



Urban resilience as critique: Problematizing infrastructure in post-Sandy New York City

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ABSTRACT

Drawing on Foucaultian work on problematization, this paper explores the urban resilience paradigm which emerged in the wake of 2012's Hurricane Sandy, which dramatically disrupted New York City. Using discourse and media analysis, examination of government commissions and proposals, and site observation at panels and conferences, it argues that, rather than an ahistorical "thing," urban resilience was the name given to techniques resulting from a three-part process of problematization drawn together by media and government in the storm's aftermath. This process, I argue, was itself political, and included the identification of new problems to govern in the form of environmental and technical risks; the critique of modern urban governance techniques based on a city/nature separation and ideas of mastery and control as impediments to responding to these problems; and finally the overcoming of impediments via creative recalibration of government by redefining the social and ecological as interconnected infrastructure. The recalibrations produced within this three-part problematization, I show, were promoted by city government and local institutions as "urban resilience," which was presented as the unquestionable answer to Sandy's problems as they had been posed. I conclude by discussing what this problem-based case study helps us see about urban resilience, but also how it advances our understanding of the growing interest in problematization within geography, as well as implications it suggests for thinking the political in the Anthropocene.

1. Introduction

From dramatic aerial shots of the tsunamis that triggered the Fukushima nuclear accident and the threatened coastline of south Louisiana to slow motion tours through the urban poverty of Medellin and Detroit, the Rockefeller Foundation's *The Resilience Age* (2016) video documentary invokes the precarity and threatened nature of urban life in the 21st century, ominously declaring "There is no other way." In fact, from Lagos to New York City, "we must become resilient" has become the seemingly unquestionable mantra for urbanism in the Anthropocene (Meerow, Newell, & Stults, 2016). In place of past forms of urban administration, which sought to block out nature, volatility, or risk, urban resilience is a paradigm that welcomes such intrusions and entanglements, understands instability as inevitable, and views cities as coupled social-ecological-technical systems that must develop their capacity for absorbing or withstanding turbulence (Folke, 2016; Holling, 1973). While proponents often forward an ahistorical or salvational image of resilience (Folke, 2006; Gunderson & Holling, 2002; Walker, Holling, Carpenter, & Kinzig, 2004), many critical thinkers argue that

resilience constitutes a mode of urban government proper to the Anthropocene (Dalby, 2013; Derickson, 2018; Watts, 2013). As such, geographer Bruce Braun (2014; Wakefield & Braun, 2014) argues, rather than a preexisting logic or inevitable paradigm urban resilience should be analyzed critically as what Foucault called a *dispositif*, an ad hoc-arrangement of techniques—discourses, practices, architectural forms, regulations, laws, knowledges, technologies and designs—brought together to govern a crisis, in this case climate change and its effects (Foucault, 1980a, p. 194). Critical studies of resilience qua governmental *dispositif* abound and have fruitfully explored its inattention to social, economic, or racial disparity; proximity with neoliberal ideology (Chandler, 2014; Dawson, 2017; Joseph, 2013; Walker & Cooper, 2011); austerity (Slater, 2014); evacuation of the future (Wakefield & Braun, 2019); naturalization of extreme precarity (Evans & Reid, 2014; Vardy & Smith, 2017; Neocleous, 2013); and multiplicity and contingency (Brassett & Vaughan-Williams, 2015).

While these important analyses approach critique as a matter of unmasking urban resilience's purported objectivity in order to reveal its political logics and effects, a few thinkers have begun forwarding

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perspectives which suggest additional ways of analyzing urban resilience critically. As Clive Barnett (2015) argues in his recent calls for problematization-based urban studies, the convention of critical theorists to focus on demonstrating the constructedness of governmental regimes —thus “puncturing the appearance of naturalness or inevitability” (n.p.)— downplays the element of problem responsiveness that Foucault himself saw as essential to such regimes (Barnett, 2017; Rose & Miller, 1992). Indeed, in *The Confession of the Flesh*, where Foucault most clearly defines the notion of the *dispositif*, he indicates that the concept must be understood both in terms of being an ad hoc arrangement of heterogeneous elements and just as equally with regard to its “genesis” as a strategic response to a perceived problem or “urgent need” (1980, p. 195). More broadly, Colin Koopman (2013) argues, it is Foucault’s rigorous philosophical and genealogical attention to the problems grounding the present that constitutes his work’s critical force, and that yielded powerful concepts as *dispositif* or biopower in the first place. This problem-based method is articulated by Foucault in his later work as itself an alternative practice of critique, a “critical interrogation of the present” that along with identifying “the limits that are imposed on us” is an “attitude” and “ethos” that explores “the possibility of going beyond them” (Foucault, 1984b, p. 50). Historical examples of problems analyzed by Foucault include crime and delinquency, sexuality, and mental illness (1984a, p. 118; 2001, p. 171). Since such phenomena may have existed previously but were not always considered as problems, the question for problem-based analyses is how certain phenomena come to be perceived as problems at a given historical moment, how specific responses are crafted as solutions to them, and what kinds of subjectivities are generated therein (Foucault, 2001). Alongside critique that unveils its political logics, still needed, I argue, are critical explorations in this vein of the concrete contexts in which urban resilience emerged, the problems through which its proponents see the world and which they seek to address, and the way urban resilience is brought to appear as the best possible solution. As I will argue in this paper, while mundane, these aspects of urban resilience are themselves very political.

Building on Barnett and Gary Bridge’s (2017) call for a problem-based urban studies, this paper contributes to critical resilience and problematization literatures through a case study of how media and policy began to critically rethink urban governance in New York City in the years following Hurricane Sandy. NYC was the poster child for urban resilience, with the U.S. Department of Housing and Urban Development (HUD) and Rockefeller Foundation’s Rebuild by Design (RBD) competition (Adams, 2014; Collier, Cox, & Grove, 2016, p. 7), and the city was the first test-run of the Rockefeller Foundation’s 100 Resilient Cities (100RC) strategy, which has subsequently been exported globally to cities including Lagos, Kyoto, and New Orleans (100RC, 2020a). Drawing on Foucauldian work on problematization, this paper explores the political dimensions of the rise of urban resilience as a solution post-Sandy. In this specific temporal moment urban resilience is not yet what we can call a *dispositif* but is still undefined or emerging in an “experimental phase” (Callon, 2009, p. 540). Following Michel Callon (2009) we might characterize this moment as a “situation of initial shock, where there is still no indisputable formatting” (p. 542) and diverse actors are working to define “issues.” Tracing four key moments within this post-Sandy space, I ask: how did urban resilience come to appear as the inevitable, ubiquitous “way”? Rather than describe its effects, how, I ask, was urban resilience itself crafted in response to specific perceived urgencies on the ground? Moreover, beyond what it shows us about resilience, how does examining resilience as a response to the critical reappraisal of urban governance post-Sandy help us think geography and the political in the context of the Anthropocene?

The paper is structured as follows. To introduce the stakes of the analysis, I begin by addressing its methodological approach and possible locations of the political. Then, using discourse and media analysis, examination of government commissions and proposals, and site observation at panels and conferences —material drawn primarily from the one-year period following Sandy— I show first that Sandy was a

precipitating crisis that led to the identification of new risks as problems for governance. In the post-storm search for strategies to manage these environmental and infrastructural risks, I show the identification of a “field of adversity” (Collier, 2009): the perceived failure of modern, engineer-led techniques of urban government based on a city/nature binary and ideas of control and mastery, the rise of a new view of the city as entangled and risk-filled, and the search for techniques adequate to this situation. I then explore the creative reconfiguration of urban government in response to this adversity via the redefinition of the social and ecological not as separate domains managed by infrastructures but as interlinked infrastructures themselves. The effects of this three-part process, I show, were branded and promoted by city government and local institutions as “urban resilience,” presented as the unquestionable answer to Sandy’s problems as they had been posed. I conclude by discussing how this problem-based analysis of urban resilience also advances understanding of the growing interest in problematization within geography, as well as implications for thinking the political in the Anthropocene.

1.1. Problematization methodology

For Foucault, problem-based analysis does not “problematize” an object of critique in order to unmask or reveal what it elides (Foucault, 1980a, 1984a, 1985). Instead problem-based studies focus on crisis moments, which may be single events but more often in Foucault’s thought are moments of upheaval and shifts in practices or strategies when certainties become uncertain; difficulties are encountered; and thought must reflect anew (Barnett, 2015; Koopman, 2013; Osborne, 2003; Rabinow, 2011). In such moments—which Foucault noted occur and must be analyzed in terms of specific contexts (2001)—problem-analysis tracks the shaping of phenomena into coherent problems posed in particular terms and the creation of specific parameters within which responses can be posed, while indexing the framing of specific responses as appropriate (and others as inappropriate) (Bacchi, 2012; Deacon, 2000). Using this framework allows us to track how solutions arise from specific ways of framing problems and how these solutions themselves are constructed (Foucault, 1984a). While a problematization may sometimes emanate from a single actor, in Foucault’s work problematization occurs through a confluence of diverse sources: discourses, representations, concrete practices, laws, etc. Rather than a linear history that shows the progressive development of something that already exists —“resilience,” “sexuality”— problem-analysis pays attention to discontinuous assemblages of techniques brought together in space and time on the basis of specific problematizations and urgencies, how they are stylized, stitched together, and made coherent. An example of this approach to studying resilience at the federal level is Philip Boyle’s genealogy of the conditions of emergence of resilience in the ongoing problem-space of vital systems security by federal planners in Canada. Like Mariana Valverde’s (2010) call to study security *practices*, Boyle argues for a nominalistic approach to resilience that avoids making ontological claims in favor of tracing its emergence in the specific problem-spaces through which critical infrastructure came to be understood as a problem in 20th century Canada.

As schematized by Stephen Collier (2009; 2017) in his take on Foucault’s (2007, 2008) late 1970s work, problematization focuses on three analytical moments: first, the context-specific identification of problems requiring a response; second, identification of a “field of adversity” in which existing governmental modalities lose legitimacy and are critiqued as impediments to responding to new problems; and, thirdly, how this critique gets worked out through creative recalibrations of existing governmental techniques and new formulations of the meaning and object of government itself (Collier, 2017, pp. 28–29). Although not specifically using this framework, this three-part process can be illustrated using Boyle’s (2018) aforementioned study. Boyle shows that, although portrayed as a new, ubiquitous risk management strategy, Canada’s current resilience approach to critical infrastructure

protection emerged from the shifting problem-space of “vital systems” security over the 20th century. Boyle traces a series of issues in this space including governmental need to maintain industrial productivity and logistical capabilities during WWI and WWII, Cold War fears of Communist sabotage, and Y2K concerns. Each, he shows, led planners to rethink past approaches and develop modalities of security that modulated, reorganized, or rivaled previous ones. For example, whereas Canada’s earlier wartime *dispositif* had divided industries into individual assets to protect, Boyle shows how new questions in the 1960s led planners group infrastructures into systems to ensure their continuous function amidst disaster (p. 9).

Using Collier’s schema, in the following pages I trace the post-Sandy problem-space —where we will see a similar focus on critical infrastructure functionality as in Boyle’s analysis albeit in a different problematization— while adding a fourth component in which we see how urban resilience is branded and disseminated as the name for the recalibrations produced in the problem space. This study is located primarily at the level of critical discourse and media analysis. This type of empirical material does not exhaustively study a problematization, which, Foucault emphasized, includes practices along with discourse and ways of thinking (Rabinow, 2003, p. 18). Regarding urban resilience, critical scholars have analyzed its concrete techniques in depth elsewhere (Grove, 2018; Wakefield, 2019a, 2019b; Wakefield & Braun, 2014, 2019). Analyzing expert and media discourse however offers us the ability to understand how phenomena are shaped in certain ways as objects for thought—“encoded” (Hall, 1973) in particular ways and not others— fashioned into a story and message about the phenomena’s meaning and consequences; and insight about what is considered true and how that came to be. As Foucault reminds us,

“relations of power cannot themselves be established, consolidated nor implemented without the production, accumulation, circulation and functioning of a discourse. There can be no possible exercise of power without a certain economy of discourses” (Foucault, 1980b, p. 93).

The visual and discursive framings of urban resilience that circulated in New York after Sandy, we will see, provided new vocabularies and imaginaries that have been disseminated, repeated, and exported to other cities worldwide. For this reason, the importance of the post-Sandy problematization extends far beyond New York. Through their repetition and air of authoritative impartiality these imaginaries and framings have become a “common sense” (Anderson, 2015, p. 62) —what former 100RC President Michael Berkowitz (2017b) describes proudly as urban resilience’s now-global “enabling environment” (n.p.)— providing legitimacy and momentum, giving meaning to the situation of the Anthropocene, and determining the questions to be addressed and solutions considered appropriate.

As Clive Barnett (2017) argues, the political is not only located in extraordinary events or ruptures, nor is government a single logic or thing that critique then unveils. For Barnett, the political is also descriptive of operations underway at diverse scales, in contextually specific situations in which actors create and respond to problematizations. The process of problematization itself, from this perspective, must be understood as political. Here the political does not refer to a privileged site or domain separate from life, but to the ways in which actors of diverse kinds narrate what they see as problems and, based on these framings, pose creative responses to them. This activity is political because it forwards specific visions of reality, selects matters of concern and frames them in particular ways, and advances these interpretations as facts to which solutions must respond. As I argue in the conclusion, urban resilience was one such response by media and government to problematizations of environmental risk and governance in New York post-Sandy that, although portrayed as the only legitimate problem and response, could have played out differently.

2. The post-Sandy resilience problematization: a new city of risk

When Hurricane Sandy hit New York City on October 29, 2012 the storm brought 14-foot surges heaving over coastal walls, propelling water into the city’s streets, submerging cars, and filling underground subway tunnels with corrosive saltwater (NYC, 2013b; NPCC, 2013). More than 43 people died, as swelling from New York Harbor and Long Island Sound inundated entire neighborhoods (NYC, 2013a, p. 13–14). Manhattan south of 39th Street was plunged into darkness for five days (NYC, 2013b, p. 216), while the storm left 2 million people citywide without power, some for weeks and, in parts of Queens, Brooklyn, and Staten Island, months (NYC, 2013a). In what then-Metropolitan Transportation Authority chairman Joseph J. Lhota (2012, n.p.) named the most “devastating” disaster in the system’s history, the city’s subway network was largely shut down for a week due to flooding, with some lines closed for months and years after the storm (City of New York (NYC), 2013a, p. 17; Rosenzweig & Solecki, 2014, p. 398). Damage to infrastructure within regional supply chains disrupted shipments into the city, leading to fuel shortages and the implementation of city-mandated gas rationing through November (NYC, 2013c, p. 21). Overall Sandy caused \$19 billion in economic damage to NYC, while spreading \$71.4 billion of economic destruction across the Tri-State area (NYC, 2013a, p. 11).

While there were many different interpretations of Sandy’s significance, environmental and technical risk quickly became the dominant lens through which the storm’s import was narrated and problematized, leading as we will see to the emergence of a view of the city once thought unbreakable as vulnerable to new hazards. New York has of course long been viewed as a place of risk in need of governance (Davis, 1998; Smith, 1996; Beckett & Herbert, 2008; Graham, 2009; 2006). However as flood waters receded from Wall Street and media and government attempted to make sense of the storm, new dimensions were added to the city of risk frame. Whereas before the storm neither media nor government typically characterized the city as particularly vulnerable to environmental hazards, post-Sandy they began describing the city’s deep vulnerabilities to such risks (Depietri & McPhearson, 2018).

Amid the storm’s immediate wreckage, major media organs such as the *New York Times* and *Wall Street Journal*, as well as international media outlets, published a flurry of pieces on Sandy’s implications for the city’s vulnerability. Meanwhile, exploring similar questions, city and state government organized commissions, including notably the New York State 2100 Commission (NYS 2100), convened on November 15, 2012, to identify vulnerabilities in the state’s infrastructures and recommend resiliency solutions to them (NYS 2100, 2013, p. 10), and the NYC’s Special Initiative for Rebuilding and Resiliency (SIRR), convened on December 6, 2012 (NYC, 2013a). Via discourse and visual cues, media and government reimaged New York as a fragile place menaced by social risks but also ecological and increased infrastructural risk as an existential threat. These reimaginaries of the city, I argue, were constitutive of the first aspect of the post-Sandy problematization: the identification of concrete problems or “issues” (Callon, 2009) in need of a response.

In the realm of discourse, a slew of facts deployed in media and city reports reframed New York’s geographical location as a threat, situating the city spatially at the junction of multiple waterways. As then-mayor Michael Bloomberg (2012) pointed out in a press conference on the future of New York after Sandy held one month after the storm, the city has “520 miles of shoreline,” (n.p.) which, as a *National Geographic* article published four days after the storm had emphasized, made it “the worst possible place in the world to be” during a hurricane (Silverman, 2012). In these discussions, the city’s geographical specificity was not forefronted as an ecological matter of getting back to nature (as it once was, for example, in former-Mayor David Dinkins’ 1992 Comprehensive Waterfront Plan, which envisioned open space along the city’s coasts and recreation in its restored waterways (Schlichting, 2018, p. 194)). Instead, post-Sandy reflections on the city’s island geography

forefronted the need to face up to water as an unavoidable, threatening presence that exceeds human control (Florida & Johnson, 2012; Parry, 2012). “It would be nice,” confessed Bloomberg in the same press conference (2012), “if we could stop the tides from coming in, but King Canute couldn’t do it, and neither can we” (n.p.). Whereas before the storm climate change was imagined as a future risk, with Sandy that timeline as was folded in (Rosenzweig & Solecki, 2014). Flanking New York’s local voices, many state and international actors, including New York Governor Andrew Cuomo and United Nations Secretary-General Ban Ki-moon, portrayed Sandy’s devastation not as a freak, once-in-100-year occurrence, but rather “the new normal” (MASNYC, 2013, p. i) in which as the *Atlantic* warned, “we don’t have decades before the next Sandy” (Florida, 2012, n.p.; Sheppard, 2013; NYS2100, 2013).

A range of visual narratives added to the new imaginary of ecological risk as an existential threat. Three months after the storm, the Federal Emergency Management Agency (FEMA) rush released revised flood maps, doubling the number of homes in the high flood risk zone (FEMA, 2013a). Maps were distributed in a stream of articles published by local media outlets (Bagley, 2013; Buckley, 2013), which alerted residents to the maps—portrayed by the *New York Daily News* as “a reflection of the grim new post-Sandy landscape” (Boyle & Durkin, 2013, n.p.)—detailed neighborhoods newly considered at risk and taught residents how to understand their new status (Jorgensen, 2013; Rafter, 2013). Alongside flood maps a range of charts published in City reports and reproduced by media (Bloch, McLean, & Tse, 2012) depicted Sandy’s impact and future risks. In them, instead of green eco-urbanism—aesthetics common before the storm—coastlines and neighborhoods were now cast in shades of red, orange, and yellow levels of risk and the cityscape marked in varying degrees of vulnerability (NYC, 2013a, p. 5; NPCC, 2013). These new landscapes referred to households without power, flood areas, and casualties caused by storms but also painted a picture of what was promised to be the city’s catastrophic new future. “As you can see, the yard stick has changed and so must we,” announced Bloomberg at a press conference while unveiling a red-covered map of Sandy’s flood impact to shocked gasps from the crowd (Bloomberg, 2012, n.p.; Colvin, 2012). These visuals were compounded further as media projected risk into the future, as in the *New York Times*’ interactive guide to sea level rise titled “What Could Disappear,” which enabled readers to envision the fate of the city’s LaGuardia and Kennedy airports according to 5, 12, and 25 feet of sea rise (Copeland, Keller, & Marsh 2012). Perhaps most dramatically, *National Geographic* (Folger, 2013) featured a cover story on “Rising Seas” with the Statue of Liberty half-submerged while *Nature* magazine’s post-storm cover summed up the new orientation that would soon emerge post-Sandy: “New York vs. the Sea” (Tollefson, 2013).

As flood waters receded from streets and basements, media and government forwarded a new image of a city facing environmental threats of an existential order. One of the main ways these environmental risks were talked about was in terms of the disruptions they portended for the city’s technical infrastructures, with hurricanes and rising seas threatening to “cripple” (AP, 2012) transportation systems, financial institutions, and energy networks. Infrastructures once considered “assets” but now seen as “liabilities” included disrupted fuel supply chains, subways, and especially the city’s electrical systems (Greenmeier, 2012). During Sandy saltwater had surged into Con Edison facilities, damaging equipment and causing a substation explosion which plunged Manhattan south of 39th street into darkness (Brown, 2012; NYC, 2013a). Described by *National Geographic* three days after the storm, “Sandy’s impact ... spread far, wide, and quickly through the electric power grid—a vital lifeline that underpins every aspect of modern life, but one that is easily severed by falling trees and saltwater” (Lavelle, 2012, n.p.). As New Yorkers crowded into hotel lobbies to charge phones and gas shortages emerged, Sandy was described by energy companies as a “wake up call” which “drove home the point that the old benchmarks of risk might no longer apply” (Lavelle, 2012).

At stake amidst these increased threats was the need to ensure

business as usual. Speaking on behalf of New York’s financial elite, Bloomberg declared that “we have to do a better job not only keeping our networks up, but keeping our markets and businesses open, come hell or high water” (2012). Of highest concern was the impact technical disruptions had or could have on the city’s economy, with many commentators emphasizing within days of the storm that New York has the third highest ranking for “economic assets at risk to coastal flooding in 2070” (Florida & Johnson, 2012). Infrastructural networks are the foundation of the city’s economy (Urban Land Institute, 2013, pp. 25–27; NYC, 2013a) and a matter of life and death, but just as equally the substrate of biopolitical regimes within which capitalist, liberal life is produced and reproduced (Collier & Lakoff, 2008; Dillon & Reid, 2009; Wakefield, 2018). To protect these technical “lifelines” and “lifeblood” of the city (Cuomo, 2012), seven months after the storm, Bloomberg (2013)—in an old naval facility recently converted into a greenhouse—gave a press conference akin to a wartime address in which he declared the city’s engagement in “a battle that may well define our future for generations to come: the battle against climate change” (Bloomberg, 2013). As with urban risk past, the question now was: how to govern the new risks seen as revealed by Sandy (NYC, 2013c)?

3. Field of adversity: outdated urban governance models

With the city increasingly portrayed as at-risk from rising seas and its infrastructure vulnerable to disruption, New York positioned itself a “climate change first responder” (Rosenzweig & Solecki, 2014) and a laboratory for new governance techniques.¹ In the weeks following Sandy, panels and conferences with titles like “Climate Change, Sandy, and the Future of New York City” were held at city universities and cultural institutions, where a rotating yet often similar cast of academic and design experts discussed risks and opportunities of the post-Sandy city.² A flurry of special reports followed, and on May 1, 2013 the City published its “Hurricane Sandy After Action Report,” assessing city performance and planning future needs; “NYC Recovery: Community Development Block Grant Action Plan,” on May 7, 2013, detailing its use of federal relief funds; and on June 11, 2013, the SIRR’s 400+ page infrastructural recommendations for, “A Stronger, More Resilient New York” (McArdle, 2014, p. 27). Meanwhile at the federal level, on January 11, 2013, the NYS 2100 Commission (2013) released its preliminary report, and on July 18, 2013, FEMA (2013b) released its own Hurricane Sandy After Action Report. Meanwhile major infrastructural

¹ On cities as laboratories and government by experimentation see Bulkeley et al., 2018; Evans, 2016.

² On December 5, 2012, New York University hosted “Climate Change, Sandy, and the Future of New York City” panel exploring the role of public and private entities and design in New York’s climate change future hosted by Chelsea Clinton and featuring Heidi Cullen, chief climatologist for Climate Central; Klaus Jacob, special research scientist at Columbia University’s Lamont-Doherty Earth Observatory, NYU Philosophy Professor Dale Jamieson, and NYU Sociology Professor Eric Klinenberg (Friedman, 2012); on December 13, 2012, The Municipal Art Society and Columbia University’s Center for Urban Real Estate hosted “Sink or Swim: Waterfront Restoration in a Post-Sandy Era” at the Museum of Jewish Heritage featuring two of then-President Obama’s cabinet members Secretary of the Interior, Ken Salazar and Secretary of Housing and Urban Development Shaun Donovan, as well as panels with Kate Orff of Scape and Dutch Delta Commissioner for Flood Risk Management in the Netherlands, Jos Van Alphen (MASNYC, 2013, p. ii); the Municipal Arts Society’s MAS Arts Forum: Resilience Through the Arts, held in collaboration with the World Policy Institute at Galapagos Art Space in DUMBO, Brooklyn (date?); and “Charting the Road to Resilience: Strategies, Solutions and Ideas for Ensuring a Resilient and Livable NYC Post-Sandy,” held at The New School in conjunction with MAS on January 12, 2013 featuring earth science and design professors from Columbia, CUNY, and Pratt, as well as representatives of local community organizations including the Brooklyn Community Foundation and Occupy Sandy (New School, 2013).

networks were examined for vulnerabilities and ways of maintaining continuous service amidst disaster sought (Bloomberg, 2013; NYC, 2013a), with the search for new forms of government and the maxim “never let a good crisis go to waste” (Moss, 2015, n.p.) foregrounded as key imperatives of the future.

Across reports, conversations, and articles, a “field of adversity” was identified and a consensus emerged: past understandings of the city and practices of governing it were outdated and urban security dependent on overcoming them. The target of this discussion was late-19th and 20th century engineer-led planning, an approach central to modern urban governance (Chattopadhyay, 2012). Monumentalized in massive concrete and steel structures like the Brooklyn Bridge or Robert Moses’s highways, these works were previously believed to promise the elimination of disorder, the taming human and nonhuman life, and the transformation of cities into orderly machines (Braun & Castree, 2001; Gandy, 2003; Mitchell, 1991; Smith, 1996). Post-storm this “engineer” model, as Kara Elliott-Ortega (2015, p. 83) characterizes it, was relentlessly critiqued for its siloed or one-size-fits-all panacea master plans implemented without regard for nature. In a critique vocalized in diverse ways, Sandy was interpreted by media and government as introducing not only new risks but also a “new normal” in which modern urban governance based on a city/nature separation and ideas of mastery and control no longer sufficed. This “hubris” of past disaster prevention, as weblog *Arch Daily* characterized it post-storm, that tried to “resist ... control and combat nature” using “strength and wit to overpower natural forces” (Mueller, 2013) was invoked in media and political speeches through references to the 20th century extension of Lower Manhattan into New York Harbor using landfill (Feuer, 2012); the city’s relentless coastal development; Moses’ highways separating the city from the water (Bloomberg, 2012); Metro North trainline, built along Hudson River on the assumption of static sea levels (Florida, 2012); and broadly in terms of “the dam-building fanaticism of the 1930s–1950s” (Orton, 2013). Such planning was portrayed as an “outdated” (Pirani and Tolkoff, 2014), harmful approach that would only be worsened by post-storm proposals to “continue to build ever-sturdier and ever-higher sea walls” (Feuer, 2012; Zolli, 2012). Brittle and non-dynamic, modern urban governance was said to come from a world passing away (Florida, 2012).

This model, scientists, journalists, and politicians agreed, was an impediment to the city’s ability to respond to new climate change risks as well as a source of risk itself. In this vein, media again played a vocal role, devoting a slew of articles and opinion columns to debunking modern urban planning. From the *New York Times* to the *Daily News*, in Sandy’s wake, the city once thought unshakable even in the face of terrorist attacks was derided as an artifact of an exhausted and imploding humanist era, its outdated, “mid-twentieth century infrastructure” (Reinhardt, 2012) epitomizing an erroneous idea of hubristic human mastery and causing Sandy’s cascading damage. “We are victims of the post-Enlightenment view that the world functions like a sophisticated machine,” “black swan” pop theorist Nassim Nicholas Taleb (2012) wrote in “Learning to Love Volatility,” published in the *Wall Street Journal*. This, he argued, is “the costliest mistake that we have made in modern times.” “Big Storm Projects Will Cause Big Problems, So Think Small,” oceanographer Philip Orton asserted in the *NYT*, criticizing proposals for flood barriers around Manhattan as out-of-touch replications of modern approaches that would interrupt ecosystems and worsen flooding (Orton, 2013). Sandy, Ted Steinberg (2014) declared in *Discover*, “was a self-inflicted calamity” caused by NYC’s “thumping its nose at the ocean for over 300 years” and destroying historic wetlands that would have attenuated storm surge. “According to the experts ...” a *NYT* article (Feuer, 2012) explained to readers, projects taking the modern approach are “cumbrous ... binary ... [and] work just fine until the moment they do not.”

Instead of a single “command and control” solution to nature’s incursions — discursively epitomized by proposals to encircle Manhattan in sea gates — countless voices called for a bricolage or “suite” of diverse,

modular, and interlaced designs working at multiple sites and scales to “piece urban areas back together” (Elliott-Ortega, 2015, p. 50). Media and government voices agreed that these tactics must not repeat the old logics of separating the city from nature, but instead would need to welcome the latter’s intrusions and entanglements (Florida & Johnson, 2012). Diverse voices called for bringing nature and specifically water back into the city, as part of a shift away from seeing cities as exclusively human places and instead as coupled social-ecological systems. Instead of building walls and blocking nature out, proponents argued that New York’s post-Sandy design must take cues from “living with water” approaches already under development in places like Venice or post-Katrina New Orleans and work with nature’s volatile flows, adapt to and use them (Roman, 2014; Zolli, 2012). Similarly, many declared that, to restitch the pieces of the city adequate design must include communities along with nature. Modern planning’s inattention to marginalized communities was criticized for being unjust as well as for reducing recovery capacity. Targeting both aspects of this problem, the need to include public participation in design was widely emphasized (Task Force, 2013; Florida, 2012; Collier et al., 2016, p. 7).

Problematizations, as Callon (1980, p. 544) argues, draw upon configurations that already exist at the time of defining issues. The field of adversity encountered post-Sandy in many ways paralleled and drew upon the same one that has existed in urban planning since the 1960s. We might think of Christopher Alexander’s (1965) critique of “artificial cities” designed like trees with separated systems and attendant proposal that the natural urban structure is instead a complex semilattice of overlapping, changing living systems. Likewise Ian McHarg (1969) called for urban architecture to “abandon the simplicity of separation and give unity its due. Let us abandon the self-mutilation which has been our way and give expression to the potential harmony of man-nature” by designing with nature. As Elliott-Ortega (2015) highlights there are likewise parallels between Rittel and Webber’s (1973) critique of engineering-based urban planning’s inability to solve “wicked problems” and post-Sandy appraisals of technocratic engineering (p. 67). And of course in NYC many such as Jane Jacobs (1961) criticized planner Robert Moses in his own time, arguing against top-down, one-size-fits-all design and seeing cities as made of siloed components, and advocating seeing and designing cities as dynamic self-organizing “webs” of human and nonhumans.

But the post-Sandy field of adversity was also characterized in new ways. Whereas past urban planning critiques often advocated entangled systems approaches as a means to improved life quality and a more harmonious urban, post-storm promotion of complex system thinking was explicitly couched in a framework of inevitable risk, vulnerability, and crisis. Entangled urban systems were highlighted due to the risks posed by their interaction—threats to infrastructure from rising seas and flooding— and the necessity of using complex approaches to manage those threats. Hard walls to block out water, for example, were seen as problematic less because they degraded urban life but because they represented a failed management strategy. Emphasis was placed on the need to abandon views of human-natural urban systems as linear and built within a stable world, and instead see both as complex, nonlinear, and unpredictable. 21st century urban design, government reports declared, must involve “nonlinear feedbacks across temporal and spatial scales” (Task Force, 2013, p. 11). Instead of seeking equilibrium as in McHarg’s “harmony of man-nature,” media and government argued for embracing a new normal of disequilibrium and chronic disturbance. The city should “accept the uncomfortable idea that parts of New York will occasionally flood and that the smarter method is to make the local infrastructure more elastic and better able to recover” (Feuer, 2012).

Governmental reports and discourse especially presented this view. Before Sandy, visions of a sustainable, green New York dominated City efforts, seen in NYC’s establishing of its Office of Long-Term Planning and Sustainability in 2006 and PlaNYC: A Greener, Greater New York (NYC, 2007). These initiatives exhibited images of a green, neoliberal urban future couched in a language of sustainability (Rogers, 2015) and

dreamed of making New York what Bloomberg called the “first environmentally sustainable 21st-century city.” While prior to Sandy NYC was not seen as playing any leadership role in identifying climate risks or adaptive measures, after the storm this changed (Rosenzweig & Solecki, 2014, p. 399). To “defend” and “adapt” New York for future storms, Bloomberg (2013) asserted, “we’re not going to make the mistake of fighting the last war” (n.p.). Instead of a blank landscape, separate from nature, masterable and existing in equilibrium—a modernist legacy invoked by Bloomberg (2013) via condemnations of Robert Moses—city reports and media forcefully forwarded images of New York as a complex, entangled network of technologies, earth systems, and humans. Disasters and upheaval in these systems were portrayed as inevitable (ULI, 2013, p. 7), with climate change seen as unpreventable “because,” as the SIRR report put it, “sadly, when it comes to nature’s powerful forces, that is simply not possible” (NYC, 2013a, p. 7). “We will never be able to predict or prevent all extreme events,” echoed the NYS 2100 Commission (2013, p. 10). What was now needed, the commission concluded, were ways to “avoid unmanageable impacts, while managing the unavoidable risks that the future no doubt will present” (NYS2100 2013, p. 24).

The *Daily News* (Strait, 2012), *Yale Environment 360* (Stutz, 2012), and *The Atlantic*, as well as the NYS 2100 Commission (2013, p. 20), (MASNYC, 2013, p. ii), and NY Governor Cuomo (2012, n.p.) each welcomed readers to this same “new normal,” calling on readers to abandon dreams of mastery and equilibrium —“the world doesn’t work that way,” wrote resilience pundit Zolli (2012), calling instead for new ways “to manage in an imbalanced world ... in constant disequilibrium” (n.p.). Connected locally and globally, the urban system thus imagined was not that of a balanced city—whether harmonious or locked down and under control—but that of an out-of-control, careening landscape of complexity, uncertainty, and risk. Following from this, for politicians like Bloomberg along with designers, planners, and higher education institutions involved in the post-Sandy laboratory, the maintenance of business as usual “come hell or high water” was not a matter of just more management but was cast as requiring a recalibration of management itself. Sandy was proclaimed the perfect “opportunity” (Rodin, 2014) for this but was also said—paradoxically drawing on the very audacity and hubris of modern planning that the same voices shunned—to require the city to “think big” (Bloomberg, 2013) in experimenting with governance approaches.

4. Solution: creative recalibration of governance techniques

To address the field of adversity defined in the previous section—modern urban governance based on a separation of city/nature and ideas of control and mastery—government and media began redefining and recalibrating management techniques on which the city had long relied to administer urban processes. Doing so became increasingly synonymous with rethinking infrastructure. Infrastructure has been closely tied to security and risk management (Tierney, 2015) since at least the Department of Homeland Security’s post-September 11 forefronting of critical infrastructure protection (Collier & Lakoff, 2008; DHS, 2007; Walker & Cooper, 2011). In NYC however infrastructure took on new urgency after Sandy. In November 2012 Governor Andrew Cuomo announced the NYS 2100 Commission’s report on infrastructure, while Bloomberg’s SIRR released a post-storm plan containing \$19.5 billion of infrastructure proposals, including a \$1 billion overhaul for power utility Con Edison and new resiliency standards for telecommunications companies (Con Edison, 2017; NYC, 2013a).

In the post-storm focus on infrastructure, however, infrastructure itself was also redefined. In Sandy’s immediate wake, traditional designs such as sea walls were advocated, but through repetition of the “new normal”/“we need new infrastructure” narrative, these approaches were discursively sidelined as inadequate and outdated (McPhearson, 2014). With old models of urban planning now seen as the cause of current vulnerabilities, the city, many repeated, could not simply build back

according to what was (Bisker, Chester, & Eisenberg, 2015, p. 15; Collier et al., 2016, p. 7; Greenmeier, 2012). Then-president Barack Obama issued an executive order establishing the Hurricane Sandy Rebuilding Task Force in which it was stated, “rebuilding efforts must address ... the region’s aged infrastructure ... and identify the requirements and resources necessary to bring these systems to a more resilient condition given both current and future risks” (Federal Register, 2012). Echoing this framing, a few weeks prior Governor Cuomo (2012) lamented, “we have a new reality and old infrastructures and old systems,” adding that the city’s electrical utilities seemed like vinyl records in the age of the iPod (which in 2012 was still a current technology): “antiquated, 1950s-style institutions that don’t serve our current needs” (n.p.). The *New York Times* summed up the new mantra: “the era of big infrastructure is over” (Feuer, 2012: n.p.). Such takes were repeated in many forums, including the design and architecture world (AIA, 2013a,b) and post-storm events, such as Waterproofing New York, a day-long conference featuring academics and city representatives “intended to support emerging skepticism of a big barrier ‘fix’” and instead work to “create new urban landscapes with the capacity to negotiate social, cultural, and environmental forces” (CCNY, 2013, n.p.).

In line with the problematization described above—the need to jettison modern urban management—the City began promoting self-organizing and data-sharing human communities as “social” or “human” infrastructural systems to a supplement to brittle, obdurate technical infrastructures (NYC, 2013a; FEMA, 2011; for other uses of “social infrastructure” see Urban Green Council New York, 2013; Bisker, Chester, & Eisenberg, 2015, p. 48; MASNYC, 2013, p. 28)). Here the adaptive capacities of individuals long celebrated by neoliberalism (Chandler & Reid, 2016; Downes, Miller, Barnett, Glaister, & Ellemor, 2013; Neocleous, 2013) were themselves redefined by the city and academics alike as infrastructure (Klinenberg, 2013a; 2013b). This was because, as FEMA (2011) itself agreed, prepared and connected neighbors add to a city’s ability to “bounce back” while isolated and helpless citizens subtract from it. In the same way city politicians described the city’s technical infrastructure as inadequate for the new times, NYU Sociology professor Eric Klinenberg argued in several public forums and in online media that the city had “impoverished social infrastructure” (2013b) and called for design experiments to improve it alongside hard infrastructures like power grids and subways. Critics of the city’s resilience projects likewise called for social infrastructures to be given equal consideration in order to include vulnerable populations (McArdle, 2014). Ad hoc local recovery hubs set up after Sandy, such as Rockaway Beach Surf Club (ULI, 2013, p. 33), were championed as resilient nodes of community connectedness (Klinenberg, 2013a), while activist organization Occupy Sandy’s efforts were hailed by unlikely institutions such as the Department of Homeland Security (2013, p. 13–14). DHS also heralded Sandy as representing a significant advancement in the use of social media for disaster preparation, response, and recovery. Meanwhile *New York Magazine* highlighted the swarm intelligence born in what the magazine called NYC’s “first social media disaster,” noting how the most up-to-date and accurate information was uploaded by amateur social media users rather than traditional news outlets. Ten images hashtagged #Sandy were uploaded per second during the storm, they noted, and this rapid-fire response provided real-time insight to conditions on the ground as well as debunking of fake photos and Twitter rumors (Coscarelli, 2012).

Not limited to discursive descriptions, attempts were made by City and other institutions to mold people into social infrastructure. Among a host of emergency preparedness initiatives, after Sandy the City created a pilot “community needs assessment and action plan for increasing local capacity,” while also expanding trainings for its Office of Emergency Management’s (OEM) Community Emergency Response Teams (CERT) (NYC, 2013a, p. 158). In a related effort, the OEM launched a campaign, “Ready New York,” encouraging New Yorkers to see themselves as integral to the city’s preparedness and response efforts, and offering educational videos and guides to a litany of disasters, a “Ready

Girl” superhero (NYCOEM, 2019a), “Choose Your Own Path to Preparedness” “tween” online story books (NYCOEM, 2019b), and web-based guide to building a Go-Bag (NYCOEM, 2019a). In the spring of 2013, the Municipal Art Society and Pratt Institute hosted their first Livable Neighborhoods Training featuring a “Building Community Resilience” track featuring courses on funding resilience, conducting neighborhood vulnerability assessments, and social resilience strategies (MASNYC & PIPSPD, 2013). After Sandy, The Nature Conservancy’s Leaders in Environmental Action for the Future (LEAF) program began focusing on training youth in “the ability to ‘bounce back’ from future disturbances” and the “grit” needed to “withstand major traumas” (Dubois & Krasny, 2016, p. 262). Finally, in a sign of the widespread embrace of this social infrastructure concept, the Sandy Regional Assembly (2013), a group of “nearly 200 participants representing over 40 community, environmental justice, labor and civic groups” released their After Sandy Report — “the first regional grassroots Sandy rebuilding and resiliency plan” as they described it— which praised the SIRR report’s focus on community but advocated for going further by creating community resilience hubs in the city’s vulnerable neighborhoods.

Alongside human capacities, those of nature were also forwarded as emblematic of the recalibrated approach, with waterways and animal life enrolled alongside other proposed resilient infrastructures to buffer future extreme events (ULI, 2013, p. 31; NYCAP, p. 95). Instead of “wall [ing] the city in, or retreat[ing] from the shore,” as Bloomberg put it (NYC, 2013a, p. 7), government and media alike promoted the use of nature and animals as “ecological” infrastructures more suited to the resiliency framework. Here another existing concept — ecological infrastructure, prominent in biological conservation (Cardoso da Silva & Wheeler, 2017; UNESCO, 1984) and landscape ecology (Forman & Godron, 1986; Bélanger, 2009; 2013) since the 1980s— was drawn into the framework of urban risk governance. “Picture a fringe of mossy wetlands strapped like a beard to Lower Manhattan’s chin, and you are halfway toward imagining the plan to protect the financial district,” gushed NYT. Alongside wetlands and green space, the notion of risk-managing ecological infrastructure was especially prominent in discussions of oysters, which were repeatedly heralded as the kind of resiliency infrastructure appropriate to the city’s new needs, one able to work with nature rather than fighting against it (Buckminster Fuller Institute, 2014; Wakefield, 2019a; Wakefield & Braun, 2019). As part of the Living Breakwaters project, which won \$60 million in HUD’s Rebuild by Design competition funds in June of 2014, NYS GOSR began working with designers at SCAPE landscape architecture to use oysters as a “living, growing infrastructure,” by harnessing their life-activity of reef-building to “drastically dissipate destructive wave energy” (SCAPE, 2014, n.p.). To make oysters into infrastructure, designers began experimenting with new cultivation techniques and developing reef structures to make oysters survive further offshore from their traditional habitat, in high wave action areas, where they will be enlisted to absorb up to 16’ wave crests as “a first line of defense for Manhattan against storms as fierce or fiercer than 2012’s Hurricane Sandy” (Greenberg, 2014; Wakefield, 2019a).

In this way, the field of adversity, with its city/nature binary and now-problematic ideas of mastery and control, was addressed through the redefinition of human and environmental capacities as infrastructure. In the process an older field of adversity with roots in the 1960s was joined with new contexts and urgencies—environmental and infrastructural risk— resulting in a reimagined framework. While rejected discursively, fundamental elements of modernist city planning such as its audacious scope (Wakefield, 2018) and technical expertise of engineers (Elliott-Ortega, 2015, 49) were also maintained and articulated with critical approaches (entangled networks, bringing nature in, landscape design, etc.). The result was a novel urban security approach well-encapsulated in Bjarke Ingels’ description of his firm’s

RBD-winning coastal defense design the Dryline: “the love child of Robert Moses and Jane Jacobs” (Wainwright, 2015, n.p.).³ While based in the rejection of modern urban planning’s hubristic dreams of mastery (Moses), this approach forwarded its own hubristic dream of mastery, once more envisioning the planned management of the whole of New York City —albeit this time as a volatile social-ecological-technical system managed via situated, self-organizing, systems-based techniques (Jacobs)— and called for wildly audacious engineering experimentation toward this end (Moses redux). In the city thus envisioned, no longer would the human, environment, or technical be seen as separate, insert realms to be mastered or controlled by governance techniques coming from outside. Instead, each would be understood and made to function immanently as “lively” (Amin, 2014) risk management technologies themselves—the resilient community, the living breakwater— cybernetically interlinked and co-constitutive of the urban as well as its management. With expectations of resilience extending post-disaster to non-disaster time as well (NYC, 2013a, 157), what was ultimately sought across this recalibration of urban governance was a “culture of resilience” (MASNYC, 2013, p. 37). With social and ecological infrastructure alike, the City’s goal became the linking of systems to city monitoring capacities such as smart sensors or video monitoring (NYC, 2013a, p. 157). In this regard, while DHS (2013) praised ad hoc grassroots efforts, they also noted the need to increase “compliance of existing and new solutions with applicable laws, regulations, and other requirements” and integrate “social media within incident command structure and emergency operations center protocol” (p. 29). In the resulting self-healing city composed of interlocking technical, ecological, and social infrastructures, nature would work alongside smart grids and community volunteers to restore business as usual.

5. Branding the solution: resilience

In this section I argue that, if the recalibrations of governance techniques described in the previous section addressed the field of adversity, “urban resilience” was the name given to those recalibrations. With modern urban management seen as outdated and implicated in present and future disasters, resilience was picked up from ecology and development thinking and celebrated by city planners, designers, municipal and funding bodies alike as the city’s salvation and best hope of managing the systems of modern urban life amidst climate change, rising seas, and infrastructural vulnerability (NYC, 2013a). Within ecology, where the concept emerged through the critical problematization of existing environmental management practices (Grove, 2018; Walker & Cooper, 2011)—itself a close mirror to the post-Sandy field of adversity— resilience is seen by proponents as a corrective to outdated, “pathological” “command and control” management focused on maintaining isolated systems in equilibrium states by preventing disruption (Folke, 2006, p. 256; Gunderson & Holling, 2002; Walker et al., 2004). In place of such methods, systems ecologists devised resilience as what they saw as a more realistic adaptive management approach using experimental techniques to absorb and attenuate shocks in nonequilibrium systems (Pickett & Grove, 2009; Berkes & Folke, 1998), by developing “the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure and feedbacks, and therefore identity” (Gunderson & Holling, 2002; Walker et al., 2004, p. 4). While early formulation of resilience was derived from empirical work on adaptive ecosystem management (Folke, 2016; Gunderson, Allen, & Holling, 2009), by the 1990s resilience thinkers had expanded the concept to the governing of the social, approaching human institutions, organizations, and agents as part of complex social-ecological systems (Berkes & Folke, 1998; Folke, 2006; Walker et al., 2006; Liu et al., 2007). This work was extended by Holling and colleagues in the Resilience Alliance (Folke, 2016;

³ I am grateful to an anonymous reviewer for this reference.

Gunderson & Holling, 2002) and analyzed past societal collapses, institutional and economic management, social capital, and sustainability (Folke, 2006, p. 261).

Including human systems in resilience is thus not new. But the story of New York post-Sandy is noteworthy, possibly exemplary, in that it dramatically marks the widespread translation of resilience into urban governance. Adopting the resilience method, instead of blocking out nature or disorder, the City's SIRR (NYC, 2013a), state commission NYS 2100, and many of the same media pieces and conferences described in the previous section lauded urban resilience as a new approach that would welcome entanglements. Based on a view of crisis as inevitable, cities as coupled social-ecological-technical systems, and techniques for absorbing or withstanding turbulence, making the city resilient was portrayed as the appropriate solution to the post-Sandy problem as it had now been defined. Here definitions echoed those of ecology but were shifted into an urban infrastructural context. City planning commissions, art exhibits and newspapers all repeated similar catchphrases, creating an echo chamber in which resilience rang as the best and only refrain. "Forget sustainability," cried a *New York Times* opinion piece (Zolli, 2012), "it's about resilience."

As the term became a buzzword in New York, resilience was marketed to multiple constituencies, encouraging them to see their various needs, identities, or actions in it. Resilient, the City communicated, was what New Yorkers were:

"Re-sil-ient," "synonym TOUGH," see also: New York City" (NYC, 2013a, p. i),

as the SIRR report put it, casting resilience as synonymous with the defining qualities of a New Yorker. Drawing on the psychological origins of resilience thinking (Bonanno, 2004), the report continued,

Resiliency. In short, we have to be tough. And toughness, as we all know, is one of the defining traits of New Yorkers. In just the first few years of this century, we have been through the September 11, 2001 terrorist attacks, financial crises and blackouts, and now, Sandy ... The time has come to make our city even tougher" (NYC, 2013a, p. 6).

Along the coasts of Staten Island or Rockaway, Brooklyn, areas hit hard by Sandy, resilience was branded as what residents were during the storm and what they would and should be during the next one ("New York Rising," as NYS GOSR (GOSR, 2019) named its Community Reconstruction program for resiliency launched in 2013). Government reports such as SIRR and NYS 2100 contained similar graphic cues, with full-page photographs of Sandy's destruction (rollercoasters underwater, subway tunnels flooded) juxtaposed alongside vulnerable looking children in air filter masks and New Yorkers rescuing neighbors in rafts (see also ULI, 2013), portraying residents as both vulnerable and tough.

At the same time community buy-in crafted by designers and community organizations—such as the neighborhood "community resilience" march organized by the post-storm Rebuild by Design competition in Asbury Park, New Jersey (Van Alen Institute, 2014), a "bombastic parade led by local marching bands" (Bisker et al., 2015, p. 58) culminating in a resilience festival—helped validate and reinforce resilience itself as the best and only answer to the Sandy problematization. During this time across the city eighteen educational programs, such as that run by the Rockaway Waterfront Alliance, added resilience into their curricula, while the first community-based resiliency center, Sunset Park Climate Justice and Community Resiliency Center, was established (Dubois & Krasny, 2016). While suggesting on one hand a growing acceptance of the concept's legitimacy, the incorporation of resilience into city educational institutions was in many cases directly tied to the need to secure funding at a moment when, circularly, a tidal wave of grant calls began emphasizing resilience (Dubois & Krasny, 2016, p. 265). Adding to this, as part of SIRR between November 2012 and June 2013, the City held public workshops and

briefings with "320 business, civic, community-based, environmental, faith-based, and labor organizations" (Rosenzweig & Solecki, 2014, p. 402; NYC, 2013) to engage stakeholders on their new resiliency strategy. Alongside these strategies geared toward generating buy-in, resilience was equally posed by the City as an imperative and mandate: commanded Bloomberg to the city's private utilities companies, "if they want to continue using our streets, they have to make resiliency a priority" (2013).

Further instantiation of resilience qua solution was offered when in 2013 the Rockefeller Foundation established its \$164 million 100 Resilient Cities (100RC) program, asking city governments to apply to become part of its "cohort" (100RC, 2020b). Applications were reviewed competitively based on whether or not cities had "innovative mayors, a recent catalyst for change, a history of building partnerships, and an ability to work with a wide range of stakeholders" (100RC, 2019b, n.p.). Winning cities—New York was the first to join—were linked to the program's resilience framework and with public and private "platform partners," such as Microsoft, Siemens, and the World Bank Treasury, providing a range of resiliency services (100RC, 2019b; Tierney, 2015, p. 11). Circling back to media and the portrayal of resilience as a critical solution, in January 2014, the Rockefeller Foundation sponsored the creation of a new Resilient Cities section in the UK-based *The Guardian*, known for its environmentalist and leftist orientation (Slater, 2014).⁴

Government reports, newspapers, and educational programs repeated one another's statements, creating a feedback loop whose every iteration reinforced the last, naturalizing resilience and making it seem the appropriate, inevitable response to recognizing the risks revealed by Sandy. By the time most subway lines were repaired, and electricity restored throughout the boroughs, urban resilience had become a broad heading to bring administration of previously disconnected phenomena—now conceived as risk and risk managing infrastructures—together under a single umbrella. And should one component fail to play its part, measures were created to enforce resilience. Funded by the Rockefeller Foundation's 100RC, New York named its first Chief Resilience Officer in 2013 to report to the mayor and coordinate the city's resilience initiatives (100RC, 2019b; Rogers, 2019). As Berkowitz, former-President of 100RC, put it, "our goal remains the same – that a mayor wouldn't run her city without a CRO in the same way that she wouldn't run it city without a chief of police" (2017a, n.p.).

6. Conclusion

In New York it is now common to speak of a "before" and "after Sandy" not only because of the storm's destructive impact but also due to the emergence of urban resilience as a global paradigm in its wake. Frameworks tested post-Sandy are being replicated in other coastal cities, as seen in the Bay Area's own 2017 Rebuild by Design competition and the creation of over 80 Chief Resilience Officers (CROs) across "48 countries, 6 continents, and 21 different languages" in the 100RC network and other similar positions (Berkowitz, 2017a, n.p.). Bringing things back home in 2017, New York hosted the Urban Resilience Summit where these CROs and 500 "resilience professionals" convened to share their resilience-building experiences. With "NYC on Display as 'Living Laboratory' for Resilient, Multi-Benefit Solutions" representatives from New York's Office of Resilience took attendees on tours to learn from the city's "resilience journey across the city's five boroughs" (Zarili, 2017, n.p.), highlighting urban vulnerabilities and opportunities, infrastructural projects, and the City's commitment to community participation. Seven years after its founding post-Sandy the Rockefeller Foundation has ended 100RC—leaving its staff out of work—with its former President declaring the first phase of the RF's "world-changing work" of "standing up CROs ... building champions ... doing strategies" complete (Berkowitz, 2017b, n.p.). RF has already begun preparing to

⁴ <https://www.theguardian.com/cities/series/resilient-cities>.

“exploit ... the enabling environment” it helped to build (Berkowitz, 2017b, n.p.). Indeed, urban resilience has “gelled” as a governmental *dispositif* with New York the showpiece in a globally ubiquitous discourse and practice presented with an authoritative air of inevitability: “There’s no other way,” declares the Foundation’s documentary (2016); this is “the resilience age.”

It is easy to view urban resilience as a single salvational or malign object that was finally “discovered” because that is how it is portrayed and how it feels in its current ubiquity. But what I have tried to show here is that urban resilience is the name given to a governance framework arrived at via a process of problematization by government, media, and powerful funding institutions post-Sandy. To do so I have traced the post-storm problematization of New York as a vulnerable place of omnipresent environmental and technical risks of an existential nature. This moment of problematization was akin to what Callon (2009) describes as the “in vivo” search for ways of framing issues—via discourse and visuals—which can subsequently be turned into manipulable, governable problems. I further showed how, in the search for ways to govern these risks, a field of adversity was identified: the newly-perceived obsolescence of past urban management models based on a city/nature separation and modernist mastery and control, each of which were critiqued as impediments to governance. As we saw, the field of adversity encountered was not new, but rather drew on pre-existing ones in urban planning and ecology which were articulated with new environmental risks. This adversity was addressed, I showed, through the creative redefinition of human and ecological capacities as infrastructure, allowing governance to move away from modernist binaries of nature as an input for the city as output via recalibrating each together into an eco-social-cybernetic self-healing city. These creative recalibrations of new and old elements were assembled in the post-storm problem-space and then branded and marketed as urban resilience: the appropriate solution to the problem as it had been posed. This analysis helps us see that, rather than an inevitable path that must be followed, urban resilience is also the outcome of a moment of crisis, critique, and creative responses to a field of adversity within urban government’s own frameworks. As such, neither critique nor creativity are somehow “outside” government. Nor do they rupture with it. Instead they also sustain and nourish its growth (Barnett, 2017). Ultimately this study shows how urban resilience qua solution was constructed within and followed from a specific form of problematization (Foucault, 1984a, p. 289) created after Sandy. Rather than an obstacle now “overcome,” the field of adversity that urban resilience addresses must be seen as integral to this ongoing problematization of government. As this process “advances” (Callon, 2009), the meaning and purview of urban resilience stitched together in these discourses and visual imaginaries will continue to morph, especially as practitioners incorporate critiques along the way (Chandler, 2014; Grove, 2018).

Though the problematization I traced is specific, local, and mundane—operating through government and media discourse and visuals—it is also political. As Clive Barnett (2017) argues, while critical theory tends to rely on limited definitions of the political, “a distinct dimension of human affairs withdrawn from all but the most extraordinary events” (p. 274), in reality the political exists across manifold scales and dimensions including problematization. The latter is a political site in its own right. In this space, making phenomena appear as problems and solutions in particular ways involves extensive work by government, philanthropy, media, image, and educational institutions and is productive of its own effects. Following this work here helps us see, for example, how “the sense of perpetual, background instability that so often acts as the affective background for resilience-based policies and programmes” (Anderson, 2015, p. 62) was created and circulated across images and discourse unanimously asserting the naturalness of the new normal. Although proponents posit it as the best and only response to questions raised by Sandy, urban resilience was not an “effect” or “consequence” of the storm, as if Sandy could have only a single outcome or meaning. Returning to its moments of genesis helps us pierce the veil of

inevitability and anonymity, to see resilience as one situated response forwarded by specific urban actors: “an answer given by definite individuals” (Foucault, 2001, p. 172). Things could have been understood and actualized in other ways. Instead of helping restore business as usual, for example, self-organized relief efforts could have chosen to link up materially and refuse to return to the new normal as it were, to refuse to accept the new normal as an inevitable reality to govern (Wakefield & Braun, 2014). After all, as Ash Amin (2013) argues, what is celebrated by resilience proponents as the ingenuity of community responses are in reality often activities which the urban poor have no choice but to devise given the turbulence generated by neoliberal regimes. Instead of adopting hegemonic understandings of the “lesson” of Sandy as the inevitability of risk and need to secure the city’s economic infrastructure, New Yorkers could have directed their heralded “social infrastructural” powers toward dismantling it.

According to Carol Bacchi (2012) thinking problematically “produces a kind of freedom” (p. 4; Foucault, 1984a). Thinking problematically about urban resilience frees us from a unitary interpretation of it as a static, inevitable “thing” (Anderson, 2015), instead allowing us to see “resilient cities” as one situated, strategic response to a certain historical problematization. More importantly it also frees us to consider other possible trajectories, including our own understandings of the problems we ourselves confront. Taking on problematization as a political matter is perhaps especially relevant in the Anthropocene, itself a problem-space in the broader temporal sense used by Paul Rabinow (2003), where old frameworks are seen as coming undone and the need for recreating modes of thinking and living of paramount importance. New York’s post-Sandy problematization with its resulting urban resilience regime is a reminder that powerful forces are already shaping the future of urban life on this terrain. Meeting them there as critical thinkers can mean taking up critique as a matter of unveiling their power’s hidden logics, as well as exploring the problematizations to which it is tied as political in their own right. Instead of accepting the hegemonic version of resilience and its conservative parameters as the only legitimate response to the Anthropocene, this could include exploring possibilities even within resilience’s own frameworks (Grove, 2018). But more broadly, it can also mean deciding for ourselves, in our own places and ways, what counts as a problem in the first place, how it is defined, what adversaries we ourselves perceive, and how we choose to respond to them. After all, Foucault’s interest in problems was not only in understanding government, but also the wide range of ways in which humans problematize their lives and “give form to their behavior” (Foucault, 1986, p. 23).

To conclude I would like to suggest a final thought regarding the connection between the turn toward problematization thinking in geography and the nature of the political in the Anthropocene. For thinkers like Barnett (2017), at stake in adopting a problem-based approach is a move away from “melodramatic, all-or-nothing” (p. 28) definitions of the political—seen as “reserved for fundamental reconfigurations or disruptions of whole political systems” (p. 167)—and “back to the rough ground” of context-specific problems (p. 167). Moving away from such hubris and back “down to earth” is likewise seen by commentators like Bruno Latour (2018) as imperative to living in the Anthropocene. Here we might note that resilience proponents’ framing of the Anthropocene problem—as a matter of inevitable environmental risk and impediments posed by modernist governance based in human/nature binaries and mastery/control—is remarkably similar to that of such critical theorists for whom the Anthropocene signals the need to throw out modernist mindsets and find ways of managing within an entangled more-than-human earth beyond our control (Chandler, 2018; Wakefield, 2018). Instead of uncritically repeating this narrative voiced by resilience proponents and critical thinkers alike—allowing it to describe for us how we experience and live the Anthropocene—we might ask whether this framing itself poses a field of adversity of its own. Doing so may lead us into conflict with it, or simply to create other descriptions and practices. Indeed, given the high stakes of the Anthropocene’s

political, social, and environmental challenges, might we equally need forms of the political able to lift off the ground, create massive reconfigurations and ruptures, and overthrow regimes—precisely the kinds of audacious, earthshattering, exceptional actions and energies proponents of problem-based thinking seek to displace?

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