activism offers a "conceptual bridge" between the civil rights and Black power movements, tying questions of citizenship and power together through a focus on the living conditions of the poor (2015). In this, they translated national and international rhetorical and legal campaigns into local gains

within city communities. The movement also extends the demands of second-wave feminists, specifically articulating the grievances of adult women and mothers, poor women, and women of color, even as white feminist bias marginalized these issues from the national conversation. Among the important historical correctives offered by welfare rights activism, with Black women at its helm, is that the dynamics of urban poverty are gendered as well as racialized (Kornbluh 2007; Levenstein 2009).

The nature of the urban water insecurity emerging in the U.S. today traverses these race, class and gender lines, seeping from segregated spaces of the city into the intimate spaces of the family and home. Welfare rights' opposition to austerity urbanism and the rise of a wageless economy exposes the gender gap inherent to the wage-based economy (Gordon 1988b) and the racial template of city service segregation (see Chapter 1). The water justice struggle, in turn, aligns concrete material struggles around the affordability of life's necessities with philosophical questions about what remains sacred in an increasingly market-driven society. I will return to these dynamics at the end of this chapter.

Here it is worth noting that welfare rights activists' claims are not always, or even primarily, made on the basis of citizenship. Many recipients receiving cash benefits are in fact non-citizens, though their entitlements vary by sate. In Michigan, non-citizens can access emergency services, some health benefits, and other services considered "necessary to protect life and safety." Water is not included in this designation. Moreover, as discussed in previous chapters, the Bankruptcy court's ruling held that there is no

constitutional right to affordable water for U.S. citizens, finding cities can deny water to those too poor to pay (Lyda et al v. City of Detroit 2014).

Given the limited protections of citizenship, and the critical analysis that undergirds its global solidarities, many welfare rights organizers frame their demands in terms of the international human right to water and sanitation and to economic human rights writ large (Baptist & Bricker-Jenkins 2001; Bricker-Jenkins 2004; Bricker-Jenkins, Young, & Honkala 2007). This framework places urban amenities in their proper context, as vital resources that all people need and deserve rather than commodities that can be denied the disenfranchised. The goal is not, however, simply to 'reduce,' 'ameliorate' or 'manage' conditions of poverty. As Mary Bricker-Jenkins relays, a welfare rights organizer in Pennsylvania would say: "Reducing poverty sounds great until you ask a poor mother which of her children she's going to leave in poverty. Only ending poverty is acceptable" (2004, p. 109).

By focusing on housing conditions, nutrition supplements, fair employment and income support, Black women activists worked to advance the dignity and material standing of the urban poor. These leaders – mostly low-income Black women, but increasingly a broadened coalition of people of color – have protested simultaneously the gendered violence of a capitalist system that devalues the labors of social reproduction and of anti-capitalist movements that obscure women's liberation in the advancement of class and racial justice. And they do so in "the lively language of the masses," as Loretta likes to say. WOW is a product of the National Welfare Rights Organization, the

Michigan Welfare Rights Organization, and the legacy of welfare-as-women's issue that these women-of-color-led, antipoverty movements promote.

Their "movement without marches" (Levenstein 2009) continues to bring a constellation of demands together in strategic, specific campaigns to improve poor peoples' daily lives, pushing to destigmatize welfare and redistribute wealth. Their tactics leveraged collective power through the mass effect of distributed actions in the aggressive pursuit of public resources, including the disruption of bureaucratic business as usual. "Lemme say this," Loretta interjected one night, on the subject: "My girlfriend, well she's gone now, she showed the state,' here it says zero purchase food stamps.' [She uncrinkles a newspaper and points as if to the fine print]... They had let that go from day one of giving people food stamps, that they didn't know they could give them zero-purchase food stamps. And who showed them that? Folks on public assistance... Some of the workers would ask us to send the formula to them because they could not figure out food stamps the way we could."[115] The substance of this account has survived the official change in name, from the federal Food Stamp Program to the Supplemental Nutrition Assistance Program (SNAP), still subject to the technicalities, strings, and errors of bureaucratic administration.

In turn, the state would find or invent small errors in accounting or administration to hamper welfare rights organizing, as Marian Kramer, a National Welfare Rights

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[115] A Berkeley Welfare Rights Committee member said in 1966, "it takes a Welfare Rights Organization to check that irresponsibility, the common corruption of a bureaucracy. Most recipients can't do it alone because they're afraid of antagonizing the social worker" (Mills 1966).

Organization chairperson recalled in a lecture on the history of welfare rights:[116] "They put a padlock on the welfare rights office in DC, in 1975. Said we had 'mismanaged funds', We didn't even have enough money to mismanage. How can you mismanage pennies?"

The charge of fraud was used symbolically to discredit "welfare mothers" from receiving what little redistribution of wealth they are afforded and more broadly to downplay the need to eradicate poverty. This framing – as much and indeed perhaps more so, than the criminal pursuit of welfare recipients for 'fraud' – reinforces a system of dependence not only built on material deprivation, but justified by moralizing about individual deservingness. Welfare rights organizers unmask the mis-accounting, financially and morally, on a daily basis in order to end poverty – not to 'reduce' or 'ameliorate' the suffering of the poor. As Lorraine said: "We used to say 'up and out of poverty,' now we say 'up and out of poverty now!'"

Paper Jamming

A hypervigilance over paperwork has always been central to the work of welfare rights activists (Kornbluh 2007). The frequency of changes to policies and procedures means that people are often removed from welfare rolls by mistake, or forced to reapply regularly rather than remain enrolled. Not only do people lose out on benefits to which they are entitled, but they may commit errors in administration or accounting that are treated as fraud despite the "ambiguity, vagueness and capriciousness of the system" (Mosher & Hermer 2010). Restricted legal options meant that prosecutors had to charge

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[116] Thanks to Michigan Welfare Rights Organization for live-streaming this event, a lively demonstration of their commitment to inclusive movement building.

all incidents of "welfare fraud" as felonies; in the best case scenarios, if the defendant were able to pay back the overpayment in full as scheduled, pleas would be reduced to misdemeanors (Swan et al. 2008).

The perception that welfare recipients were widely fraudulent served to undermine political support for the program and rework distinctions between the deserving and undeserving poor (Fraser & Gordon 1994; Kohler-Hausmann 2007; Kohler-Hausmann 2015; Katz 2002). Among elites, the focus on crime, impropriety and fraud "obscured, if not completely expunged" concern for the material conditions of struggling families; while among the poor, stories of invasive inquests and unforgiving prosecutions exacerbated the stigma of welfare and created intense suspicion of widespread surveillance (Kohler-Hausmann 2007).

Federal grants became available for prosecuting poor parents for "welfare fraud" in the 1970s (Swan et al. 2008). These investigations included infamous "midnight raids" to see if men were residing in the households of single mothers receiving assistance, as well as "wage matching" measures whereby the state received private income data from employers to verify self-reporting (Gilliom 2001). Though the courts deemed these "man in the house" raids unconstitutional, they have upheld the right of social workers to conduct in-home visits, with some limits.[117]

If found 'guilty' of fraudulent activity, welfare recipients could be barred from receiving entitlements permanently, or even thrown behind bars, which would also bar

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[117] Today, CPS has latitude to involve law enforcement in any of its investigations, and must involve the police under some conditions of suspected abuse. "In addition," reads the Michigan Child Welfare Law Manual, "the DHS may provide copies of any report of suspected child abuse or neglect to the prosecuting attorney and the Family Court" (Michigan Child Welfare Handbook 2007, p. 26).

them from future receipt of aid. This is key to the criminalization aspect of welfare, as Kramer recalls: "We were fighting this fraud thing which half the time was punishing mothers for mistakes these people in their offices were making. They'd even arrest them. Understand that was the way to keep a whole section of the working class *quiet*. Because if you have them charged with fraud, that's on your record."

Keeping records was, in turn, key to protecting one's benefits and one's family. At the offices of WOW, an almost paranoid proliferation of copies was evident in the stacks of paper against the walls. One afternoon, a woman came in seeking legal support for an upcoming custody hearing for her two children, who had been placed with an 'aunt' due to accusations of child neglect related to the mother's mental health. Shondra insisted she was receiving treatment and able to care for them, and believed that the 'aunt' had exaggerated her condition to receive foster care checks for each of the boys. She came in with a set of water bills and receipts, worried that CPS would find out that she had recently received a shutoff notice and hold it against her in the hearing. Miss Gigi sat them down and told them to make a log. "Get you a notebook, just anything, like this," she said, holding up her own handwritten database of every WOW member, written in a preserved cursive. "Write in it every day what happened. Did you try to call him? Did they let you talk to him? Everything you do related to that boy and everything that happens, you need to write it down. It might not amount to much but black and white is all we have. They will use everything against you so you got to have some paper to show." She repeated these instructions three or four times, making sure Shondra understood how vital it was to keep her own records. "You see, paper can tolerate anything that's written

on it," she explains to me after they leave. By this she seemed to mean both that the state could fabricate evidence, assign false debts, or force a record upon you, but equally you can contest it with your own record, even – or especially – if that is all you have. Having forms and fines wielded against them in welfare offices and courts of law, welfare rights activists became expert 'paper jammers,' creating their own receipts and writing their own histories.

What says the State?

Back at the meeting between WOW and DHS, Lorraine asks about the current caseload of welfare workers. "Don't say welfare!" the Director interjects. A bit stunned, everyone looks to Lorraine. "Do you want us to call it human services?" she asks sarcastically. "We prefer to say *general assistance*," he says in all seriousness. "Well I don't know about that, but whatever you call it, CPS shouldn't be acting like police on us."

"If you're saying we're removing kids for water, that's hard to believe. Hard to believe it's just water. There has to be something else. Some abuse, some neglect, something ongoing," said the Deputy Director. The Director, Ron Hawgood, asks for specific cases, so Lorraine shares the story of another mother who was not only threatened with removal of her two children by Child Protective Services, but the kids were threatened with removal of their mother by Adult Protective Services. Hawgood is not satisfied, and drives a wedge across the table when he demands the activists share the mother's name: "we can't act on a lot of this without specifics. In fact we need names. That way I can look into it, I can follow up appropriately. I can't go on just the

community word of mouth." WOW refused, fearing the state's "follow up" would expose her family rather than protect them.

That the state insists on identifying specific cases suggests it sees individuals as the appropriate site of intervention for what WOW understands as structural harms – as opposed to a reevaluation of its policies and practices at a systemic level. Instead, WOW continues to press its accusations of the state itself. The charge that WOW makes is not that this should be an acceptable environment for children to live in, but precisely that it is so unsafe as to be unlivable for the whole family. "But that's just it," Victoria said in a meeting, "what does that mean? How does DHS define what's unsafe, what's unlivable? That's one of the things we need to understand, you know? Under what conditions should a *family* not be allowed to live in a home? Not just the kids, *everyone*."

Rather than evidence of parental neglect, welfare rights activist understand the forced disconnection of vital utilities as sign of *state* abuse. They recognize that what the state calls 'neglect' is deeply related to 'poverty' – for which they believe the state has the resources to combat. Under austerity, the presumption of scarcity imposed by the state's tight-fisted approach to help and punishment is unmasked by anti-poverty advocates' expertise and arguments regarded the illogic of imposing impoverishment on families and then removing children for poverty-related neglect.

The Neglect of Neglect

At issue in these cases is the distinction between abuse and neglect. "The biggest misperception about the foster care system is that most cases enter the system because of

serious physical or sexual abuse – and that's just not true. The overwhelming majority of cases enter the system because of neglect," says the head of the University of Michigan's family law center (Van Buren 2017).

Whereas child abuse is defined in relation to physical or mental injury, maltreatment, sexual abuse or sexual exploitation, neglect is defined more broadly in the law, as harm or threatened harm to the child that occurs through negligent treatment or placing the child at an unreasonable risk when the parent understands (or should understand) the risk and is able to intervene. Negligent treatment includes the failure to provide adequate food, clothing, shelter or medical care *if* the caretaker is able (Michigan Child Welfare Handbook 2007; Sedlak & Broadhurst 1996; Sedlak 2001). Poverty, with and without employment, complicates the capacity of a family to provide adequately for their physical needs, and their ability to navigate social services; but this holds for the family as a whole (Slack, Holl, McDaniel, Yoo, & Bolger 2004). Poverty is not only a factor in the initiation of child welfare cases, but children are less likely to be reunited with their families if the families are low-income (Jewell 2006, p. 7).

When an allegation of abuse or neglect is made, including by mandated reporters (teachers and doctors, among others), the State is required by law to investigate within 24 hours.[118] In conducting these investigations, social workers with Child Protective Services are guided by the State Manual for Risk Assessment. Under the section on Neglect is a ten-question scale with Yes/No statements. Question "N10" says, "Family is homeless or children are unsafe due to housing conditions," and lists "disconnection of major utilities

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[118] More than 37% of all children in the United States experience a child protective services investigation; for African American children the rate is 53% (Hyunil, Wildeman, Jonson-Reid, & Drake 2017).

(gas, electric or water)" as a condition rendering the housing physically unsafe, or not meeting the health and/or safety needs of the child.[119]

In Michigan, at least 75% of CPS cases are due to neglect, and an unknown number of these are attributable to poverty.[120] As part of WOW's investigation, we submitted several FOIA requests to the Department of Human Services, asking for information on the number of child welfare that involved interruptions of water service, either as the initiating or a 'supporting' complaint, but each request was denied. Though we requested broad figures, DHS cited concerns with individual privacy as the reason for refusing our request – a sharp contradistinction to their demand that WOW provide individual names and stories at our meeting on this subject.

The bar for neglect involves *intent*, which is crucial in preventing children from being removed on the basis of poverty itself. It is also crucial for shifting the narrative from parental abuse to state abuse, where imposed conditions of impoverishment harm the whole family, but not for lack of caretaking or concern. This distinction has its own history; in 1909 a White House Conference was convened to distinguish between parental "immorality" and "destitution," assigning mother's pensions for those considered destitute and foster care to those deemed immoral (Rose & Meezan 1997). Following

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[119] Another possible cause for water-related removals: "N6b. The provision of physical care (the appropriate feeding, clothing, shelter, hygiene, and medical care) is inconsistent with and/or not appropriate for the child's needs. There has been harm or threatened harm to the child's health and/or well - being due to the inadequate physical care." A given example of this criteria is whether the "child's clothing or hygiene causes negative social consequences for the child." (Michigan Child Welfare Handbook 2007)

[120] 62.4% of an estimated 872,000 child maltreatment victims experienced neglect in 2004 (DHHS 2004). Still, neglect is neglected among the scholarly and social work communities, with fewer than 2% of federally funded research studies on maltreatment covering this category (see Dubowitz 1994; Wolock & Horowitz 1984). Our FOIA requests for numbers on the cases referred for removal versus those dismissed due to poverty were denied.

Clinton's PRWOA, scholars feared that the removal of basic income supports for many would nullify these differentiations, and that poverty would "reemerge" as a form of child maltreatment (Shook, Testa, M. 1997). These types of investigations were called "dirty house cases" among the professionals in the social services programs I spoke with, and every one of these cases had a particular story. Water shutoffs had become the new story of the 'dirty house,' making the rational for child removals both visible and invisible.

Water Runs Through It

I interviewed a dozen public defenders and private attorneys about whether and how water disconnections were used as a basis for child removal. One invited me to her office, a plain room with dark wood beams and dark wood floors above the old courthouse. The courthouse was directly connected to the juvenile justice center and the juvenile jail, which sits right across the street from the playground, separated by a curved concrete wall like a wave that wraps around the jail yard. Brenda, the attorney, was running late, so I sat in the abandoned waiting room, in molded orange chairs bolted to the floor. The courthouse was where 1970s interior design met its institutional demise, and the emptiness gave its vintage patina a macabre feel. As I am waiting, an officer comes to tell me and another woman in the room that there has been a bomb alert; he says that it's probably a drill but that we need to evacuate immediately. The secretary doesn't seem alarmed, and has to be cajoled into exiting twice by the guard. We all exit into the parking lot, where the Attorney General and a crew of lawyers are huddled together. I meet Brenda there, who proceeds to ask her colleagues about CPS cases related to the water shutoffs. The AG completely denies it. "I've never heard of anything

like that, sorry, and I don't believe it," he says. The other attorneys raise their own caveats and doubts. "There would have to be something else going on," most repeated. "People just talk," one said, and that seemed to be that.

Back inside, however, without the AG present, some subtleties unfolded. "Oh yeah," someone said, "if the kids haven't bathed or look unclean, that can be factored in." One attorney mentioned a case in which water 'service interruptions' were listed as an environmental hazard, "but there were other things going on." Another noted that for kids already in a placement, including living in "unlicensed foster homes" with a relative, standards are stricter and social workers would likely be grounds for immediate removal. Another shared the story of a couple who took in their three grandchildren but struggled to keep up with the extra utility costs. "They were short like $95 or something ridiculous, and afraid to tell me it was going to be shut off. I told them to go to a nearby state park, take the kids, spend three days out there, and meanwhile I called up the chain of DHS and the Water Department 'til I finally got it resolved and turned on by the time they returned." A coworker hinted that she had paid the debt off herself. Clearly even the attorneys knew that families whose water had been shut off could have the children removed, even as they denied the practice outright.

"Another factor could be if they have a running DHS record," she said finally, evoking the homology between a case report with health and human services and having a criminal record, "but there's probably something else going on." And that was that. "Yeah, there might be something else goin' on," Miss Gigi says when I tell her, drawing a stern inhale, "but I'll be damn if the water doesn't run all the way through it."

Rumor, Rumor Everywhere

In a separate setting, I spoke with a private attorney who had tried to assemble a group of families harmed by the practice of child removal for unsafe or shut-off water in Flint. Gregory Vernor had been on the radio, on television, and in the news soliciting stories from anyone who had encountered Child Protective Services due to their troubles with the Flint water. He told me he heard from only a handful of people, despite conversations with colleagues and community members of his hometown that suggested that this was happening all over. "No one wanted to come forward," he said with shrugged shoulders and a disparaged sigh, "and those that did had too much going on to make them the face of this." "There was no 'pure' plaintiff," he added, explaining that for these class action suits to succeed, they relied on people whose conduct was unimpeachable and whose stories hinged on the single variable at issue. Always mindful of the legacy of shaming those living in poverty with the responsibility of creating their own conditions, Gregory knew that this applied double for people receiving assistance, and more than double that for people of color. "Do you ever worry that you spread the fear by talking about it?" I asked him. "I guess I hadn't," he said with a long pause. "But people were already talking, and so in a way it's like, 'I see you.'"

I, too, had difficulty finding people who had had their children removed due to a water shutoff – or finding people directly impacted to speak on the issue at all. However I did often hear (firsthand and secondhand and more) of people taking proactive measures to "protect" their children from protective services. Commonly, parents would warn their children not to tell the teachers (who are mandated reporters) if there was no water in

the home.[121] These rumors were a major reason why parents were reluctant to speak out in Detroit and Flint, or to agree to be interviewed for this research project, despite assurances of anonymity and confidentiality.[122] WOW members talked about an underground U-Haul business, running between 2 and 5am, to move people into homes with running water, or move children out of homes without it. Community organizations offer to deliver water to folks in the dead of night, too.

One mother who has spoken openly about her water shutoffs described to me the lengths she went to keep her children safe as she went public with her story. Before every interview, she made sure that the house was stocked up on bottled water, bought or donated, so that it would never look like they had no water at all, though sometimes they didn't. She never named her children and prohibited journalists and activists from photographing them. Not everyone respected this. A charitable group once came to her house, with two one-gallon jugs of water "to buy my story," she told me. "Not even enough water to make it through breakfast." They coaxed her children outside and snapped a photograph from a cell phone. That alone was enough for her to temporarily relocate her four children to live with friends and family. "The kids didn't understand," she said, "they thought they were being punished."

Faced with repeated denials from public officials, and walls of secrecy from affected families and state agencies alike, I could not prove that this was 'actually'

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[121] In one case, a principal who found out that several children had lost water service at home opened the school gym early so families could use the showers. Presumably making her own distinction between 'neglect' and 'poverty', this principal did not report the families. Instead, she provided structural relief in the form of showers and water sent home with the kids, mitigating any further cause for alleged negligence.
[122] Community-led research efforts had more success in convincing parents to participate in documentation, as I discuss in the Chapter 2, but not much.

happening. In coming to terms with this failure, however, I began to understand that

secrecy and suggestion were key to the efficacy of this punitive practice, and precisely

what makes it analogous to the other forms of policing and security I have described.

"The fear itself is a harm," WOW members kept saying. The violence, they

suggest, is not even the removal of children per se, but the standing threat to do so.

Indeed, their analysis of the policing of poverty measures veered from any 'legitimate'

enforcement of the law in the public interest and verged on descriptions of terror

tactics.[123] In contemporary criminology, much effort is made to distinguish between

terrorism and the use and threat of violence by 'legitimate' institutions, like those of the

state (e.g.,Blakeley 2009). Indeed, the state itself was defined quite famously by Max

Weber as "the human community that (successfully) claims the monopoly of the

legitimate use of violence within a given territory" (2004 [1908]). Here activists allege the

state has used its monopoly on violence to secure an illegitimate monopoly on water, a

form of public theft supported by increasingly intimate incursions of threat into the

private realm of the family. "We are at a ground below zero," Lorraine said to the Director

of DHS.[124]

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[123] I thank Ian Whitmarsh for this suggestion.

[124] In another setting, Lorraine made the allusion to state terror quite directly. Speaking to a gathering of water justice activists in Detroit, she ventriloquizes the logics of the new austerity economy: "At its time, at its height, the Rouge factory had over 100,000 workers at its plant in Dearborn... there's still just 9000 workers there today. 100,000. 9,000. 100,000. 9,000. With figures like that, that means, why do you need education? We don't have to educate you. We can close those schools, you not gonna be any better for it to work! Why do you need healthcare? We don't have to worry about this healthcare issue because we can't keep you alive! You don't need education, you don't need healthcare, you don't need housing, you don't need transportation, you don't need safety in your neighborhood. You call the police, you're scared if they come, you're scared if they don't come! Scared all the time! Scared of ISIS? We got ISIS right here — it's called the water department! ...And now what we have is You. You troublemakers that insist that life is

Whether 'factually true' or 'functionally true,' the removal of children from their homes due to water shutoffs serves a particularly seditious set of imperatives. Threats of personal injury, arrest and family separation serve to divert people from seeking assistance even where social services are available. Their effect is to consolidate the commercialization of water, separating 'customers' from 'citizens' and banning, then forcefully barring, old ways of sharing in the water commons. Moreover, through the circulation of rumor, these measures often achieved their effects without having to be regularly enforced – saving the state considerable expense and allowing them to maintain their official denials.

At the same time, rumors were circulated by the poor served a subversive function, signaling warnings to those who might be at risk locally and amplifying the stakes of this struggle on a global stage. By sounding an echo of a long historical experience, poor women's "child snatching" stories spoke to a kind of truth that did not depend on official records, but those scribbled and spoken by those recording their own stories.

Such rumors can register ulterior social truths, and in this sense are "true at that indeterminate level between fact and metaphor," explains Nancy Scheper-Hughes (1990). Writing about terrifying rumors that poor children on the Alto de Cruzero in Brazil were being taken so that their organs could be harvested and sold, Scheper-Hughes was also met with officials who dismissed such accounts as the "invented stories" of the poor. But "The 'misinformed' shantytown residents are onto something," she insists. "They are on

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important, that quality of life is important. And when you go home they may run you over. I don't know how the Pope is still alive!"

the right track and are refusing to give up on their intuitive sense that something is seriously amiss" (1990). Just as the people of the Alto "can all too easily imagine that their bodies may be eyed longingly as a reservoir of spare parts by those with money," African Americans living under the thumb of an increasingly penal welfare state can all too easily imagine their children being snatched and thrown into the system. These children become, in the eyes of their mothers, collateral for the increasingly brutal extortion of their un- and under-paid labors and the aggressive extraction of all wealth held in common in their communities, including their water, land and houses.

Victoria invokes the legacy of Indigenous Child Removal in the United States, as a foundational precedent, suggesting cultural assimilation is at the heart of ongoing child capture.[125] She compares it to Immigrations and Customs Enforcement (ICE) raids at the U.S. border under the Trump Administration, and the growing resistance to the 'caging' of children as a deterrent for asylum seekers to come to the United States. Certainly these connections deserve further exploration, as they suggest a racial animus that is not only, even if it is constitutively anti-black. Nonetheless, more than material motivations, WOW activists read racial animus into these relations of imposed familial dependence, objecting to the use of water as an arbiter for whether families are separated or stay together, whether they are allowed to remain intact. Here the end of water as we know it is the idea – which hardly seemed possible and still seems paradoxical – that water could be used *against* life.[126]

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[125] See (Jacobs 2009; Palmiste 2011; Stevenson 2014; de Leeuw 2014).
[126] I thank Vincanne Adams for this reflection.

As WOW has pointed out – to their members, to DHS, to the UN, to journalists, to me – this is not a question of 'saving lives', and certainly not of 'saving money,' in the end. Indeed, the outcomes for children placed in foster care in Michigan suggest the system is so grossly under-resourced that it may harm children more than it helps, while the economic data from welfare 'experiments' over the past two decades suggest that workfare measures may cost more money than they create. That the city rejected MWRO's Water Affordability Plan in 2005 – even though it would have recovered more revenue, cost less to enforce, and avoided sowing terrible tensions and serious scandal over human rights violations – suggests something more pernicious at work.

Racial Capitalism, aka Madness

For some scholars, the surge of security practices is an appendage of neoliberal governance, a way of maintaining 'law and order' aside the deregulation of markets; for others, security logics are at the core of neoliberalism, central to the state apparatus. A key distinction in how the carceral features of neoliberalism are interpreted hinges on the underlying presumptions about whether capitalism has racial roots.[127]

By connecting the 'neoliberal carceral state' to Cold War ideologies of "containment," Jordan Camp has argued for understanding contemporary dynamics within a continuum of racialized security strategies, rather seeing them as a novel phenomenon of the late twentieth century ushered in by the rise of the populist Right

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[127] Jovan Scott Lewis has proposed that blackness is foundationally an economic modality, based in slavery as the ontological foundation of blackness (Lewis 2018a). For more, see (Chakravartty & Silva 2013).

(2016).[128] The Right's revanchism – an expression of racial revenge as much as of fiscal retrenchment (Mitchell 2012; Smith 2005; Wacquant 2010) – has not inaugurated, but instead only accelerated the ongoing repression of Black freedom in the name of security.

In her landmark study of the rise of mass incarceration in California, Ruth Wilson Gilmore charts a national shift "from military Keynsianism to post-Keynsian militarism," arguing that the state does not disappear but rather restructures around securitizing principles (1999a). During the "golden age of capital" (1944-1974), she notes, major transformations in the governing structure of the United States occurred, including the insulation of the Department of Defense as a well-funded, politically-independent branch institution of the central state (Hooks 1991), the formation of New Deal agencies to buffer unemployment and ensure continual aggregate consumer demand (Gordon 1995), and the expansion of public infrastructure as a major means of public investment (Gramlich 1994). These transformations, Gilmore continues, "provided foundations for capital accumulation as well as for the social and spatial mobility of certain segments of the population" (1999b, p. 14). As she argues, this segmented mobility has reorganized urban geographies around race in new ways, including through the incarceration of Black men in unprecedented numbers, and the intendant carceral containment of Black women through new forms of welfare and workfare (1999b; 2002).

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[128] Camp has argued that this neoliberal carceral state has developed from "the dialectic between the long civil rights movement and the counterinsurgent response to it," noting the increasing intensity with which black freedom and labor movements' demands for dignity, freedom and equity have been characterized as "disorder" in need of "containment" (2016, pp. 4-6). By characterizing the state's methods as a mode of "counterinsurgency," Camp foregrounds the militancy of the state's suppression of freedom struggles and links it to U.S. militarism abroad—extending a connection made by Dr. Martin Luther King, Jr. through his denunciation of the Vietnam War in his Riverside speech (1967).

That "the system" and "the state" were virtually synonymous in the vocabulary of many residents and activists need not be taken for an analytic totalizing or flattening of "the state." Instead, we can read in the frequency and ubiquity of these references a recognition of the diverse and multiple ways in which state powers appear.[129] When pressed, these activists unfold a range of understandings of the various constraints of government agencies at different lateral and horizontal positions within a federalist structure, positions that must be well studied in order to be effective in changing policy.

Whereas Wacquant has rejected the suggestion that the criminalization of poverty is a premeditated "plan" orchestrated by malevolent rulers or "some systemic need (of capitalism, racism or panopticism)" (2009, p. xx) – what Pierre Bourdieu called "functionalism of the worst case" (qtd. in 2009, p. xx) – many local activists would disagree.[130] Here is Lorraine, as state chair of WOW, in remarks given at a demonstration in Pontiac, July 2015:

> What *kind* of a person would suggest that the thing to do in a city where you know 30, 40, 50% of the people living at or below the poverty level – what kind of elected officials would suggest the thing to do is to turn the water off so you can force people to pay?
> Her question is not simply a lament, or a rhetorical device used to condemn those

who make these condemnable decisions. Instead, Lorraine is asking about the ethical structure that enables those with power to wield it so carelessly and calling out the

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[129] With respect to the water shutoffs, these powers range from arrests to "assessments," like those conducted by Child Protective Services (CPS) to determine if a household without water is 'fit' for a child. If not, the child is remanded to foster care, or as people would often refer to it, "taken into custody." That these become synonymous sutures together both the 'strong' policing tactics of arrests, incarceration and fines as well as 'soft' policing measures within the social welfare system.
[130] For example, Wacquant calls the "prison-industrial complex" an activist myth and conspiratorial framing (2009, p. xx).

economic illogic of it all. There is an accusation at work, but there is also genuine

confusion, and enough curiosity to suggest that there is some value in uncovering the

values at work. Where is the line between extreme carelessness, "deliberate indifference"

(the legal standard), an abuse of power, and outright abuse (as Charity Hicks charged)?

> She continues:

> I'm so appreciative of our First Nation friends who talk about the sanctity of
> water. I'm so appreciative of our brothers and sisters from Africa. I'm so
> appreciative for the pastors here, for talking about the sanctity of water. But
> I'm telling you! These people are not talking about that. They are not
> talking about your children, your seniors, the disabled, people that can't
> see, that have one leg; that aren't even talking about the sanctity of
> veterans. They have no value.... At this point, the message is, if you can't pay
> for it you can't have it. This is DEATH. This is a death warrant.

The ambiguity in the sentence, "they have no value" suggests two things: that 'they' – the

people, valorized and demonized alike – are not valued in this system, and that 'they' –

the politicians – have no values, no ethics that align with the sanctity of life and the

sanctity of water and the sanctity of water as life. The two together suggests that the

"death warrant" is not simply a record of dehumanization, a neoliberal abandonment, but

a writ of destruction, a necropolitical agenda.

> All of them not doing it because they mean, or they're cruel, that ain't what
> we're talking about. This is a scientific, objective reality... One million
> people walked away because they couldn't manage living in Detroit
> anymore. And now, the thought is, *why don't we make them*. But we can't
> make them leave unless the narrative goes out. 'You just don't want to pay
> the water bill,' and they keep saying it, they keep saying it. The *Mayor* of the
> City of Detroit: 'all you have to do is just force them, if you *force them* it'll
> work.'

For Lorraine, the functionalism of state bureaucracy – what she calls its "scientific,

objective reality" – *is a plan* insomuch as it plans for the death of people whose value and

sanctity it writes out. The city, its managers, and the mayor, are recognized and received as a system of force. By calling in other cultural frameworks for protecting water and people, she provincializes the conception of water as a commodity, separable from the sanctity of life. It is this disenchantment that grounds another ethics, the one that enables "these people" to argue that denying water to people who cannot afford it is "the thing to do." This is the ethics that needs to be understood, not the ethics of the 'thief' stealing water, or begging for money, or sheltering children, or otherwise refusing to cosign their writ of death, refusing to be killed without sacrifice. Instead she sees the death of water as we know it, because water is being used as an instrument of social death.

To my reading, this anthropological gesture is also a sociological statement about precisely a "systemic need (of capitalism, [of] racism)" – voraciously pursued under neoliberalism – to bring everything under market logics – which are also racial logics. It is a plan, in effect, to commodify the commons – "if you can't pay for it, you can't have it." If Wacquant asserts that activists who presume a plan at work are too "conspiratorial," these women suggest that scholars like him are too quick to foreclose the possibility that there is an intention within these institutions. This intention is not about an individual's cruelty or compassion, but rather an ethical formation of another kind.

To Lorraine, these plans are not the product of individual meanness, but of the institutional madness provoked by the privatization of a public good: "It's scandalous, diabolical, it's unspeakable, unconscionable, what's going on in Detroit, in Pontiac, in Flint – this *madness* that's going on all over!" she continued, "[and it's] not just Detroit,

ok, a lot of us are Black, a lot of us are white, a lot of Latinos in here, a lot of Arab

Americans in here." Again, this is not the result of individual racists, deciding to disavow

the sanctity of one people, but a desanctified system, one that makes it possible to decide

that authorizing the death of the poor is 'the thing to do.'

Lorraine's comrade Loretta followed up her comments with a more graphic take:

"They use our communities as the whipping board [sic] for everyone else. To see what we

can stand. To see what they can get away with." Together, Lorraine and Loretta's inquests

into "their" ethics and politics returns the suspicions of the state, makes the governors the

'folk devils' whose motives and methods become the subject of collective study. For these

women policing is understood as a social relation animated by history and authorized by

the enclosure of property and the enslavement of Other persons – inaugural mechanics of

racial capitalism – and not only the work of an institution or the malice of individual

officers.[131] By attending to how illogical the institutions are, these welfare activists show

that the "iron cage" of bureaucratic rationality that Max Weber described is ultimately,

even foundationally, irrational.

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[131] I am indebted to the abolitionist group, Critical Resistance, founded by famed political prisoner and dissident philosopher, Angela Davis, for this capacious reading of the social relations of policing. Critical Resistance defines policing this way: "Policing is a social relationship made up of a set of practices that are empowered by the state to enforce law and social control through the use of force. Reinforcing the oppressive social and economic relationships that have been central to the US throughout its history, the roots of policing in the United States are closely linked the capture of people escaping slavery, and the enforcement of Black Codes. Similarly, police forces have been used to keep new immigrants "in line" and to prevent the poor and working classes from making demands. As social conditions change, how policing is used to target poor people, people of color, immigrants, and others who do not conform on the street or in their homes also shifts. The choices policing requires about which people to target, what to target them for, and when to arrest a book them play a major role in who ultimately gets imprisoned" (Critical Resistance 2019).

Rather than simply reject the racial *consequences* of a "programmatic convergence and practical interlock" (2009, p. xx) of welfare and prisonfare, these activists read racism into the *structure* of these systems, whether due to rationality or madness. In a reply to Wacquant, Francis Fox Piven agrees that it hard to find functionalism, or a systemic logic, in the rise of mass incarceration under neoliberalism. "But then," she writes, "we are rapidly coming to realize that many other institutional arrangements created under neoliberalism were also wildly irrational. The big and important question is whether we will be able to grasp new political opportunities from the resulting mayhem" (2010). Perhaps ir/rationality contra madness is not quite right, either – perhaps we are witnessing the expression of their juncture, where rationality carries out the madness of racism.[132]

Sanctuary

I was in the office one morning when the phone rang. "Women on Welfare, how can we help?" I asked. "By any means necessary," the voice on the other end answered, then laughed. Loretta was famous for her dry humor. "Don't worry, baby, I know how it works. What's going on at the office?" I told her it had been a slow day. "Well hey! I don't believe in osmosis or nothin' but you're just asking for it! Listen, put Gigi on speaker." Loretta told us to expect someone this afternoon, a woman with a $2300 electricity bill and three kids in the house. "Get her paperwork and fax it over there to Earl. Make sure the time and date is on there, and the call Rodney at DTE to confirm." "Wait a minute,"

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[132] Again I thank Adams and Whitmarsh for their insights.

Gigi interjected, "you just said two things! Call Earl or Call Rodney?" "Nuh-uh. I said *fax* Earl and *call* Rodney. Put him in your frequent caller list. You know what? Put him in your family plan!"

Later that afternoon a woman came in with a young boy in a stroller. We thought it was the woman we were expecting, but no one expected this. She flew in like a Hummingbird in a storm. "Oh thank you," she said, "because this is urgent."

> I gotta fax this paperwork in and I don't even know if they're gonna take it. I was just at Social Security trying to get myself and my two kids covered and you know they said to have his school enrollment, I had that, to have his progress report, I had that, to have his birth certificate, I had that, to have his immunization records, I had that too. They said something on school letterhead, it was. And she looked at the progress report and said it needs to have my name on it, too, on the same paper. Well how am I supposed to change how they make those? That's what he's got. I mean, I had everything and she denied me.

"So we're faxing paperwork to the Department of Human Services?" I asked.

> No. To the Water Department! I gotta get my water cut back on. I don't even know what's going on. I moved into this apartment last week and now I got no lights and gas or water and I've got CPS coming by the house after I pick up my oldest at 5.

The tenor of the whole room changed – somber, sped-up, scary. Everyone was on edge, and no one exactly knew what to do.

"Just when we thought it was a quiet day," said Gigi. "I'm gonna need to call Loretta right now, 'cuz she needs to be here." Then she turned to me: "And you need to sit with her and get her signed up as a member – get a client representation sheet and a technical assistance form, and get the details. And you," she said to the Hummingbird, "and all of us," she said to the three others in the room, "need to just take a deep breath and calm down. Everything is gonna work out, but we may have to keep you here. Can

someone pick up your son for you?"

"Well I was gonna get him from school because they said they were gonna be at our place at 6," she said. To which Gigi replied: "Oh you're not going back there, honey. Not tonight. You just sit tight, there. You didn't know what you were walking in to! Coming to WOW. But I tell you you done found the right people today."

WOW's offices are in a large Methodist Church, so Gigi talked to the church director to see about harboring her and her children in house for the night. The Hummingbird's panic was on the rise. She spilled out her suspicions, trying to understand how she had been reported to CPS:

> The worker, she called me and she said, we've been told you have no lights or food or water in the house and that your kids aren't immunized. How does she know that? T is immunized, but D's only scheduled to go Thursday cuz I had to move it since that's my day off. But how would she know? She even called me on this number. How does she even have it? I just changed it yesterday.

She frantically began to explain how much she cares for her children despite her circumstances. She tells us sometimes she takes her children to work though she isn't supposed to, but only when her childcare falls through. She works nights as a security guard for an auto plant, and would have the kids sleep behind her desk. She swore her coworkers to secrecy just like she did to us, terrified that her employer *or* her case worker *or* the kids' father, her ex, would find out. Her speech speeds up as she tells us that she herself had been a product of the foster care system, abused in "every kind of way," and would not let them take her boys "not for one day!"

> Look, honey, you don't own that child. You might have *had* that child, but you don't own that child. And it's the state that is responsible for its health and safety. But then the irony is that's the worst place.

In the end, she needed sanctuary only for a few hours. A sister picked up her older son.

Loretta called the landlord and threatened to expose whatever scheme he had running, at

least enough for him to cut her lights and gas back on. She had us call the Water

Department and get her enrolled in the WRAP program. The Water Department required

her to put some money down "as a good faith gesture – like in a hostage negotiation,"

Loretta joked.

Security without Sanctity

The past four decades have been characterized by the encroachment of market-

driven logics into all spheres of economy, and life – writ broadly under the rubric of

neoliberalism. This set of rationalities has reshaped the provision of social services and

the administration of punishment, often grating the work of the 'caring' and 'carceral'

arms of the state into new hybrid relations governed as problems of security without

making those most impacted feel safe.[133]

In the rumors of Charity's death, in the gossip about children "thrown in the

system" after the water company came, I began to see another side to how the state

'secures' itself against the disenfranchisement it creates. Outside the 'crime-and-

punishment box,' alongside repression of mass demonstrations, and paired with criminal

convictions of 'welfare fraud,' other modes of penal coercion inflect even the 'caring'

sectors of the state: health, welfare and education.

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[133] Consider also increasing use of jails as social safety nets for physical and mental health provision (Sufrin 2017; Knight 2015, pp. 195-201).

These methods seep into the water sector as it becomes dislodged from its historical role as a public service and brought under private logics of market-based governance. At the same time, they expose the repressive irony that in order to 'secure' these new (hydro)social relations, formerly private matters of the home and family are turned inside out, made increasingly available to surveillance and intervention.

Meanwhile, more and more private security measures augment policing in public, including the installation of more than 500 street-facing cameras in downtown Detroit by Quicken Loans founder and mega-developer Dan Gilbert.[134] Just as Camp argues in his study of the securitization of homelessness in Los Angeles, here ideologies of safety and security not only facilitate reappropriations of land and other extractions of material and cultural wealth from historically diverse communities, but they also serve to cover up the human rights violations happening in plain sight, 'on the outside' of prison walls.

In this chapter, there are no charges filed, not one person incarcerated for 'using water illegally' or 'endangering children' by having them in homes without running water, and still, we see the workings of a kind of carceral containment of water. By 'securing' water as a commodity rather than a commons, these policing strategies extend the structures of racial capitalism into new relations, upholding market logics in all aspects of life. Water has become the conduit through which all of these state managerial processes take shape in this environment. It has become the connecting fluid for tying together new

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[134] Investigative reports suggest Gilbert, who owns more than 11 million square feet of real estate in Detroit's commercial corridor, has installed cameras on buildings he does not own. The conditions of his ownership are themselves highly suspect, as Gilbert's Quicken Loans is currently being sued by the federal government for knowingly falsifying underwriting certifications for FHA-insured mortgages to clients who could not afford them, before the real estate market collapse in 2008. (Thibodeau 2015; Neavling 2015).

forms of carcerality, old forms of discrimination, intensified forms of disenfranchisement and even the devastation of the family. Among welfare recipients, particularly Black women, the supersaturation of suspicion, paranoia, fear and anger is part of an intensification of unfreedoms imposed by the system of racial capitalism that neoliberalism is only accelerating. As Simone Browne writes, "Surveillance is nothing new to black folks. It is a fact of anti-blackness" (2015, p. 10).

What women welfare activists offer, is a critique of the roots of this relation, the ethical grounds on which a sense of sanctity can be stripped from a life-affirming public good and a managerial necropolitics installed in its place. This 'containment' relies on legacies of protest repression, urban surveillance, and workfare/prisonfare regulation translated through rumor, threat, and spectacle into material and symbolic constraints on poor people's lives. The unfreedom of Black people and of women provide templates for new forms of control through the twinned powers of domination and dependence that the state 'secures'.

Because the attribution of threat or disorder continues to be overdetermined by racial ideology, and because the desocialization of wages within the capitalist marketplace continues to be organized by a gendered division of labor, low-income Black women are uniquely punished by neoliberal securitization. As such, these women are intersectionally positioned to reflect upon the structural powers orchestrating their dispossession. Perhaps none have done so more forcefully and consistently than the members, leaders, and legacy-keepers of the National Welfare Rights Organization, to whom this chapter is dedicated.

Life After Water

It was dangerously icy the night we drove out to Delray.

The Mayor's office was holding a meeting there with residents, as it does annually in each of Detroit's seven electoral districts. I lived in this one, District 6, though the meeting was more than 10 miles from my place. I felt relieved to be able to get a ride there, as it would have taken more than an hour by bus, with transfers, and by even 6 o'clock I knew the city would be blanketed in darkness and snow.

As soon as you turn off the highway, a bright blue flame appears at the end of the road, centered on the horizon just before the river. Even the grey of the smokestacks further west is sharp against the clear black sky. Zug Island was just a few hundred yards from us in the River, just south of Detroit and north of Windsor (and the only point where the U.S. southern border refers to Canada). Derrick pointed to the line in the sky, and told me the story of a sound. "There's a hum that comes from there, from Zug Island. Nobody knows what causes it, but it's a kind of plague for the people who hear it. You can't hear it from Detroit, just Windsor, though I heard it once when I was there. It's this deep dub *womp* sound. And it vibrates, yeah? So people can feel it in their bones."

"What do you think it is?" I asked him.

"Whatever they're doing on Zug Island," he said. "People call it Area 51 because that place is lock and key. I was biking by once and saw Homeland Security signs saying

No Photography." You can see it plainly at the end of the road. The blue flame that was

sited there for undisclosed purposes still marks the spot of this unknowable sound.

As we turned right, it fell out of sight.

Figure C.1: Screenshot of a video capturing the sound from Detroit's Zug Island (Evans 2013)

The Zug Island Hum has been cited as an environmental, and an emotional,

hazard. For years, residents across the river have been outraged by sound, saying that it

interrupts their sleep cycles, scares their children, and disrupts businesses. The Canadian

government commissioned a report that described the phenomenon but could not

determine a cause. No one can explain why and how it only travels south. Without the

dulling effect of paved ground, the river water transports what people describe as

sometimes a noise, sometimes a feeling: "a deep rumble like coming thunder" and "a

pressure on the chest and in the air... [that] pops your ears" (VICE News 2017).

On the U.S. side of the river, the effects of Zug Island seep through other sensory routes. Beneath the visual marker of the blue flame and never-ending gray plumes, the stench of sewage is tempered by the smell of sulfur, to little comfort for residents of the half-empty enclave. Today, decades after the economic slowdown in the region, the neighborhood's stereotype as "backwater" Detroit is uncomfortably fitting, given that the Detroit Water and Sewerage's main wastewater treatment plant is also sited there, processing the sewage not just of the City, but the more than 70 regional municipalities that DWSD serves. DTE, the power company that provides gas and electricity across southeastern Michigan is also based there.

In addition to the wastewater treatment plant and coal-fired power plant, Delray has two steel mills, a salt mine, an auto plant, and an oil refinery. 48217 is among the nation's most polluted zip codes, just next to the heart of downtown Detroit. Delray is what is known as a 'fenceline community' because these major polluting enterprises are sited right next to residential areas. The fences serve as symbols of how property lines fail to contain the contamination and debris emanating from these facilities, running through air, soil, water and bodies.

The City and State have been in negotiations with the Canadian government and private investors for years over a plan to use land in Delray for a complementary Ambassador Bridge, to ease traffic on the main (now privately owned) international thoroughfare. The city attempted to purchase the properties of those within the bridge's footprint; for those outside the buyout zone, Detroit offered to give residents an empty, tax-foreclosed house from its Land Bank, with a $60,000 subsidy for repairs. Still, many

residents won't sell.

Delray was one of the earliest settlements along the Rouge River, with its attractive views and proximity to maritime routes, and became home to tens of thousands of Eastern European immigrants in the late nineteenth century. Just as soon as the city of Detroit annexed Delray in 1903, it began concentrating industrial production along the riverfront area. Today, it is one of the most desolate and isolated neighborhoods in the city. A profile in the Detroit Free Press says is looks like "a village on the day after the end of the world" (Carlisle 2017).

I had offered to buy dinner beforehand as thanks for the ride. Derrick suggested a place that was suggested to him, and we walked in hungry. But the bar/restaurant we'd chosen was now just a bar, with one light on above the pool table and another just above the register. A second billiards table in the back was left dark, with the large room in between illuminated only by the neon glow of slot machines that lined the wall. A man was gambling silently, an envelope of cash and a tin of tokens in his lap, while a woman manned the bar with an eye on the 9-screen CCTV above it. She changed us quarters for the table, and sold us two bags of chips.

Asking Questions with Water

The meeting was held at an African Methodist Episcopal Church on Jefferson Ave. The large hall has an art deco aesthetic, carpeted in a steely sophisticated blue, with angled wooden pillars and flat white walls. Framing the stage are brass letters: "The Wage of Sin is Death," on one side and on the other, "The Gift of God is Eternal Life."

The Mayor spoke with the enthusiasm of a sweepstakes announcer. He was proud on behalf of the City to be unveiling a new city initiative tonight: a rental property ordinance, whereby every landlord would have to obtain a certificate to compliance from the city, without which renters are not obligated to pay rent and cannot be evicted for withholding payments.[135] It is designed to ensure that "anyone living in a rental property is living in a safe and healthy environment," and to protect renters from exploitation by landlords who do not maintain habitable conditions.[136] After forty minutes, Mayor Duggan took questions from the audience.

A woman spoke about tripping with her baby over a broken sidewalk, where the roots of a tree had grown through. She was grateful the baby survived unharmed, but visibly shaken. Duggan offered consolations and touted the city's sidewalk repairs project, an effort to repave a million sidewalk squares in five years. A man spoke to being "inundated" by municipal tickets and fees that were nearly driving his small business out of the neighborhood. "It's already caused some of the elders to leave, if they could, or just fold." Then two women, middle-aged and dark skinned, stood up at the microphone. One asked: "*How do you measure the value of our lives?*"

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[135] The City sets up an escrow account to hold rent after 6 months of noncompliance by the landlord, which is returned to the tenant with every successive missed deadline (City of Detroit 2017; Afana 2018).

[136] The City posted a version of the new ordinance that shows its revisions to the original 1984 measure, and begins with text summarizing what has been changed. Of the six changes, four are procedural, involving new scheduling, certificates and fines regarding compliance (fines have been multiplied tenfold, as you can tell by the strikethrough text, over a period of just under 3% inflation). Of the other two changes, one updates the substance of the health and safety code by updating the lead assessment and abatement procedures. The other authorizes the City (not homeowners, or renters) to grant permission to the federal government, "or any government agency," to inspect rental property for the purposes of real estate assessment, rather than (formerly) health and safety. As for the lead adjustments: "lead abatement" is revised and limited only to "lead-based paint abatement" and inspections are replaced with "risk assessments" (City of Detroit 2017).

"Sorry--" Duggan interjected with a puzzled look. But with a ruled notebook in hand, she read her piece:

> Detroit has suffered the largest closure of public schools in American history. Our factories have closed, our jobs have gone to robots. We can't drive because we can't afford insurance, can't put food on the table because there's no stores, can't go to work because there's no work to go to. My sister is here from Flint, dealing with their children being poisoned by the water, and here some children don't even have water because this city says they too poor to have it. There's Hepatitis A because of the shutoffs. What I want to know is, Do black lives really matter? How can you say our lives matter when we can't have water?

"No, I'm sorry," the Mayor replied, "this is not for public comment. I'm only taking questions."

"I did ask you a question."

"No, you made a comment. Next, next question, yes--"

In many ways, the questions that poor and marginalized Michigan residents are asking about the value of their lives are being asked and answered through water. The Mayor's refusal to acknowledge this woman's question, to even hear it as a question fit for a public forum, reflects the exclusion of certain concerns about life, just as the substance of her question expresses the erosion of certain modes of living. The water justice movement's mantra, "Water is Life," affirms the value and dignity of life beyond its biological existence or capitalist utility. Water is Life challenges the dismantling of protective social, political and environmental policy as is fosters a life-affirming ethics and politics *of water*. Such a politics recognizes that the formal sphere of politics through which liberal publics have been constituted has been built on the degradation of black

life, a legal and built architecture whose spatial and symbolic legacies continue to inform and rework racialized geographies of exposure to harm.

In the shadow of the half-staffed factories emanating toxic sewage and toxic sounds, residents of Delray live in half-filled neighborhoods whose geographies and communities are radically altered. Their homes, coated in lead paint, distribute water through lead pipes, with every turn of the tap tempering the ever-present threat of neurotoxicity with the collective investment in public drinking water treatment. The Flint water crisis has revealed how suddenly the protections of the public can be removed, to the shock of a nation that has taken its water security largely for granted. This crisis proceeds alongside the ongoing crisis of mass shutoffs in Detroit; the pollution of well and public drinking water across the country by PFAS and other bioaccumulating 'emerging contaminants'; and the catastrophic extraction of freshwater supplies for bottling companies – which not only withdraw financial resources from watershed communities, but in turn generate the largest global source of ocean waste: plastic water and soda bottles. The confluence of these established and emerging threats to water has been interpreted as a collective, even existential, threat to life as we know it.

Alongside the dismantling of public infrastructures and institutions for promoting population health and safety – from the total, then partial, outsourcing of the Detroit Department of Health to the stripping of pension and healthcare benefits to the broad cuts to public assistance – hailed as "the end of welfare as we know it" – the current political economy reflects deeper transformations in contemporary biopolitics. As I have argued, these are traceable through their material presence in and as political ecology,

not in the modern sense of an interaction between the 'natural' environment and 'social'
worlds, but as what Donna Haraway calls "naturecultures" (Haraway 2007; see alsoLaw
2004).

By studying what flows through and is steeped in hydrosocial relations, questions
of inclusion and exclusion take shape not only in policy and law, but in practices and
landscapes (Chapter 3). The old modes of modern security – premised on the possibility
of containing predictable threats and controlling for contingencies – have become
outmoded, outstripped as water erodes them, literally and conceptually. Emerging
contaminants like PFAS (Chapter 4) speak to the dialectical relationship between water
security and insecurity as a field of forces in the hybrid *milieu* of life – a life that must be
reconsidered not as a 'damaged' version of a 'usual' whole, but as a porous entanglement
and fluid assemblage of human and nonhuman lives. The move to 'securitize' these new
postindustrial urban environments only proliferates insecurity, among families made to
fear separation or incarceration when accessing basic necessities of life (Chapter 5),
sowing racial tensions into racially-cultivated regional geographies.

The use of secrecy, rumor and intimidation suffocate open discussion about the
consequences of these coercive practices in the place of public care, and make it much
more difficult to document the harms caused by regressive and 'retrogressive' water
policies, as I found out in the course of pursuing several community-led participatory
research studies. Still, perhaps increasingly so, I argue this mode of research is vital for
reflecting the lived experiences of those 'counted out' of market-driven metrics and
driven off of 'shrinking city' services (Chapter 2), as well as realizing community support

when the recognition of historically-held privileges of citizenship fail. For Fred Moten, the limitations of these modes of representations stems from the very foundations of modernity. In "Blackness and Poetry," he writes:

> [M]odernity (the confluence of the slave trade, settler colonialism and the democratization of sovereignty through which the world is imaged, graphed and grasped) is a socioecological disaster that can neither be calculated nor conceptualized as a series of personal injuries. (Moten 2015)

The ongoingness of disaster, the blur between natural and social catastrophe, and the indistinction between events and quasi-events challenge conventional approaches to understanding political ecology and political economy, whose impacts are intersectional and incalculable. That the story of the disasters that unfolded for Jordyn's family after her water was shutoff (Chapter 1) begins, for her, in the wake of Hurricane Katrina, that it can be traced through not only the urban crisis of the 1950s and 60s but also the Great Migration of the early twentieth century and ultimately to the waters of the Transatlantic slave trade, is a mode of apprehending the history of this present that is deeply skeptical of modern progress narratives. These stories suggest, as their narrators often argue, that modern racial capitalism was forged on a racialized hierarchy of valued and devalued life, a disaster from which history unfolds into the contemporary with accelerating toxicity.

Methodologically, I have attempted to draw together medical anthropology, feminist science and technology studies, critical theory, and black studies, considering water as a "lively" assemblage of food and drink, contagions, contamination, plastics, energy, legislation, plumbing networks, modernist fantasy, profit incentives, race thinking, germ theory, raw material, lead and rust forming and informing the

racialization of contemporary life. This has required understanding the way that

(bio)power flows through water, in theory and in practice. My engagement with local

justice movements is an analytic as well as activist approach that insists on the primacy of

the ordinary and everyday in the (re)production of politics, even – or especially – among

those excluded from liberal publics.

History of this Present

Michel Foucault described his method for making sense of the operations and

transformations of power as a "history of the present" (2002 [1969]; 1977, pp. 30-31; see

alsoDreyfus & Rabinow 1982). Rather than collect 'facts' about the past to inform what is

happening in the present, Foucault proffers to trace concepts that order thought and

apprise practices whose scaffolding logics can be read genealogically. Knowledge becomes

an infrastructure for power, where infrastructure informs the "terms of transition" in

Lauren Berlant's terms (2016)and represents "society made durable" in Bruno Latour's

(1990). The point of mapping power, then, is knowing how to change it.[137]

The present condition in Flint and Detroit is often diagnosed as a failure of the

past and an absence of a future – as if rust has no ecology; as if work was all there is. The

post-industrial landscape is temporally marked as an aftermath, rather than seen as an

ongoing afterlife. For those living amidst the ruins, remainders and rejoinders of old

traditions, the important distinction is not between past and present, but between

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[137] "If you want to struggle," Foucault says in *Security, Territory and Population* (1986), "here are some key points, here are some lines of force, here are some constrictions and blockages." Of course it's up to [us], Foucault suggests, "to know on what fields of real forces we need to get our bearings in order to make a tactically effective analysis" (Foucault 2007 [1978], p. 3).

modern and contemporary, as epochs of their own conceptual apparatuses, assembled by divergent conceptual infrastructures. The mark of the modern and its totalizing presumptions (of culture, civilization, and progress) remains even as its conceptual holism has become brittle – not as a residuum, but "worked together, either well or poorly" in other forms (Rabinow 2009, p. 3).

To say that the current crises in Michigan signal a "new" form of urban politics is not, then, to declare a breach from the past, or presume to know the future. It is only to suggest that methods of engagement with the concepts of nature and culture, public and private, past, present and future, sickness and health, purity and poison are emerging that disband with the presumptions of the modern age – "the age that Ford built," or at least, assembled (Snow 2013). In this light, we see with Dora Apel why the proliferation of "ruin pornography" showing the decommissioned factories, decaying houses and shuttered schools in Detroit – why "the very idea of Detroit" – is fed by the collective anxiety over the decline of modernity (Apel 2015, p. 5).[138]

The mid-twentieth century gave us one model for what work and social welfare should look like in a "capitalist democracy", and then preceded to dismantle each of its pillars, stripping away the scaffolding of the commons until water runs, lead laden and rust colored, to strip away what we thought we knew of social life; to trouble the clarity of what we take for granted, whether the purity of a (mis)remembered past or the promise of a "post-racial" future. So how do we tell a history of *this* present, a present that is not

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[138] Ruination is also not without responsibility and uneven impact. Ann Laura Stoler reminds us that ruination is both a noun and a verb: "an act perpetrated, a condition to which one is subject and a cause of loss" (Stoler 2013).

one; a present that is not static, and not evenly shared? The present is anxiously anticipating the future ruin that Detroit and Flint have come to signify, whether these cities' demise is understood as an inevitability or accident.

That there will be life abundant on the banks of the world's largest source of freshwater is a tautological reality, if we understand (as people the world over do) that water is life. The question is, what kinds of lives will be livable if the waters are condemned to die? Or never seen as living? What kinds of lives will be livable, and which will be lost? These are questions of the contemporary, as we peer out onto uncertain futures; they are questions asked in many ways, at many points in time, as it accumulates.

In 1972, the morning after President Nixon vetoed the Federal Pollution Control Act, 1972, Senator Edmund Muskie stood on the Senate floor to ask: "Can we afford clean water? Can we afford rivers and lakes and streams and oceans which continue to make life possible on this planet? Can we afford life itself?" (inSimon 2019)

Can We Afford Life Itself?

Overburdened, underfunded, and ill-equipped for changing ecological and economic climates, urban water infrastructures are emerging as increasingly important sites for rethinking the ethics and politics of collective living in the aftermath of industrial decline. At issue in this dissertation have been not just claims to drinking water as such (who has access, how much it costs, is it safe, and so forth) but an understanding of how water makes and remakes the very fabric of urban space and the uneven conditions of possibility for life with/in it.

Life, at the nexus of the biological and the biographical, is always lived in relation to death, as Didier Fassin has argued (2010). Even still, Fassin overlooks the ways that "nonbeing" as Franz Fanon famously describes it (2008 [1952]), or "un/survival" in Christina Sharpe's terms (2016), is the constitutive grounds of black life. This is what Sharad Chari calls "life-as-survival" (2017), and what I have explored here as life that must be made to matter – following how the materiality of water, its meaning and value are assembled into spatially-demarcated geographies of 'distributed life chances'.

The structural and symbolic violence descending from slavery (re)makes black life in the wake of a disaster, and has spatial and symbolic legacies that are literally incorporated through what Nancy Krieger has called ecosocial pathways (2012). I call this "life after water" because it takes after water, it imbibes and incorporates the waters of its life environment, or milieu. As Georges Canguilhem suggested, and as we have seen, the milieu is specific to life (2001) – life is lived with respect to *its* environment, not *the* environment, mediated by meaning and perception, shaped by conditions of possibility that precede the subject and exceed a single life. "Life after water" also speaks to the sense that life is never the same after the routines, rituals and rythms established in relation to (modern) water change. Life is radically altered and remade after a storm or a shutoff, and in more subtle ways, is always in the process of alteration in relation to changing waters. For black life, this invokes another sense, as well; the temporal sense of always being after, the sense, in Saidiya Hartman's terms, of living the *afterlives* of slavery (2008). Lastly, life after water points to the paradox at the heart of urban water policy in "shrinking cities" of the American Rust Belt today.

That the "revitalization" of cities depends upon dispossessions of water achieved through denial, contamination and commodification, is more than an affront to human rights, though it certainly is. The paradox of 'revitalizing' cities by eroding common waters is that it is foundationally an affront *to life*, revealing nakedly the structural exclusion of black life from the modern constitution of human life and urban publics. Life after water is life lived in the wake of this exclusion, tied as it is to the enclosure of the commons and its enforcement, scaffolded by blues infrastructures of social buoyancy and belovedness amidst the ongoing, and unfolding, disasters of modernity.

I agree wholeheartedly with Fred Moten when he tells us (2017) that what is at stake are "*not only our attempts to survive, but also our attempts to save the earth*. And not just to save the earth, but as the poet Ed Roberson puts it, 'to see the earth before the end of the world.' And this is an *emergency* that we're in now. And it's urgent."[139]

Last Two Dollars

I took the bus home that evening, at the end of the meeting.

A man standing by the back door is scanning for a seat, wearing a denim vest on denim jeans, with no shirt to speak of, covered in colorful cloth-cut flowers he tells me he sewed on himself. He is swaying his slumped over self to the tune of a soul song he's somewhat singing. He stops and starts along the way, as does the bus. "I been traveling this bus for years, you know. For *generations*," he tells us, or tells no one in particular. "They call me Cosmic, mind?" No one does seem to mind, it's dusk and people are on

[139] This is a slight paraphrase of remarks given in a panel discussion at the University of Toronto Daniels, April 3, 2017 in response to a question from the moderator, Rinaldo Walcott, about how Black Lives Matter, freedom struggles in Palestine, and Indigenous resistance to settler colonialism relate. (2017, p. 47:49)

their phones or in headphones or looking out the window, anticipating home.

Someone stands at the next stop, and Cosmic sits down in the seat in front of mine, along the window. "Would you care to drink?" he asks me, and pulls out a small bottle. I thank him and decline. "You know what this is?" he asks. "It says whiskey" I reply. "Nah, this is LTD. You know what LTD means?" (I don't.) "Limited?" I ask, wondering whether his stop would come before mine. "No – *Last Two Dollars*! This is what you get when that's all you got. Two Dollars. Now it's not the best drink, for sure, but that dep– well the *best* drink is water," he says, interrupting himself. "If I could just drink one drink for the rest of my days, you know what I'm saying, it would be water – *sweet* water!"

"So why not drink water?" I ventured. To which he simply said,

"Honey, water's *two fifty*."

The Psychosocial Impacts of Water Insecurity in Detroit

By: Nadia Gaber; Andrew Silva, PhD; Monica Lewis-Patrick; Debra Taylor; Emily Kutil

This co-authored paper describes findings of a community-led research study into the

psychosocial impacts of Detroit's water shutoffs, showing significant distress among those

who are eligible for shutoff. It is forthcoming in press.

Introduction

Water insecurity poses a significant global challenge to health and economic

development (Prüss, Kay, Fewtrell, & Bartram 2002). Over four billion people—nearly

two-thirds of the world's population—experience severe water scarcity for at least one

month per year (Mekonnen & Hoekstra 2016). Of these, 2.5 billion lack access to "basic"

sanitation (WHO/UNICEF 2012). The majority of those without basic water, sanitation,

and hygiene (WASH) live in the global South, which is accordingly where most research

is focused. In the United States, less than one percent of residents lack access to safe

drinking water and sanitation, yet estimates indicate that 35% of U.S. residents will be

unable to afford water and sanitation services in the next five years (Mack & Wrase 2017)

Across the U.S., water costs have risen as urban poverty has grown, particularly

across the country's former manufacturing centers, spurring crises of affordability in

many of the country's major cities (Food & Water Watch 2018). In Detroit, Michigan, this crisis has surfaced in the wake of municipal bankruptcy. Under state-directed emergency management, nearly 100,000 people have been disconnected from the city's water system in an attempt to elicit payment from some of the metropolitan area's poorest residents (Haas Institute 2018). A United Nations report found that many of these residents have "a genuine inability to pay," and thus find the disconnections to be in violation of international human rights law (United Nations 2014). Nevertheless, shutoffs have proceeded each year since 2014.

In this paper, we advance understanding of the social dimensions of water insecurity. While the biophysical and economic impacts of inadequate water and sanitation are well documented, the complex emotional and social tolls of water insecurity are less understood (Ennis-McMillan 2001). An emerging body of interdisciplinary scholarship suggests that the quality and quantity of water alone are insufficient metrics to capture the range of social, emotional, and physical distress attributable to water insecurity (Wutich & Ragsdale 2008). The present study is the first, to our knowledge, to examine the relationship between water insecurity and psychosocial distress in the United States.

Field site: Detroit, Michigan

The Detroit water crisis is the product of decades of economic decline, depopulation, and inadequate policy reform, which has culminated in severe municipal budget shortfalls (Haas Institute 2018). Water rates have increased by 119% since the city's bankruptcy, including a 3.4% water rate hike and a 16.7% sewer rate hike in 2016 alone

(Food & Water Watch 2018). Meanwhile, a system of uneven payment structures among the 127 municipalities served by the Detroit Water and Sewerage Department (DWSD) imposes a disproportionate cost burden on the region's poorest residents (We the People of Detroit 2016). Detroit has the highest concentration of people living in poverty of any major city in the United States, at 35.7% of residents as of 2016 (U.S. Census Bureau 2017). Policies designed to mitigate these financial effects are far from adequate. A recent report by the ACLU of Michigan found that, of the 24,743 households participating in the city water affordability plan, all aside from 300 households remain at risk for water service termination (Guyette 2015).

The scale and consequences of the Detroit water shutoffs are not well understood, and pose unique challenges for researchers. Though tens of thousands are affected, service disconnections are periodic and scattered, making it difficult to locate affected people at any given place and time. Social stigma and bureaucratic intimidation keep many from seeking assistance, or disclosing their water status to researchers. Moreover, questions about transparency and reliability of public records have been voiced by residents, researchers, and journalists. These limitations underscore the importance of an ethnographically-grounded survey and community-led research study.

Methods

Our survey method follows current approaches to water research by developing an ethnographically-grounded water security scale and evaluating its relationship to a standardized measure of psychosocial distress. The survey was designed and executed as a

community-led participatory research study, with review of the Institutional Review Board of [blinded], in the Brightmoor neighborhood of Detroit, December 2016.

Survey Design and Data Collection

The first phase of research consisted of six-months of formative research for survey design, including participant observation, informant interviews, and literature reviews. This period built on years of community engagement and grassroots support, as well as methods developed by Wutich and Ragsdale (2008) and Stevenson et al (2012). Methods include participant observation at community meetings, observation and informal interviews at DWSD customer service centers, and semi-structured interviews with residents who had experienced water disconnections.

In the second phase of research, we conducted in-person surveys over a two-day period at a community food pantry. Five principal domains of water insecurity were examined: [1] current water supply status; [2] cost of monthly water bills; [3] perceived water affordability; [4] incidence of sewer flooding; and [5] economic trade-offs attributable to the cost of water. In addition, we examined the effects on the use of bottled water as a primary drinking source. We administered surveys to one hundred participants, 76 of which were returned completed.

Quantitative methodology

We estimate the effect of water insecurity on a measure of psychological distress in a linear statistical model. In very general terms, the model may be written:

$$psych\text{-}distress = \alpha + \beta \; water\text{-}insecurity + \gamma \; controls + e$$

in which *psych-distress* is a 5-point indicator for psychological distress, *water-insecurity* is a vector of the five water insecurity indicators, *controls* is a vector of other control covariates, and *e* is zero-mean, normally-distributed error term. The coefficients in vector β capture the relative influence of water insecurity on psychological distress. The model is estimated using ordinary least-squares with heteroscedastic-robust standard errors.

The indicator for psychological distress is derived from the Kessler Psychological Distress Scale, which compiles the responses from 10 self-assessment questions relating to anxiety and depressive symptoms over the prior four weeks (Kessler & Mroczek 1994). Each question provides for a range of answers from "none of the time" to "all of the time," ranked from 1 to 5, with 5 representing the most persistent symptoms.

To construct the indicator, response values are typically summed over all 10 questions, providing for an index ranging from 5 to 50. In our implementation, we instead used the numerical average of each question, which yields an index with a range from 1 to 5. This allowed us preserve observations in our calculations, as a significant number of respondents did not answer all 10 questions, which otherwise would have required us to drop these observations from the model.

We characterize five principal dimensions of water insecurity, measures of which are taken directly from the survey questionnaire. The first, current water supply status, is recorded as [1] shut-off; [2] running, having been reconnected after a shutoff; [3] running,

having received a shutoff notice; and [4] running with no prior incident (omitted category). Second, water bill amount, is recorded in four $100 intervals. Third, perceived water affordability, is measured on a 5-point scale; fourth is a binary indicator recording whether or not the sewer system floods during heavy rains; and fifth is a binary indicator recording whether or not the family needed to shift resources from other essential expenses to pay the water bill. We record all measures so higher values indicate "worse" scenarios, i.e. binary variables are set to "1" if the response is true, and "0" otherwise.

Other control variables include common household and demographic indicators (See Table 2 and Table 3 for the full list). The data contain a total of 76 unique observations. Not every respondent answered every question, so observations were dropped to estimate some models.

Lastly, we estimate several alternative specifications of the model in which we replace the dependent variable (psychological distress) with indicators for reductions in hygienic behaviors, and with an indicator for "using bottled water as a primary water source."

Descriptive statistics

In Table A.1, we report descriptive statistics for the variables used in the analysis. Fourteen percent of the sample report having their water shut off, 38% report having it reconnected after a shutoff, and 4% report receiving a shutoff notice. A total of 57% of respondents reported at least one form water insecurity (43 of 76 households). Of those

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who had experienced a shutoff, the length of time without running water ranged from

one day to two years, with an average duration of about three months.

Mean monthly income in the sample is $978, or to $11,738 annually, which falls well

below the 2015 poverty threshold of $15,391 for a family of two (U.S. Census Bureau 2017).

Between one-eighth and one-third of the sample report reducing various hygienic

activities in response to water insecurity, while 68% report relying on bottled water as

one of their primary water sources. Of this latter group, respondents spent an average of

$93 per month on bottled water. [Table A.1]

Table A.1: Descriptive statistics

	Mean	Std. dev.	Min	Max
Dependent variables:				
Psychological distress	2.63	1.12	1	5
Reduction in bathing	0.36	0.48	0	1
Reduction in cleaning	0.18	0.39	0	1
Reduction in laundry	0.38	0.49	0	1
Reduction in washing hands	0.13	0.34	0	1
Reduction in flushing toilet	0.24	0.43	0	1
Bottled water as primary source	0.68	0.47	0	1
Independent variables:				
Water status:				
off	0.14	0.35	0	1
reconnected	0.38	0.49	0	1
received notice	0.04	0.20	0	1
Water bill amount	1.01	0.93	0	3
Water bill affordability	2.44	1.36	0	4
Sewer floods	0.60	0.49	0	1
Cut back on essentials	0.74	0.44	0	1
Monthly income	978.14	683.88	0	2900
Housing situation:				
homeowner	0.28	0.45	0	1
live with family	0.08	0.28	0	1
housing insecure	0.05	0.22	0	1
No. household members	3.80	2.16	1	12
Have children under 2	0.16	0.37	0	1
Have teenagers	0.43	0.50	0	1
Black/African American	0.91	0.29	0	1
Female	0.73	0.45	0	1

In Table A.2, we report responses to a set of questions regarding water-related stress and safety. Response rates for these questions varied and were generally too low to include them in our regressions, likely due to their sensitive nature. Yet those who answered reveal a high degree of worry with regards to having safe and sufficient water for the household, and report having household arguments and fear of social services intervention for lack of reliable, safe water. [Table A.2]

Table A.2: Water-related stress and safety behaviors

"In the past two years, have you ever…"	% "yes"	Obs.
Drank water you thought might be unsafe for your health?	85.7%	21
Collected water from an undesirable or dirty source?	33.3%	6
Worried you would not have enough water to meet your needs?	82.4%	17
Borrowed or shared water with a neighbor, friend or relative?	80.0%	20
Argued with someone in your house over water?	75.0%	12
Re-used water to do household tasks?	58.3%	12
Worried about the removal of a child from your home due to shutoff?	75.0%	12

Results

Our estimates reveal a substantial, statistically significant effect of water insecurity on psychological distress. Particularly, in our base model (Table A.3, columns 1-3), having received a water shutoff notice is associated, on average, with a 2.31 increase in the 5-point psychological distress scale, and is significant at the $p < 0.01$ level. Having had the water supply shut off, but reconnected, is associated with a 0.99 increase in distress, with a p-value of 0.02. A one-unit increase in severity of the 5-point perceived water

affordability scale (i.e. a perception that your bill is less affordable) corresponds to a 0.3 increase in the distress scale, with a *p*-value of 0.05.

We did not find that psychological distress varies with family income levels. We suspect that water insecurity could be correlated with income level, and that water insecurity dominates the income effect in the model. It is also possible that since Brightmoor is a low-income neighborhood, we simply lack enough variation in income data to highlight a significant effect. Nor did we not observe an effect from water bill amount; we suspect that this measure is correlated with (and overshadowed by) perceived water bill affordability.

Adding additional household and demographic controls to the model has a minimal effect on the strength of these associations (Table A.3, columns 4-6). The same three water insecurity indicators have a positive effect on psychological distress, and remain statistically significant. Additionally, the extended model reveals a positive association between psychological distress and homelessness/housing insecurity (coefficient of 1.55), and between psychological distress and Black/African-American ethnicity (coefficient of 1.74), each coefficient registering significant at the $p < 0.10$ level.

In the alternative specification in which the dependent variable is an indicator for "relying on bottled water as a primary water source," we find that that receiving a water shutoff notice is associated with a 43% higher chance of relying on bottled water. We find no statistically significant effects in the specifications that attempt to predict changes in hygienic behaviors. (These results not tabulated). [Table A.3]

Table A.3: Water insecurity and psychological distress

Dependent variable:	Psychological distress			Psychological distress		
	Coeff.	Std. err.	p-value	Coeff.	Std. err.	p-value
Intercept	1.25	0.70	0.09 *	0.80	0.80	0.33
Water status:						
off	0.20	0.61	0.75	0.04	1.00	0.97
reconnected	0.99	0.40	0.02 **	1.10	0.56	0.07 **
received notice	2.31	0.29	0.00 ***	2.59	0.47	0.00 ***
Water bill amount	-0.31	0.21	0.16	-0.40	0.41	0.35
Perceived water bill affordability	0.30	0.15	0.05 **	0.38	0.19	0.07 **
Sewer floods	0.18	0.45	0.69	0.00	0.70	1.00
Cut back on essentials	0.41	0.58	0.49	-0.63	1.08	0.57
Monthly income	0.00	0.00	0.28	0.00	0.00	0.12
Housing situation:						
homeowner				-0.16	0.58	0.79
live with family				-0.03	0.78	0.97
housing insecure				1.55	0.77	0.06 *
No. household members				-0.07	0.19	0.71
Have children under 2				-0.42	0.79	0.60
Have teenagers				0.07	0.64	0.91
Black/African American				1.74	0.97	0.09 *
Female				-0.03	0.71	0.97
R^2		0.41			0.65	
Observations		42			36	

Notes: Huber-White standard errors, robust to heteroscedasticity;
*** significant at $p < 0.01$; ** significant at $p < 0.05$; * significant at $p < 0.10$.

Discussion

The role of water insecurity in causing psychosocial distress is an essential component to characterizing Detroit's water crisis. The escalating costs of water and wastewater services across the country, in contrast with stagnating household incomes,

underscores the urgency of addressing the complex, intersecting effects of water insecurity in the United States.

Focusing on the residents of the Brightmoor neighborhood of Detroit, we find a positive, significant relationship between three of our measures of water insecurity and psychological distress, our measure of which is based on the Kessler Psychological Distress Scale—a validated measure of emotional distress in the literature. Our results are robust to the inclusion of a number of socioeconomic and demographic controls, implying that these associations are not being confounded with other explanatory factors.

The strongest results registered for residents who received a warning notice, followed by those who had their water supply disconnected before being reconnected, and weaker, yet significant, effect for those who perceive that their water bill to be unaffordable. We did not find an association between a presently disconnected water supply and psychological distress; we suspect that the dynamic effect of "transitioning" to no water access (or a potential transition, as indicated by a warning notice) induces more distress than the static condition of having a water line that has been disconnected for some time. Additionally, we found strong associations between psychological distress and self-reported Black/African-American descent, and between distress and homelessness, but these findings do not directly relate to water insecurity per se.

This study is not without its limitations. First, the study's small sample size has likely limited the statistical significance of many associations, particularly between water insecurity and hygienic behaviors, despite the fact that in the qualitative investigation residents frequently described the challenges of having to reorganize domestic work to

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conserve water. Second, the use of a locally-validated water insecurity score, while pertinent to the immediate context, limits the external validity of these findings beyond the study area. Future research could also attempt to incorporate and quantify coping strategies employed by residents to buffer the psychological impacts of water insecurity. Furthermore, incorporating measures of food insecurity and measures of other utility shortages (such as electricity and gas) would provide a more comprehensive picture of household needs. These additional considerations could also provide a model for policy response, i.e. to the extent that provision of food stamps, income-based energy subsidies, or poverty threshold exemptions serve as analogous mitigating policies.

This research also speaks to the value of community-based participatory research. Access to these highly vulnerable communities was greatly facilitated by the presence of local leaders, whose ability to garner community trust was indispensable in eliciting survey responses regarding this highly stigmatized public health hazard.

Water insecurity has a significant effect on psychological distress. It operates independently of any definitive measure of water access, and often eludes other standardized quantitative metrics. This finding should be a key consideration in the ongoing debate surrounding water costs and public health, and could have implications for municipalities nationwide.

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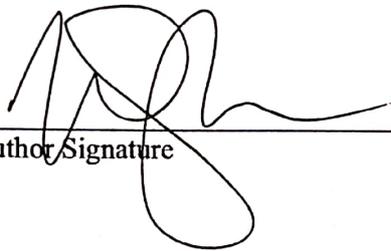
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