Rethinking Disaster and Preparedness

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Disasters, Continuity, and the Pathological Normal

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Abstract

In this introductory essay to our symposium we argue that "Sociology After COVID-19" needs to center "disaster" itself as an object of study and theory, and that doing so can productively reframe sociology's fundamental concerns. Building off nascent interdisciplinary work in critical disaster studies, as well as on the insights of our own contributors, we advance and elaborate two theses. First, while disasters are disruptive, they are not purely so; as they unfold, they enfold continuities such that they are best understood as *a part* of social reality rather than *apart* from it. Second, disasters are not pathological deviations from "normal" so much as they are the most salient manifestations of the ways that the normal is in fact pathological. A more critical approach to disaster can lead sociologists to examine more closely the interrelationship between the production of continuities and ruptures in social and economic life, enriching our understanding of core disciplinary concerns about social change, stratification, and inequality.

Keywords: Disaster; Social Change; Risk; COVID-19.

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What was COVID-19? Since this symposium continues a series in *Sociologica* that set out to envision "Sociology After COVID-19," we think it appropriate to ask. This question taken seriously eludes easy answers, and will preoccupy sociologists and scholars across academia for years to come. It will be the focus of government committees, after-action reports, historical accounts, and memorials. It will nag at each of us who tries to make sense of the pandemic in the context of our own lives. Undeniably the pandemic was a rupture, an all-encompassing and disorienting transformation of social life that has yet to resolve. The most familiar social frame we have available to understand a rupture like this is disaster.

So what can sociology bring to our understanding of disaster? This question, we argue, is exactly backwards, and is inadequate to the challenge presented by our current moment. Our discipline has long treated disasters as exotic problems, as suspect terrain that intrudes into the social landscape, to which we apply the theories, methods, and assumptions we have painstakingly developed under "normal" conditions. This intellectual division of labor historically hived off and held out to the margins a group of specialists — sociologists of disaster — who studied these abnormal deviations in a space from which they had little interaction with mainstream disciplinary concerns (Tierney, 2007). More recently, as disasters have seemingly intruded more and more frequently into everyday life, mainstream sociology has addressed this schism mostly by subsuming the concerns of disaster sociology beneath its own, pushing away theoretical questions about the definition of disaster in order to address "more fundamental sociological concerns about the contributions of disasters and their aftermath to social stratification, social change, and social inequality" (Arcaya et al., 2020, p. 684). Today, a year and a half into a period of continuous and overlapping disasters, which seem to portend a future in which the boundaries between the suspect terrain of disaster and the regular social landscape are increasingly obscured, we find the more urgent question to be this: how might sociology's fundamental concerns change if we stopped taking for granted that we understood what disasters are and how they are bounded (Shove, 2010; Elliott, 2018)? If we fail to address this question now we will have to ask it again, after the next disaster, and the next, stringing together sociologies of specific events rather than advancing an understanding of the *kind of thing* we're living through and why we will experience it again.

The ambition of this symposium is to sketch out how a critical approach to disaster might inform mainstream sociology. In pursuit of it, we advance two theses that center disaster itself as an object of study and theory. First, we argue that while disasters are disruptive, they are not purely so; as they unfold, they enfold continuities such that they are best understood as *a part* of social reality rather than *apart* from it. There is a lesson here for sociology, as a discipline with, as Orlando Patterson writes, "an entrenched transformational bias" that deflects our attention away from "the persistence of causal processes" that continually reproduce the social order, when in fact "change and continuity are two sides of the same temporal coin" (Patterson, 2004, pp. 73, 75, 101). Understanding disasters as both expressions and causes of unevenly distributed continuities, rather than primarily as ruptures or breakdowns, draws our attention to this duality. Disasters are moments in long-incubating processes that hold some people in positions of greater insecurity than others. These same processes also privilege the powerful with the resources to fortify themselves against disruptive change in a way that, in the aftermath of disaster, "allows them to celebrate themselves for beating the odds, without acknowledging the ways that history had loaded the dice in their favor" (Horowitz, 2020, p. 15).

Second, and related, disasters are not pathological deviations from "normal" so much as they are the most salient manifestations of the ways that the normal is in fact pathological. What some recognize as "social order" is experienced by others as a chain of everyday disas-

ters. Conditions of social stability, when there is no "disaster" to speak of, in fact depend on the *normalization* of certain kinds of suffering, exploitation, and destruction. Disasters tend to be officially declared only when the suffering produced by the social order as a matter of course spills its banks in some way — becoming periods of "suffering out of place," as the historian Jacob Remes (2019) has put it. As such, imperatives to "get back to normal" reify a set of conditions that are chronically disastrous for many people, as well as for the planet (Erikson, 1994). As the late David Graeber (2021) argued, in an essay published posthumously, it is critical that we recognize the pandemic (or, in our view, any disaster) as a "confrontation with the actual reality of human life," where those who do the most "essential" work are "overtaxed, underpaid, and daily humiliated." This feature of normal reality is, Graeber notes, senseless. A sociology that exposes other facets of our senseless normal can and should guide us towards a vision of the transformations we might desire and fight for.

In sum, how should sociology be different "after COVID-19"? The same way it might have been different after Chernobyl and Bhopal, after 9/11, after the Boxing Day Tsunami, after Katrina, after the 3.11 Triple Disaster: by turning its attention to the ways that the production and maintenance of durable social order sometimes expresses itself as disaster, and by recognizing that the establishment and policing of temporal, geographic, and social boundaries around what counts as disaster are central institutional and cultural tools in the process of keeping suffering "in its place."

That brings us to perhaps the most deeply troubling aspect of the question "what was COVID-19," which is its implication that the pandemic has passed. It has clearly not. As we write, Brazil and India are enduring cataclysmic new waves of infection, without the near-term promise of mass vaccination that has eased case numbers and fatality rates in the U.K., U.S., and Israel. The lack of commitment by the Global North to an equitable global vaccination strategy ensures that the pandemic will not be over any time soon, even as life returns to "normal" in certain parts of the world. Indeed, even within countries with ready access to vaccines the pandemic is ending unevenly, stratified by age, class, and race. And as Christina Simko (2021) poignantly observes in her contribution to this symposium, regardless of when the traumas of this pandemic cease to be inflicted anew we will anyway be mourning and grasping for meaning for a very long time. We will bear the scars of who and what we have lost.

To ask "what was COVID-19" is to draw attention to this fact: that the temporal bounding of a disaster is *always* an act of politics, of discrimination. Bounding disaster in time, in space, and in social location is how the powerful mark the "acceptable level of disorder in society" (Gusfield, 1984, p. 150). This observation is the motivating core of nascent interdisciplinary moves toward a field of "critical disaster studies." In recent years, social scientists and scholars in the humanities have coalesced around an interest in reexamining what disaster *is* as a general social phenomenon and construct. Moving beyond the now increasingly commonplace understanding that there is "no such thing as a natural disaster," critical disaster studies provocatively claims that there is "no such thing as a disaster." Yes of course there are material and social ruptures and catastrophic sudden changes in the world, but the designation of certain events and conditions as crises or disasters is an analytic conceit, or an "interpretive fiction," the construction of which must be subject to scholarly interrogation (Remes & Horowitz, 2021). This essay, and our symposium, brings this provocation to sociology. If we entertain the premise that there is no such thing as a disaster, then what we need to elaborate is not the "sociology of disaster" as it has been commonly deployed, but rather a distinct project of probing how life and death, growth and destruction, prosperity and peril, are made routine or exceptional.

1 Disasters as Expressions of Continuity

Our world is always falling apart, as Fernando Domínguez Rubio (2020) put it in his bracing study of conservation at New York City's Museum of Modern Art, illuminating the massive and unrelenting infrastructure of care and maintenance required to hold at bay the "aimless but relentless rebellion of things" that constantly threatens to undo the knot of our modern world (p. 6). But care is always a question of power, Rubio reminds us: what we decide is worth preserving, who will do the caretaking work and how, what resources will be directed to this work and away from other things. It isn't only art objects that must be "kept into being" (Rubio, 2020, p. 333). The fight against COVID-19 has, for much of the pandemic, revolved around debates over which social and economic circuits may be temporarily broken, and which continuities must be protected; which jobs, rituals, and gatherings can be paused and which must go on in spite of the risk of contagion, sickness, and death. The pandemic has been a long public debate about what processes we hold most dear, which lives and livelihoods are most worth preserving.

There is a longstanding insight in the literature that disasters are not "bolts from the blue" but have long histories with deep roots within social life (Turner, 1978). That they are incubated in "institutional arrangements, informal organization, and cultural understandings" (Vaughan, 1999). As Diane Vaughan (1996) has shown, although disasters may appear as periods of social disorganization, they are in fact socially organized into being. Social practices and habits don't just structure and channel the energy of disasters, they generate new, boundary-spanning risks that are especially troubling because they are alien to our historical experience, as Ulrich Beck contended (Beck, 1992 & 2009). Of particular relevance here is the emphasis Beck places on how the production of these new risks of modernity is inextricably intertwined with the production and distribution of wealth. Modern disasters aren't exogenous shocks that collide with and threaten to disrupt globalized capitalist production, in other words, they are the direct results of continuous processes of resource extraction, transformation, and circulation. These disasters are, as the geologist Peter Haff has put it, inevitable turbulence in a global matrix of socio-technical systems that has taken on a self-perpetuating dynamic of its own, one from which humanity "cannot simultaneously escape and survive" (Haff, 2014, p. 302).

In this symposium, our contributors provoke us to think about the interrelation of rupture and continuity in this pandemic, with an eye towards our continually disrupted future. Roi Livne (2021) probes how policymakers, confronted with the unprecedented economic consequences of the pandemic, have in some cases fallen back on habituated ways of framing the crisis, but have in other cases shifted away from these frames to center as a radically new policy goal the practical provision of sustenance for individuals and institutions, a shift in economic thinking with potentially long-lasting transformative consequences. Robin Wagner-Pacifici (2021) analyzes how and why rearticulations like the ones Livne (2021) describes take place. Examining the intertwined events of the pandemic and the racial justice uprisings in the U.S., she argues that COVID-19 and ruptures like it produce a "double exposure," stripping away material or cultural protections while unmasking or bringing to light long-existing social problems that suddenly become broadly recognized as untenable. Gary Alan Fine (2021) argues that the selective masking of social problems in the first place "does not simply happen but occurs because of power structures that encourage this absence [of knowledge]" (p. 50). Fine writes that "we may be persuaded that some questions should not be asked or answered. Groups may wish to keep topics hidden or unaddressed because it serves their interest. [...] Just as facts have provenance, so does their absence." He shows us how the rumors that circulate in times of

social stress are rooted in everyday power relations, and that rumors can either be disruptive of established norms in a destructive way or can be disruptive for desirable social change.

A critical approach should not only reexamine what "disasters" are; it should also inquire into what they *do* in the social world. What is reproduced or preserved through them? Recent scholarship has shown how disaster relief can systematically contribute to stratification (Gotham & Greenberg, 2014; Elliott & Howell, 2016; Howell & Elliott, 2019) or at least fail to mitigate it (Raker, 2020). But the logics of relief and repair that guide institutional recovery efforts do not spring into being when "disaster strikes." They are always operating, formulated and practiced well before disasters are declared. Even critical engagements with disaster response, such as indictments of "disaster capitalism" (Klein, 2007), argue that the logic of marketization as a mode of disaster recovery is an exceptional form of economic rationality, rather than an institutionally habituated extension of banal, already existing neoliberal capitalism to yet one more area of social life.

Just as recent work has argued that poverty is just as much a consequence of housing instability as it is a cause of it (Desmond, 2016; Sullivan, 2018), and racism is an inherent characteristic of certain organizations rather than an accidental deviation from "colorblind" neutrality (Ray, 2019), we should understand disasters not principally as disruptions of social order, but rather as necessarily produced by and productive of that social order in continuity.

2 Normal and Abnormal Forms

"Racism is a pandemic." In the summer of 2020, this refrain could be found on protest signs at Black Lives Matter protests worldwide. It pithily expresses that, like COVID-19, racism is widespread and deadly, evidenced by, among other things, racially unequal mortality rates (in the pandemic but also long-predating it) and in police killings of people of color. In Hennepin County, Minnesota, where George Floyd was murdered by a Minneapolis police officer, Black infants are over three times more likely to die than white infants (Hennepin County Public Health Assessment Team, 2017). The acute horror of the injustice that ended Floyd's life is inextricable from the ecology of ongoing injustices that cut short so many Black lives before they can even begin.

Protesting that racism *is also* a pandemic highlights the stark differences in the extent to which the two have been widely regarded as disasters in need of response. The pandemic has been treated as a global emergency, warranting massive, rapid mobilizations of resources to prevent disease and death and to best treat those afflicted. Governments also called on citizens to engage in acts of collective sacrifice and solidarity. Racism, on the other hand, has not been regarded as an emergency in white supremacist societies, even in the face of long traditions of protest and resistance led by communities of color.

Sociology should follow the activists to ask, essentially, what and where is the disaster, what is the emergency that requires a response — but then also, what has been rendered a pathological normal that societies tolerate and imagine returning to? To declare a disaster is a semiotic act that declares certain patterns of suffering and loss abnormal, accidental, an intolerable deviation from society's desired ends. Other patterns of suffering and loss are then by implication normal and, while perhaps regrettable, an inevitable and tolerable byproduct of the social order.

Normal conditions don't just make certain people and places "disaster-prone," which is how we often talk about the relationships between inequality, oppression, and risk. Those baseline conditions are themselves quotidian and sometimes unremarked disasters. In a study

published in September 2020, Elizabeth Wrigley-Field found that "even in the COVID-19 pandemic, White mortality will remain lower than the lowest recorded Black mortality in the United States" (p. 21854). Even an abnormally bad year for white mortality is better than a normal year — which is to say, every year — for Black mortality. As Wrigley-Field (2020) observes, "Black disadvantage operates every year on the scale of Whites' experience of COVID-19," but we have not "radically reorganize[d] social institutions in order to minimize racial disparities" (p. 21856) the way we have to minimize the risks of COVID-19.

The contributors to this symposium give us ways to reflect on the pathologies of normal life and to consider how the pandemic might help us identify the social facts and processes that have long stood in the way of more equitable, humane, and ecologically sustainable futures. Fayola Jacobs (2021) examines the pandemic as an outcome of racial capitalism, which produces and concentrates wealth through entrenched, systemic forms of oppression that exploit and dispose of Black, Indigenous, and Latinx people. Miriam Greenberg (2021) connects ongoing processes of urban exclusion and a prolonged housing crisis to the intensification of not only the spread of zoonotic diseases like the coronavirus, but also catastrophic wildfire — disasters which coincided to deadly effect in the American West in 2020. Where Greenberg examines the relevance of expansions out of and away from urban areas, David Madden (2021) focuses on the related processes unfolding within them, where the increasing financialization and commodification of urban development has produced compounding precarity — of housing, household resources, and networks of informal care — and individualized risks. Each of these essays provides a diagnosis of the senselessness of our reality and the harms, social and spatial marginalizations, ecological destruction, and precarity it has wrought.

We need those diagnoses if we are committed to informing and supporting projects of social justice and collective flourishing. Such diagnoses allow us to be more discerning about the elements of normal worth getting back to. Perhaps we don't just want to be able to show care for each other again by gathering for birthdays and hugging hello. Perhaps we also want a future where we have more time in the day to care for each other, where the workers who we rely on for care are properly esteemed and compensated, and where care is the organizing principle of social interdependence and the motivating impulse of public policy. As Christina Simko (2021) concludes in her essay, "perhaps there is still a way to reimagine and reconfigure our relationships to one another that creates a deeper sense of security, and the possibility for a meaningful future, for a far greater number of people" (p. 120). In the end, then, we find generative possibilities in thinking more critically about disasters, insofar as they give rise to new ideas about the world we might inhabit.

3 The Trouble with "Disasters"

The radical geographer Kenneth Hewitt (1983) warned nearly 40 years ago that the dominant view of disaster as a state of exception created the illusion of an

> archipelago of isolated misfortunes. Each is seen as a localised disorganization of space, projected upon the extensive map of human geography in a more or less random way due to independent events in the geophysical realms of atmosphere, hydrosphere and lithosphere. [...] [E]ach disaster is an unplanned hole or rupture in the fabric of productive and orderly human relations with the habitat or "natural resources" (p. 13).

Instead, Hewitt argued, disasters were systematically produced, foreseeable expressions of the structural relations between human society and the geophysical world.

If we fail to absorb and expand on Hewitt's insight with critical inquiry, we misapprehend the disasters that face us now. COVID-19, examined along the dimensions taken up by our contributors, troubles taken-for-granted features and understandings of "disasters" as sociological objects, material facts, and human experiences. We ought to bring this trouble with us as we are borne more deeply into the Anthropocene era, where disasters are imbricated with human-produced and planet-affecting infrastructure and technologies (the "technosphere," see Zalasiewicz et. al, 2017). It is easy to restrict our focus to all that climate change will disrupt and disorder, but its uneven effects always have the potential to reproduce the social order, to ensure certain continuities through our efforts to preserve habitable conditions. When we talk of "stabilizing" the climate in the interest of avoiding disasters, we also need to examine whether that assumes we should stabilize the social conditions and political economy that have routinized dispossession, impoverishment, ecological destruction, and human suffering. This symposium implores us to look more closely at the ways that transformation and continuity, the normal and the pathological, coexist and reinforce one another in periods of "disaster."

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What is an Event and Are We in One?

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Abstract

This article describes the temporal and spatial configurations and limitations of the rupture phase of historical events. It does so through a consideration of the intertwined forms and flows of the 2020 COVID-19 pandemic and the social uprising against police violence targeting African-Americans in the United States. The article argues that these ruptures open up a "double exposure", one that makes problematic conventional categories associated with events, like those of past and future and inside and outside, thus challenging our ability to situate ourselves in relation to such events.

Keywords: Event; Pandemic; Exposure; Racism; Politics.

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> "In the past, I've always made these things where the figure changes. Where the figure is kind of animated. And I had this revelation, kind of dumb and flat-footed, this summer: The ground has changed. This was after the George Floyd murder and the subsequent uprising — I was like, *the ground itself has shifted*. I was trying to make paintings that contained the shifting ground and the motion in them."
>
> – Amy Sillman, in Farago, 2020

1 The Rupture

We've all been thrown into the deep end of the ocean of history and we are thrashing around trying to stay afloat. We're not sure where to look, what to pay attention to, or who to believe. It's genuinely hard to get our bearings and seize the moment. This incomprehension provides the starting point for this essay.

A version of this essay was originally planned as a response to the viral pandemic, but it became imperative to incorporate the collective uprisings, in the United States and elsewhere, against police brutality targeting African Americans most systematically and continuously. I felt I needed to examine the expanding agenda of this uprising, an agenda that made explicit the connection between inequalities of the pandemic and inequalities more general, more historical, and more enduring. All of these reconsiderations of that paper and its remit led me to start with what might seem to be an obvious question: "What is this thing that is happening?"

Deciding what to call our eventful experiences, practices, and emergent structures is a huge part of determining how "these things" take shape and advance in space and time. It matters if something is identified as a natural disaster or a pandemic, an act of God or a human-made genocide. It matters if something is termed a riot, or a protest, or an uprising, or a revolution. It matters if it is identified as *one* event or several, and if several, if they are identified as sequential or co-occurring or co-constitutive. It matters if there is one event that is predominant and defining and one that is subordinate or residual. In our moment these events might include Pandemic, Economic Depression, Racism, Tyranny, and Climate Change.

But we begin all events in a state and phase of incomprehension and unknowing. We are caught by surprise. There is typically a phase of rupture at the outset of an event that is disorienting and disruptive, but not yet named and determined. In my book, *What Is an Event?* (Wagner-Pacifici, 2017), I claim that events erupt in this surprising way and then take shape and flow. The book describes the grounds and backgrounds of events, their moments of rupture, their forms, and their settling into some shape or resisting that settling. It also describes how individuals and collective forces seek to shape events even as they experience them, with all events' startling powers to unhinge, amaze, and disorient, and ultimately, to change loyalties and identities, relationships and institutions.

2 Understanding Events

As noted above, the experiences and stakes of events are elemental and resonant. To say that they are historical (or individual) turning points, while true, doesn't nearly get at their existential profundity. Events are also restless, continually moving across time and space, carried by the very forms that shape them as variously situated historical subjects attempt to control,

expand, or eliminate them. Some events appear rock solid, sometimes literally, as they are become congealed in stone monuments and memorials. Some seem buffeted by continual contestation as opposing or multiple constituencies seek existential and political purchase on them. In whatever ways a given event is forged, it is through the work of historical and political subjects, subjects differentially situated regarding power and access to media and mediations, that the inexplicable and the formless are made explicable and given a form. While event forms are multiple (some examples are declarations of war, handshakes, manifestos, symbolic gestures of bowing or kneeling, citizens storming a prison, epidemiological projections), the book argues that it is critical to understand these forms in terms of both their innate capacities to carry meaning and their empirical contexts of appearance and action. As well, analysts must attend to the ways forms combine. Importantly, the book claims that a coalescing of forms is required to make a rupture into a transformational event and that the confusion or fragmentation of forms prevents event sedimentation.

One consequence of the open-endedness and mutability of event formation and flow is that they provide opportunities for the invention of new ideas, concepts, institutions, and identities. This corresponds with William Sewell Jr.'s (2005) analysis of the eventful invention of revolution in France in the summer of 1789. In his justly famous article, "Historical Events as Transformations of Structures", Sewell proposes a process of semiotic rearticulation as the central mechanism for the eventful emergence of the new. In the case of the French Revolution, this took the form of

> a semantic condition that made the new articulation of popular violence and popular sovereignty possible: the long-standing ambiguity of the term "le peuple" — the people [...] [and thus] the taking of the Bastille [...] as the historical event that articulates popular violence with the nation's sovereign will in the new concept of revolution" (pp. 246, 255).

Precisely these kinds of articulations and rearticulations take enormous effort by historical subjects across multiple domains, and the deployment of objects and acts under the frames of icons, speech acts, gestures, symbols, and more. Forging *new* political subjects, like those Sewell references in the French Revolution, is a massive undertaking.

3 Pandemic and Protest

Having thus established a framework for tracking and analyzing events in previous work, some relevant questions have occurred to me during our current turbulent and disorienting moment. These include: How long can a rupture last without taking definitive eventful shape, and what kinds of temporalities best characterize extended ruptures? Are we still in the rupture phase of whatever concatenation of events is currently forming, or are we in a fully flowering historical event? Are extended ruptures ways of warding off the future while enduring a difficult present?

In the disorienting, stuttering, slow-motion beginning of the pandemic in the United States in early 2020, there was a sense that something was happening but it wasn't clear what, where, or how consequential it would be. News arrived fitfully and frighteningly from other parts of the world, migrating from the periphery to the centers of media organ coverage. Then, in March, some significant parts of society and its vital infrastructure shut down precipitously. In the state of New York, for example, the governor's executive orders performing this shut down were strangely and complexly worded, "Continuing Temporary Suspension and Modification of Laws Relating to Disaster Emergency." Continuing temporary suspension — these

words suggested a mixture of temporal orders that simultaneously proceeded and halted, lurching forward with suspensions and modifications in the face of what may or may not be a real "disaster emergency". *Continuing* and *temporary* plot a world still somewhat linear, orderly, and predictable. *Disaster* and *emergency* are ruptures that puncture timelines, cracking open temporal ongoingness, stopping time. What stands between them in these executive orders are, interestingly, Laws (the most overtly performative of institutions). And these Laws are ambiguously and ominously "modified" in the very naming of the executive order.

The package of these executive orders was called "New York on PAUSE." Pause is a most interesting word to introduce into a globally mobile and developing event. And in this so-called pause, life did seem suspended, as we experienced the closing of institutions, the halting of normal work processes, store and restaurant closings, the shutting down of modes of transportation. But of course, much was and continued to be happening: a pandemic was on the loose, nations and governments at all scales were struggling to understand it and prepare for it (or ignore it); vital, essential services continued to operate (food being delivered, sanitation workers collecting trash, hospital workers seeing patients) as people still needed to be fed and treated. So the onset of the pandemic managed to appear both immobilizing and mobilizing at the same time. And the PAUSE became the lockdown.

And then, on May 25th Minneapolis police officers arrested (for allegedly using a counterfeit $20 bill at a convenience store) and killed George Floyd, an African American man in a manner both shocking and indefensible, with one officer, Derek Chauvin pressing his knee into Mr. Floyd's neck for over 9 minutes. These excruciating minutes were videotaped and the video was circulated widely. Protests began the next day in Minneapolis and quickly spread across the country and around the world. The protests highlighted and decried police brutality against African Americans and connected Floyd's killing to scores of other cases where African Americans lost their lives in police encounters, most of which began with allegations of minor infractions. It's important to note how so many of the killings of Black people at the hands of police occur at the compressed end of encounters around extremely small infractions or allegations of infractions, or metaphorical infractions against the dominant culture (selling loose cigarettes, passing a counterfeit $20 bill, routine traffic stops for things like "nonfunctioning brake lights", "running while black" in a white neighborhood, walking from a convenience store in one's own neighborhood while wearing a hoodie).

At this juncture in late Spring 2020, "this thing that is happening" ramified and expanded, with novel forms generated to capture, shape, and control the ongoing rupture put forward by diverse constituencies of protestors, lawmakers, journalists, and health-care workers among others.

The problems and conundrums of time and temporality continued. Eventful ruptures have fluctuating and often contradictory temporalities, seeming to both speed up and slow down time and sometimes appearing to stop time altogether. In addition, our ability to focus on discrete moments or what might be called episodes is under stress. Questions emerge: What is a moment, a single incident? What is a sequence of connected incidents? What is a trend? What is a definitive turning point? What is a new era? During ruptures, we can't answer these questions, and our inability to provide answers coincides with their reiteration.

Societies require a cognitive and perceptual apparatus to integrate inchoate ruptures into conventional temporal frameworks, including linear time, epochal time, directional time, and even prefigured time (both sacred and secular versions). In addition, they may rarely manage to produce new temporalities (along with new subjectivities) like revolutionary time. Part of the dilemma for those political subjects confronted with and attempting to shape both the pan-

demic and the protests, and their contingent combining, was determining the moment that "the event" started. For example, the event trajectory of the protests against police violence toward African-Americans could be situated within a temporal trajectory of slavery, or Jim Crow, or segregation, or more proximal incidents like the killing of Michael Brown in Ferguson in 2014 or the assassination of Black church-goers in Charleston in 2015, or the violent demonstrations by white nationalists in 2017 in Charlottesville. But the long and enduring inequality of race in the United States, with its many forms and manifestations, would weave the protests and the pandemic together in history more broadly (more on this below). The pandemic might appear to have a more definitive origin moment of rupture with the appearance of COVID-19 in late 2019 and its initial global migration in early 2020. But the pandemic has had its own temporal conundrums with its wave-like movement across different countries and its sequential sweeps across different regions in the same country.[1] In spite of a myriad of epidemiological charts and graphs, with their rises and falls and re-rises, the time line of the pandemic (along with its spatial contours) has never been entirely clear.

Recalling the way that William Sewell's (2005) event-defining semiotic rearticulations work their recombinatory alchemy to change identities, loyalties, spatial and temporal orientations, and institutions, we ask if similar rearticulations are occurring now? Perhaps, as an example, we have seen intimations of such rearticulations in the accelerated removals of statues of Confederate generals in the United States central squares and plazas, and in the naming of places like Black Lives Matter Plaza, a two-block-long section of 16th Street NW in Downtown Washington, D.C. renamed by Mayor Muriel Bowser on June 5th, after the Department of Public Works painted the words "Black Lives Matter" in big yellow capital letters on the street, along with the flag of Washington, D.C., These acts of removal and (re)labeling and renaming occurred as part of the George Floyd protests. So the *pace* of renamings and reconfigurations of public space (statues removed, military bases renamed) accelerates along with the presentations (and potential) passages of national laws, like the George Floyd Justice in Policing Act introduced in the Congress, or local actions upending or, more rarely, promising outright ending entrenched institutions like the police. That would indeed be a semiotic rearticulation of state violence and sovereignty. In any case there have been definite signs that the rupture is taking shape as an event in Sewell's terms in these formal rearticulations. Nevertheless, more aspirational than settled, these are contingent and reversible semiotic rearticulations, and the echo of the word "temporary" (from the New York Governor's Executive Orders) lingers.

4 Inside or Outside

Politically forging and analytically grasping such rearticulations in real time is always hard — most are discovered in retrospect. But digging deeper into the dynamics of events and their semiotic rearticulations brings me to another central question — one that concerns ideas and experiences of space along with those of time already introduced. That question is: Am I (and are we) inside of the event or outside of it? And this question started to vibrate in the social ether during the early months of 2020, when the apparent event was confined to the COVID-19 pandemic-in-the-making. Its vibrations have only intensified as the pandemic and the protests/uprising have intersected and, in a profound sense, co-constituted each other.

This indexical question is always relevant to events and the answer almost always appears to be obvious. It seems like common sense that we should know if we are inside an event or

1. I thank an astute anonymous reviewer of this article for suggesting these insights.

not. However, as I described in my book, these very decisions and calculations are semiotically charged and contingent. On the one hand, even people physically proximal, incorporated (with their very bodies) in an event may find themselves pondering their participation in and relation to it. One example in *What Is an Event?* (Wagner-Pacifici, 2017) narrates the story of a high school student actively calibrating his insider/outsider status on the morning of September 11, 2001, from inside his school in Lower Manhattan, a school that was literally two blocks from the Twin Towers and into whose schoolyard pieces of the towers were falling. Proximity, it turns out, proves to be only the roughest of guides and proximity and distance themselves create multiple conundrums. A more recent account comes from a sociology graduate student at The New School, based in New York, who wrote me earlier this Spring about how the inside/outside dilemma influenced her reactions to her own situation. I quote her astute and thoughtful reflections here, with her permission:

> One small example is when the pandemic first broke out in Wuhan, I thought this event is far away from me and even though all my families are in China, they still live very far from Wuhan City. Until the virus spread so quickly across China, and then to the U.S., I still did not feel that I'm within the event. However, 2 days ago, after almost two weeks of self-quarantine, I went [outside]..., which is right across the Elmhurst hospital in Queens. I saw the shockingly depressing images of... patients waiting in long lines, in complete silence, all wearing masks, each of them keeping 6 feet distance, and the line is so long that [it stretches] even across several blocks, ambulances everywhere, police cars everywhere, and those temporary tents for news journalist broadcasting... I went directly back home, and I started to watch the news on my phone, in the news it calls Elmhurst Hospital in Queens the epicenter and hotspot of the Corona Virus patients, in the epicenter of NYC, which is also the epicenter of New York State, and New York in turn is the epicenter of the whole United States. Suddenly I started to realize, I'm not only within the event, but also I'm actually located at the very center of the event. But when exactly did the sense of within and outside of the boundary of event shift? How do we demarcate the shifting boundary of the event?[2]

Many of us may have had similar experiences as we "sheltered in place" and tried to get our bearings in the evolving event. The inside/outside question took on multiple meanings during the early, pandemic dominated, months of the year. One iteration was: do we stay inside of our homes (where, in theory, the pandemic isn't occurring) or do we venture outside of our homes where it may well be? This question, in its turn, suggested several others reflecting power, privilege, and property. Who can afford to stay inside? Who has an "inside" that is capacious enough and equipped sufficiently for full-time occupants engaging in activities that would normally be done elsewhere? Who is deemed "essential" and thus ironically positioned to be "free" to travel in the "outside" yet also expendable, as they are potentially more likely to be exposed (in one meaning of the word) to the virus? The difference between being free to exit one's home and being *required* to exit one's home broke down in this context — exposing (in a second sense of the word) the background privileges of class and race and profession in all their ugly starkness.

In this context, the inside/outside questions vibrated anew. Where is *this* event occurring and how are we to calculate if we are inside it or outside of it? Further, how is this event oc-

2. Thanks to Shaowen Wang for these astute reflections.

curring and *how* are we inside it? In other words, in what capacity are we inside this event? Are we victim, perpetrator, protester? Or, if we maintain that we are outside it (and with what evidence or credibility), are we spectator, bystander, or witness? Some of these questions are explicitly linked to answers that may have been given to the prior (and unresolved) question: What is this thing that is happening? But this "what" question was asked anew as the eventful ground exposed by the pandemic (social inequality in exposure to the virus) set the stage and intersected with the ground exposed by the protests and uprising (social inequality and discrimination in exposure to police violence). As the artist Amy Sillman (2020) noted, the ground itself had indeed shifted.

5 Double Exposure

The concept of "exposure" strikes me as central. Two distinct but equally relevant definitions of the word can be braided together in pivotal ways. They are (from the *Oxford English Dictionary*):

1a. "The action of uncovering or leaving without shelter or defence; unsheltered or undefended condition. Also, the action of subjecting, the state or fact of being subjected, to any external influence."

1d. "The action of bringing to light (something discreditable); the unmasking or 'showing up' of an error, fraud, or evil, of an impostor or secret offender" (Oxford English Dictionary, 2021).

In the first sense, we risk exposure to external influences (like the virus or police brutality) when we are "unsheltered or undefended" on the one hand. And, in the second sense, we expose things previously hidden (like systemic racism and the active legacy of slavery) by bringing those things to light, on the other. The reference to "unmasking" uncannily also illuminates the material conditions of exposure in our mask-flummoxed pandemic.

What this event's forms of doubled exposure put in relief was a complicating new apparent choice: to go out, to go into the streets, to participate actively in the protest (putting one's body on the line in multiple ways) or to stay inside? For some, this called for a new understanding and calculation of the dangers of the outside, with a still active pandemic risk exacerbated by concentrated exposure in crowds. For some, it reiterated an understanding of old, exhausting, and relentless dangers of the outside in the form of vulnerability to racist mis-identifications, harassment, and violence. And here is where the very issue and terminology of choice becomes so central and so charged.

The event (in its formation as protest or uprising or, as antagonists had it, as riot) at first glance, appeared to be occurring squarely "outside". So for many, going outside during a period of still widely enforced "stay at home" orders meant entering the dangerous inside of the event with all of its risks. And being, or staying, inside, meant being outside of the event. But what if the event took another form, another name? What if the event was actually recognized and named as endemic societal racism or even slavery and its continuing and ongoing legacy? Where is that event? Might not that event live even in the very structures of housing and property and neighborhoods, affording, or not, safety and protection? And who, if anyone, has the freedom or the right to choose whether or not to be inside of it or outside of it?

It's worth considering if the question of *choice* reveals a false consciousness about our ability to control or manage our involvement and implication in events and our categorical identities in them. At one end of a supposed choice continuum, some believe they have a choice — and in concrete and consequential ways they do. If one has shelter and resources, one can stay

sheltered and nourished. If one "chooses" not to participate in protests, not to go out into the streets, one can probably avoid physical danger of either the virus or police forms. But who is this "one" who believes they have a choice? Is this *one* a white person or a black person, a person working virtually at home or an "essential" delivery person? Such things matter.

At the other end of the supposed choice continuum is a position of *no choice*. You are in the event whether you want to be or not. Even staying in your own home doesn't guarantee insulation from the event of racism and/or police violence, as the case of Breonna Taylor shot by police in her own home tragically demonstrates.

I would push this even farther. What the concatenation of the pandemic and the protests has illuminated so searingly is that even, one might say especially, those persons privileged by race and class to think they have a choice not to be in the event, not to go outside, even *they* are in the event. The past drags itself along in the present and manages to enter bodies of both privilege and subjection, reviving its demarcations and boundaries in each emerging action and event. In that sense, the event itself creates the inside and the outside and then proceeds to flip them inside out with each new political semiotic act of representation, demonstration, and performativity. Thus are conditions named, attentions focused, and identities transformed.

For our eventful moment in history, there appears to be no way to clearly differentiate between inside and outside. The very concepts of inside and outside seem irrelevant. And it is then exquisitely apt that the origin of the word pandemic derives from the Greek *pandemos* (from *pan* "all" and *demos* "people"). All people.

Inside and outside are concepts that rely on boundaries that demarcate and differentiate. As these recent ruptures have taken their myriad eventful shapes and have restlessly flowed through homes and hospitals and prisons and streets and police cars, the very landscape of our collective existence has been in a state of exposed vibration. It's become harder and harder to keep things separate, to imagine social zones of relevance or irrelevance, safety or danger, inside or outside. The boundaries keep moving, oscillating, transforming. Even when we restrict our focus to the pandemic in isolation from these other cross-cutting and intersecting events, the question of boundaries is vexed. Taking the restlessness of events to extremes, pandemics only live via their continuous movements across, and through, all of humanity. The terminology of wave formation noted above, much deployed by the epidemiologists charting the course of the pandemic, doesn't quite capture their spatial and temporal ebbs and flows. And even those wave formations and flows are themselves calculated through probabilities and statistics, demographic actuarial tables and calculations, migratory patterns of populations, appearances and disappearances of masks, and business closures and social distancing. Tracking such forms, their uptake or rejection, and their hands-off to other forms is critical and difficult. The challenge increases with the intersection of the other eventful ruptures discussed above. This suggests that the questions I raised earlier, with all of their trap doors and contradictions keep resonating: are we in or out of COVID-19, in or out of the uprising against police brutality and racism, in or out of economic depression?

As struggles over the forms and labels shaping and defining the events continue, though, a range of subject positions present themselves, as I noted earlier: spectator, bystander, audience, witness, victim, perpetrator, participant, ally, protagonist. So maybe *choice* is reasserted with qualifications and self-consciousness. Maybe it's important not to abandon all ideas about political consciousness and political agency. But let's not be naïve, it's not free and it's not without consequences.

But how is that agency to be enacted? Events don't live anywhere but in the forms that achieve them — these include the acts of naming, the declarations, the handshakes or the

foreswearing of handshakes, the gestures (like wearing a mask or taking a knee) the categorizations, the portraits and murals and words written on streets (Black Lives Matter), the narratives, courtroom trials or toppling of statues. But the forms only matter contingently, they are not determinative. There's no *guaranteed* relationship between activation of a particular form and the nature or impact of an emergent event, even as certain processes, patterns or sequences may produce more or less inclusive or democratic events. Elections, constitutions, crowds (or mobs or populations differently named), and assemblies — all have their own powers and weaknesses, all draw on certain types of participation and certain designated participants.

So it definitely matters how we define, represent, index, and perform events (mechanisms I claim function as political semiosis). And here the forms also provide clues about whether and how the various current ruptures or proto events are, perhaps, concatenating into a single over-arching mega-event, one that might well meet the criteria of semiotic rearticulation and transformation of structures established by Sewell. One example of what we might refer to as a braiding of events was that of medical personnel across the United States taking a knee on June 5th to support protests against police violence against African Americans. The *exposure*, in all senses of the word, of medical personnel in the pandemic (exposure to the virus, exposure to the socially unequal afflictions of the virus among communities of poverty and communities of color) made them a particularly powerful carrier of the convergence of events into a mega-event. And the gesture of kneeling itself has enacted a collision and combining of images and incidents and meanings, incorporating U.S. National Football League players Colin Kaepernick and Eric Reid's kneeling during the playing of the US national anthem at a football game to protest police brutality against African Americans, all the way to police officer Derek Chauvin's kneeling on the neck of George Floyd for those long 9 minutes and 29 seconds. The ongoing protests in the streets of the US and other countries, so many of which include removal of statues and monuments, similarly enact braiding gestures that reorient societies in historical time and political space. In this way, the actual photographic technique of "double exposure" comes into analytical focus here as metaphor. Double exposure is a technique where two images are overlaid and combined, through the double exposure of the same portion of a film, resulting in their superimposition. The act of kneeling, the concept of "essential", the ideas of lockdown, and shelter, and masking — all of these now live lives as double exposure, alternately coming into going out of focus.

Finally, I want to circle back to the title of my essay, "What is an Event and Are We In One?" And it is really the second part of the title that deserves most attention - each word of it comes with a trap-door: *Are We In One?* Are (the word implies the tense and time of the present, something ongoing and not able to be shoved off into the past or deferred until the future); We (who is we? who identifies the we? are there differences among individuals, collectivities, or are we all of humanity pan/demos); In (is there an inside and an outside of our eventful moment); and One (is this one event or several and, if the latter, which is the most consequential, formative, and existential one). None of these questions can be taken for granted and it is the work of sociologists examining events and disasters anew to take them up in all their specificity, their intricacy, and their consequence.

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COVID, Economized

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Abstract

Since the beginning of the COVID-19 pandemic, people have recognized it as posing not only a public health risk, but also an economic problem. There were, however, several different ways to formulate this economic problem. This essay lays out three prototypical economic formulations of COVID-19, which proliferated during the pandemic's first six months in the United States and informed policy discussions and interventions: neoclassical economization, macro-economization, and substantive economization. Drawing on Karl Polanyi, I propose that among COVID-19's potentially transformative effects is a transition away from abstract and analytical economic formulations and toward a more concrete focus on securing sustenance and material livelihood during times of crisis.

Keywords: Economization; COVID-19; Utilitarianism; Neoliberalism; Karl Polanyi; Substantivism; Coronavirus.

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> We should remember that this idea of framing everything in terms of the economy is a new thing in human history. The pandemic has shown us the economy is a very narrow and limited way of organising life and deciding who is important and who is not important.
>
> – Bruno Latour (quoted in Watts, 2020)

A disappearance of handshakes and amiable touch; passersby instinctively drawing away from each other while trying to not appear hostile; visceral fears of touching surfaces; Plexiglas barriers; floor markings of the sanctified six-foot distance; the normalization of wearing surgical masks, latex gloves, and face-shields in public; travel becoming a complex challenge, which requires painstaking planning and preparation; virtually emptied commercial spaces; housebound children demanding parental attention in the midst of stiff professional videoconferences; hitherto stable companies collapsing; staunch conservatives supporting extensive public spending — COVID-19 may not be a uniquely efficient killer, but its profound social effects, its overwhelming way of disrupting life from the most basic human gestures to the most complex political and economic structures, is unprecedented in recent history. The virus has embroiled society in its entirety, leaving no relation, habit, or institution intact. Several months into the pandemic, a wholesale disaster unfolding, the world as we know it seemed to have come to a halt, doubtful reflections on whether it would ever return to normality abounded.[1]

The virus's social entanglement, however, has gone in both directions. It is true that COVID-19 has drastically altered long-normalized social patterns, but many of these patterns remained disturbingly stable and left clear marks on the virus's impact: countries' dissimilar capacity to control the virus's spread and the weakness of decentralized and privatized governmental systems (Somers & Block, 2020); the extreme racial disparities in COVID mortality rates, and the astonishment of those who find them surprising; rising domestic violence under stay-at-home orders; the seamless branding of many blue-collar and undocumented migrant workers as "essential," and their exposure to the virus without appropriate protection or compensation (Mayer, 2020); the transfer of relief funds to the oil, hotel, and airline industries, while working class families struggle (Frazier, 2020; Lipton & Vogel, 2020). As Rodrick (2020) observed, during the pandemic, countries "have in effect become exaggerated versions of themselves". From this perspective, COVID-19 looks like a reincarnation of long-enduring social dynamics and hierarchies — a catastrophe, no doubt, but one that merely lays bare the multiple catastrophes we have long known and experienced.

This dialectic between a novel virus and enduring structures invites questions about social change, stability, and reproduction. Given that so much of the COVID-19 reality is not new, it is tempting to suggest that the virus has brought little enduring change and will not prove disruptive in the long run.

I beg to differ. Society-as-we-know-it, even in its supposedly stable state, is itself conflict ridden and prone to disruptions. Even if disasters such as the one COVID precipitated merely heighten and emphasize existing patterns, many of these patterns have much transformative potential, which may come to fruition as circumstances change.

1. Ray & Rojas (2020), for example, proclaimed that "COVID-19 has forever changed the world and our lives". A *New Yorker* article argued that COVID-19 may lead to cataclysmic historical transformations, similar to those that followed the bubonic plague in Europe (Wright, 2020a).

1 Three Forms of Economization

Such is the case with COVID-19's framing as an economic problem. In two programmatic articles, Çalişkan & Callon (2009 & 2010) laid out a framework for the study of *economization* processes, which they defined as "processes through which activities, behaviours and spheres or fields are established as being economic (whether or not there is consensus about the content of such qualifications)" (2009, p. 370). Let me, then, refer to the process of defining and formulating COVID-19 as an economic problem as COVID-19's *economization.*

As Çalişkan & Callon (2009 & 2010) stressed, economization may take a variety of shapes and forms. Accordingly, there are different ways to formulate certain issues as economic problems. Many critical social theorists have targeted a very specific formulation that neoclassical economists have advanced, which applies the model of the rational and individualistic *homo economicus* to all life domains. In this process, economists and other experts formulate both human and institutional agencies — nation states (Lemoine, 2016; Livne & Yonay, 2016), higher education systems (Berman, 2012; Brown, 2015), and family units (Hochschild, 2012) — as rational business units, which weigh costs against benefits and reach calculated decisions based on their self-interest.[2] In this particular sense, therefore, economizing a political, social, or moral issue means tackling it as such a neoclassical economic problem: how to maximize an individual actor's utility under a given constraint (Brown, 2015). Let us call this type of economization *neoclassical economization*.

Such economization projects have indeed become widespread over the past half-century. There is an overwhelming tendency to treat problems of utility maximization (or cost minimization) as the only imaginable way to formulate economic problems (Polanyi, 1977). One, however, should consider other coexisting forms of economization, as well as other economization projects that are less common because they have been pushed aside.

Among the most influential economization projects that have coexisted with neoclassical economization is what I call *macro-economization*. "The economy" is a commonsense term, which people use frequently and unquestionably as "the name for the fulsome totality of national economic activity" (Murphy, 2017, p. 17). The political theorist Timothy Mitchell (2002) analyzed how this term came into being as a major object of policymaking, arguing that people began recognizing the economy as a real and somewhat distinctive domain only around the 1930s, when national accounting measures developed.[3] The economy, according to Mitchell, was a reification — an effect that emerged from the multiple measures and metrics designed to represent it. Most central among these metrics was the Gross Domestic Product (GDP), which represented national economies' size and indicated their growth or contraction (Hirschman, 2016).

This, too, was an economization process, distinguishable albeit not mutually exclusive from neoclassical economization. Once the GDP became a relatively undisputed representation of national wealth, a preeminent way to formulate economic policy problems was figuring out how to maximize growth in GDP and optimize what people have come to recognize as the economy (Murphy, 2017). In the name of growing the economy, experts and politicians promoted wide-ranging reforms in virtually all life domains — infrastructure (Mitchell, 2002), science (Berman, 2014), fertility (Murphy, 2017), and others. This economization,

2. For a perspective on the theoretical roots of this approach, see Yonay (1998, ch. 9).

3. The argument was different from the Foucaultian account, which dated the birth of "the economy" back to the nineteenth century. Foucault attributed this change to a broader transformation in techniques governmentality, the rise of the nation state, and the formation of the modern subject (Foucault, 2007).

which took the national economy as its object of management, was embraced by opposing intellectual and political factions: Keynesians and neoliberals, fiscal conservatives and social democrats, the right, the left, and the center were united in pursuing the betterment of the economy. Let us, then, define macro-economization as making the pursuit of bettering, growing, and optimizing the economy the main economic problem at stake.

Consider a third form of economization, which corresponds to Karl Polanyi's substantivist approach to the study of economic life.[4] Polanyi envisioned substantivism as an alternative to the neoclassical analysis.[5] Neoclassical economists universalized the model of rational economic action and applied it, mechanically and indiscriminately, to all historical and social contexts. By advocating substantivism, Polanyi urged analysts to abandon such abstract and analytical economic investigations and instead study economic institutions empirically in their particular social and historical context. Polanyi's substantive definition of economy reflected this approach: an economy, he wrote, was the instituted process in which societies satisfy their material wants (Polanyi, 1977 & 1992). This definition informed an entirely different formulation of economic problems. If neoclassical economists have primarily been concerned with utility maximization under constraints, and macroeconomists with the betterment of the national economy, substantivists who followed Polanyi have mainly asked how societies organize to provide subsistence and satisfy material wants (Çalişkan & Callon, 2009). Accordingly, I define substantive economization as making the challenge of organizing in order to satisfy material wants the principal economic problem a society (or a state) has to tackle.

I would argue that, stability and reproductive tendencies notwithstanding, the COVID-19 moment is significant in making the problem of subsistence central to economic thinking, policy interventions, and public discussions. While there is obviously no guarantee that the substantive economization of COVID would outshine others in the long term, its resurrection in the current historical moment is indicative of the fragility of more analytical (e.g. neoclassical and macro-economic) formulations of economic problems in general and during times of crisis in particular. In an age of an ever more extreme environmental crisis, when catastrophes such as COVID are likely to become a new normal, it is possible that substantive economization will cement itself as a noteworthy economic framework and even become dominant at specific moments in time.

Let me illustrate how.

2 Figures of the Policy Dashboard

On February 27, 2020, the United States had only 14 confirmed COVID-19 cases. That day, Michigan's chief medical executive Joneigh Khaldun met with the state's governor Gretchen Whitmer. Khaldun was convinced that the virus was already spreading rapidly in the state. With no testing having been done, she had no empirical evidence to support this conviction, yet her epidemiological understanding was unequivocal and so were her recommendations. States neighboring Michigan had already reported COVID-19 cases, and no restrictions on air or land travel were in place. Since carriers of the virus were both contagious and asymptomatic during the first days after infection, widespread contagion would be certain unless the governor

4. Although the idea of substantivist economization is consistent with Polanyi's writing, Polanyi himself did not use the term. In his own writing, the act of "economizing" only referred to the rational, utilitarian behavior that neoclassicists described (Polanyi, 1977, pp. 23–24).

5. Polanyi referred to the neoclassical method as "formalism" in his most widely read essay (Polanyi, 1992). Elsewhere he criticized neoclassical economics in a more direct way (Polanyi, 1977).

adopted extreme and immediate measures such as "banning large group gatherings and maybe even ordering certain businesses to close temporarily." "A brief silence fell over the room," a *New York Times* journalist recounted, and then one of the Governor's aides said: "this could be disastrous to the economy" (Mahler, 2020).

Since the pandemic's very early stages, cabinet rooms such as Whitmer's confronted COVID-19 as an economized phenomenon: the virus not only posed a major public health threat, but also an economic problem. Policymakers' dashboards seemed to feature two sets of metrological figures, which they and their advisors had to weigh: on the one hand, indicators of population health; on the other hand, indicators of the state of the economy.

A most central figure representing COVID-19's effect on population health was the logarithmic curve. At times visualizing infection levels, at other times fatalities, logarithmic curves prefigured the virus's spread in the scenario that no governmental action was taken to stop or slow it down. These curves were such dominant public imageries that they branded both national and local governments' universal policy goal — "flattening the curve" — and inspired how people periodized the pandemic along its first, second, and third "waves." The picture was menacing, each infection or death leading to multiple others, hence epidemiologists' comparably drastic policy recommendations.

The dominance of logarithmic curves in COVID-19 representations indicates how, from very early on, the collective consciousness of the virus was primarily of a population-level phenomenon. Epidemiological models filled media reports.[6] Internet websites that made data and data visualizations publicly available all but democratized expertise in the area, inspiring numerous laypeople to offer their own predictions and analyses.[7] Sontag (1991) famously observed that people view and experience illnesses through metaphors. COVID-19 is quite distinctive in this respect. The metaphors of even the most widespread epidemics — tuberculosis, smallpox, and the bubonic plague — were primarily corporal: bodies eaten from within, rotting flesh, and lungs consumed by an external "invading" pathogen. Corporality was also central to metaphors of more recent epidemics, such as AIDS, H1N1, and Ebola, even though epidemiologists and public health administrations followed and graphed them thoroughly, even when people described the risks that they posed as pertaining to entire nations or the entire human race. The metaphors of COVID-19, however, were different. They hardly focused on the pathological process that occurred within individual bodies, and almost entirely applied to the epidemiological process within the body politic. The sick bodies of individual patients disappeared into the more-secluded-than-ever space of the hospital, leaving curves to represent the ongoing calamity. Even images of concrete hospital units featured mass phenomena: large field-hospitals with hundreds of beds and ventilators organized in barracks-like columns and rows. And so, the attributed cause of COVID deaths had less to do with pathological processes within individual bodies and more with the success or failure to contain the virus on a population level.

6. The website fivethirtyeight.com, for example, featured a variety of models that operated under different assumptions from Johns Hopkins University, Los Alamos, MIT, the Institute for Health Metrics and Evaluation, Northeastern University, UCLA, the University of Massachusetts, Georgia Tech, Columbia University, Iowa State, the University of Arizona, U.S. Army, as well as independent data scientist Youyang Gu.

7. To take one extreme example, in mid-March 2020, the engineer and businessman Tomás Pueyo published an epidemiological analysis of COVID-19, accompanied with graphs that he compiled from publicly available data. His blog post, which recommended a variety of public health measures to slow down the virus's spread, was accessed tens of millions of times. Pueyo went on to write several follow up articles and was interviewed on the pandemic in media outlets (Pueyo, 2020).

The second metrological figure, or rather collection of metrological figures, was the economy. Like the logarithmic curve, economic metrologies far predate the pandemic. And just like it, they have given shape, oriented, and informed action and inaction toward it. If the logarithmic curve visualized how deeply COVID-19 affected a certain population by counting diseased and deceased bodies, economic metrologies were indicators of the state of the economy. While the GDP was most certainly a principal indicator, there was a plethora of other measures whose legitimacy as true economic indicators was subject to various degrees of contestation — from unemployment claims (Morath, 2020), to jobs added (Chaney & Mackrael, 2020), to retail sales (Torry & BeBarros, 2020), to treasury yields (Davies, 2020), to the strength of the national currency, to the price of gold (Sparshott, 2020), to the fluctuations of financial markets.

The way Whitmer's aide formulated it, the main economic problem of the time arose at the interface of these two figures: the economy on the one hand, population health on the other hand.[8] This, however, was a very particular economic formulation. First, it conceived of economic damages as deriving from policies adopted in response to the virus, not from the virus itself (e.g., Frijters, 2020). The proclamation "this could be disastrous to the economy," for example, warned of the effects of public health measures and set aside the direct economic effects that COVID might have — lost workdays, a general devastation of the workforce, and mortality. Second, this formulation assumed a trade-off between health and economy. Stay-at-home orders, the argument went, would flatten COVID mortality and morbidity curves at the cost of flattening the economic growth curve and sending the economy into a recession (Gourinchas, 2020).

3 Neoclassical Economization

Particular as it was, this economization of COVID proliferated on both sides of the political divide. Right-wing figures, many of whom had denied the risks of COVID-19 before the pandemic reached the U.S., quickly turned against the public health measures adopted to counter it (e.g., WSJ Editorial Board, 2020). President Trump stressed the need to quickly reopen the economy, proclaiming that "the cure cannot be worse than the problem itself," and encouraging his loyalists to issue similar statements (Haberman & Sanger, 2020; Hilsenrath & Armour, 2020). On the left wing, cabinets such as Whitmer's instinctively evaluated the health benefits of lockdowns against their presumed economic repercussions. A progressive thinktank that published a comprehensive vision of how to go about reopening the economy advocated a gradual, controlled, and methodical process, which would be supported by robust testing. Still, its members shared a very similar analytical framework, which pitched population health against the economy (Emanuel et al., 2020). "It pains us to say it," ethicists Peter Singer and Michael Plant (2020) wrote, "but US President Donald Trump is right: We cannot let the cure be worse than the disease".

This similarity in patterns of thinking across the political divide is not coincidental. When approaching a new problem, people fall back onto preexisting, institutionalized, and widely shared analytical frameworks. Gil Eyal (2020a) astutely observed that this particular way of thinking about COVID drew on such a framework: it formulated the moral problems COVID-

8. This formulation was reportedly also present in the White House, where economic and public health advisors collided over what to prioritize: the economy or population health (Wright, 2020b, pp. 29–30).

19 posed as a utilitarian puzzle, which necessitated choosing between economy and life, or at the very least finding a sweet-spot to balance between them.

Eyal (2020a) challenged this formulation on two grounds. First, it reduced innumerable courses of action to a delimited range or subset of choices, which one needed to evaluate against each another. Second, this formulation took utilitarianism as the only possible approach, whereas in reality a myriad of other ethical stances were equally tenable. As an example, Eyal invoked an alternative biblical ethic, which prescribed that societies should protect their weakest and most vulnerable members.

The neoclassical formulation's conceptual shortcomings, however, only highlights this formulation's social power: despite its multiple flaws, it became ubiquitous and intuitive, to the point that thinking of a trade-off between life and economy seemed inevitable. Like economics students who recite Harberler's production-possibility frontier model, imploring people to be conscious of the apodeictic finitude of resources and make choices between guns and butter, apples and oranges, and product X and product Y, policymakers were now set to decide how many lives to sacrifice for the economy, or conversely, how much damage to inflict on the economy in the effort to save lives (Harberler, 1936). They assumed the agency of a rational, utility-maximizing actor — a *homo economicus* who strives to appropriate the best means to reach a given end, under limits (Robbins, 1932).

This neoclassical economization of COVID-19 was, therefore, not about considering the pandemic's economic impact per se, but about formulating the challenge the pandemic posed as a neoclassical problem of utility maximization. Having to strike a balance between life and economy, advisors and commentators quickly resorted to commensurating them in various ways — finding a common denominator that would enable comparison and calculation (Espeland & Stevens, 1998). When deciding whether and for how long to institute a lockdown, people compared, for example, the number of deaths COVID-19 would cause to the predicted number of additional deaths from a lockdown and a resulting recession;[9] the economic damages from an uncontrolled pandemic to the economic damages from a lockdown; the quality-adjusted-life-years lost to COVID and those that would be sacrificed for keeping the economy open (see Singer quoted in Bazelon, 2020; Frijters, 2020); and even how much "wellbeing" and "happiness" would be lost in each scenario (Singer & Plant, 2020).

These were heydays of utilitarian ethicists who built their careers on using analytical models and thought experiments, which generate unequivocal answers to otherwise perplexing and unanswerable moral questions. They tackled these questions with much certainty and authority, cementing the trade-off between economy and health as the only possible formulation, and suggesting solutions whose soundness derived from their claim to yield better social outcomes on the aggregate level.

Interestingly, utilitarian ethicists seemed to embrace the neoclassical framework far more readily than economists.[10] In late March 2020, when the University of Chicago's Initiative on Global Markets (IGM) surveyed its panel of 80-some leading economists on the topic, an overwhelming majority (80 percent) agreed or strongly agreed that ending severe lockdowns when the probability of resurgence was still high "would lead to higher economic damages

9. Recessions typically lead to a decline in mortality, yet as Burgard & Kalousova (2020) explain, the COVID-19 pandemic is expected to be different. For example, long lockdowns would lead to prolonged social isolation, reduced physical activity, stress, depression, increased alcohol and tobacco consumption, and reduced access to healthcare.

10. Of note, Eyal's critical essay mainly targeted utilitarian ethicists and not economists, and an ethicist authored the combative response to it (Canca, 2020; Eyal, 2020a & 2020b).

than sustaining the lockdowns" (the rest of the panel indicated they were "uncertain" or did not respond, and nobody disagreed).[11] Such survey results provide very limited insight into the complexity and nuance of respondents' actual positions, and yet the way IGM phrased the statement, and the overwhelming support that it received, suggest an alternative framework to the neoclassical trade-off: one could think of securing population health as a precondition, not an impediment, to economic recovery. This framework was available in public and professional discourse during the period (e.g. Krugman, 2020a; Portes, 2020), but utilitarian ethicists who endorsed neoclassical economization either ignored or rejected it explicitly. "Some people," Singer & Plant (2020) wrote, "insist that there is, in practice, no trade-off. [...] This seems to be wishful thinking." Singer & Plant (2020) argued that denying a trade-off between economy and health required assuming that lockdowns would end soon, countering that "if we end lockdowns before vanquishing COVID-19, some people will die from the disease who otherwise would have lived" and therefore "It's not so simple to escape the trade-off between saving lives and saving livelihoods".

This argument for a trade-off between health and economy, however, was not based on any empirical observation on the pandemic, let alone an evaluation of the lockdown's potential effects or end date. If at all, the evident success of countries such as New Zealand, Australia, Taiwan, and Singapore in suppressing the virus and reopening their cities should make one doubt that the claim for an unavoidable trade-off between health and economy had any empirical basis at all. Formulating the policy problem as a trade-off was an analytical necessity — a property of the framework that Singer, Plant, and others superimposed on the situation. In economist Lionel Robbins's original formulation, the neoclassical framework defines economic action as a choice, which "involves the relinquishment of other desired alternatives" (Robbins, 1932, p. 16). For the neoclassical framework to apply, actors need to confront several mutually exclusive choices, each coming at the expense of the others. If one can choose both health and economy — if one can eat the cake and have it too — there is no neoclassical economic problem. For ethicists who had applied this and similar frameworks for decades, the trade-off was a *conditio sine qua non*.

4 Macro-Economization

Similarly to neoclassical economization, macro-economization predated COVID-19. Like it, it crossed party lines. President Trump (2020) was as worried as Michigan's Democratic administration that stay-at-home orders "would be disastrous to the economy." In his 2020 State of the Union address, weeks before the pandemic became a national crisis, he declared that "our economy is the best it has ever been," described it as "roaring," and presented himself as the one who "revived" it. In the months that followed, Trump reportedly complained to advisors that COVID-19 was destroying this "greatest economy" (Parker, Rucker, & Dawsey, 2020), all the while insisting in press conferences that "our economy is roaring back," mentioning that "the United States economy added almost 5 million jobs in the month of June" and that "the Dow Jones increased 18 percent." (White House, 2020b)

What data could count as representing the true state of the economy was, however, a highly contested question. Scholars of macro-economization have mainly focused on the historical moment when the macro-economy was reified and became recognized as an integrated object with distinct governing rules that characterize it (Foucault, 2007; Mitchell, 2002). They dedi-

11. https://www.igmchicago.org/surveys/policy-for-the-covid-19-crisis/

cated far less attention to how definitions and measures of the economy changed after this reification took place, how they varied across countries (Fourcade, 2009), and how they became contested at particular historical moments.

During the pandemic's first months, despite agreement over the reification (namely, over the notion that a distinct economy did exist), people disagreed about how to evaluate its condition. On the most basic level, many economists doubted the Trump administration's selective presentation and interpretation of the data. Newly added jobs following months of virtual closure in several large states, they argued, indicated relatively little, especially when over 11 percent of the workforce remained unemployed (Krugman, 2020e). Critics also targeted the very use of some variables as signifiers of the state of the economy: "stock markets never bear much relationship to the real economy," Paul Krugman wrote (Krugman, 2020b).

In an election year, which concluded four years of a Presidency that invested immensely in maintaining the optics of economic success, Mitchell's pragmatist argument that the economy was an effect arising from its multiple representations seemed like applied policy. Trump's declarations about the economy's strength and miraculously fast recovery were not merely descriptive; they were deliberate attempts to spread optimism and high expectations, which would lift financial markets from the depths they had reached. The economy became an object of symbolic struggle, in which various interested actors emphasized and understated different measures as they worked to both define and affect its status. It was apparent that the GDP has stopped being a sole, let alone conclusive, indicator of the state of the economy, which was now represented by metrological composites such as the Federal Reserve's Weekly Economic Index (WEI). No economic metrology, however, has been beyond contestation.

Contestation was most pronounced when people decoupled the economy from its representations. Paul Krugman, for example, repeatedly reproached the Trump administration for its "eagerness to see good economic numbers" (Krugman, 2020d), as well as its short-term focus on boosting financial markets, which made it ignore "both infection risks and the way a resurgent pandemic would undermine the economy" (Krugman, 2020c). Trump, in other words, was accused of sacrificing both lives and the economy for a thin façade of numbers, which could hardly disguise the grim reality lurking underneath.

Such disjunctures between the economy and the measures representing it are not new. People frequently criticize governments for achieving good economic growth numbers with deficit spending, which misrepresents and in some cases undermines the "real economy" (to adopt Krugman's terms) in the long run. Doubts over the relevance of economic growth to people's actual living conditions are not new either: they had echoed in scholarly critiques of national accounting measures, as in election campaigns such as Hilary Clinton's, which promised "an economy that works for everyone." Notice, however, that in this as in other moments, these disjunctures reaffirm rather than doubt the economy's ontological status. Doubting how well a certain representation reflects a reality confirms that this reality does exist; doubts over how well various metrologies represented the economy reaffirmed the economy's existence.

One outcome of macro-economization should be clear by now: reifying the economy, i.e. making it a palpable and discernable object, which neoclassical economization then placed in a trade-off with population health. There were, however, two other outcomes, which suggest that macro-economization was different and, in certain ways, relatively autonomous from neoclassical economization.

First, unlike neoclassical economization, which pitched the economy and population health against each other, macro-economization made the economy policymakers' main matter of concern. When formulated in this way, even the pandemic's effect on population

health was thought of and addressed in terms of its impact on the economy. The economy became a barometer for how well the country was doing under COVID-19, how seriously the pandemic affected it, and how grave its condition was at every given moment in time. In late January 2020, for example, Trump's chief economic advisor Larry Kudlow doubted the pandemic's severity because the stock market was still high: "is all money dumb?", he reportedly asked, "everyone's asleep at the switch? I just have a hard time believing that" (Wright, 2020b, p. 30).[12] Similarly, success in handling the pandemic was seen in terms of the economy — and Trump himself encouraged people to "judge his performance by market indicators" (Wright, 2020b, p. 37). For as long as the economy remained strong, life would continue on a relatively stable and predictable course, and the actual influence of the crisis would be limited. Achieving economic recovery and "keeping the economy going" would in and of itself constitute a triumph over COVID. Macro-economization, therefore, did not necessarily mean favoring the economy over population health. It meant, rather, treating the economy as a totality that encapsulates all forms and dimensions of human wellbeing, which should therefore be the center of policymakers' considerations.

Second and relatedly, macro-economization conceived of the economy as an apparatus, which if allowed to function would generate wealth and provide the populace's material necessities. The thousands who demonstrated across the U.S. calling to "reopen the economy" demanded to let this apparatus operate, taking for granted that the economy would end the material insecurity they were experiencing. Some of the reopening plans hinged on state interventions, which were oftentimes expressed through mechanical metaphors — "restarting," "stimulating," and "triggering" the economy. Regardless of the particular methods and procedures of reopening, however, people assumed not only that the economy existed, but also that, if opened, it would provide livelihood and have a self-sustaining power. Presumably, without an open and functioning economy, long-term survival would be impossible. Presumably, once opened, the economy would provide people with all material necessities and continue doing so if left uninterrupted.

5 Substantive Economization

An experienced state politician, Governor Whitmer thought that in the absence of confirmed COVID-19 cases, the measures that chief medical executive Khaldun proposed were politically unfeasible. She did not adopt them in the meeting and waited more than two weeks before issuing restrictions (State of Michigan, 2020a, 2020b & 2020c). This delay probably cost hundreds of lives, yet the instinct behind it proved all too accurate in April, when armed protestors backed by Presidential tweets attempted to break into the State's legislative chamber demanding that Whitmer "free Michigan."[13]

Still, even as Whitmer declined to adopt the measures that Khaldun recommended, she began laying out a variety of economic interventions. At one table in her meeting room, her chief of staff "scribbled notes on whiteboards: How would they get money and health benefits to people who would lose jobs? How would they get work requirements waived for people on food stamps? How would they prevent banks from foreclosing on homes and landlords

12. The *New Yorker* article that reported these remarks mentioned that Kudlow claimed he did not remember making them.

13. In October that year, the FBI charged a dozen-some Michigan militiamen, who allegedly conspired to kidnap and try Whitmer for her decision to implement public health restrictions.

from evicting tenants?" (Mahler, 2020). At that point, far less concerned with the supposed trade-off between the economy and health, virtually unconcerned about the state of the economy as a metrological figure, and having no metaphysical expectation that the economy would provide people with livelihood, Whitmer's administration economized substantively: the main economic problem they identified was how to provide sustenance to the state's population.

Such a quick shift in orientation occurred outside of Michigan as well. The crisis created an unusually widespread and very pertinent material strain. Its urgency and acuity made economic thinking less abstract and more concrete and substantive. Economists and policymakers were obviously still concerned about indexes and economic metrologies, but there was also a general recognition that beyond any measure or figure, the most critical economic challenge was funneling resources to households and businesses to help them survive. Even some staunch conservatives called on Congress to support workers with direct cash payments, so that they would not go to work sick (Strain & Gottlieb, 2020). In March 2020, Congress passed the Coronavirus Aid, Relief, and Economic Security (CARES) act, which provided cash payments to households. While in public discourse these payments were oftentimes described as interventions aimed at bettering or restarting the so-called economy ("stimulus checks"), these payments, like federal supplements to states' unemployment benefits, had the direct and explicit intention to provide "aid, relief, and economic security": to put food on people's tables and help them pay rent and bills. This was also the case with national- and state-level moratoriums on evictions, which protected populations who already lived in precarity and were pushed over the edge when the pandemic hit.

None of these interventions had complete success: evictions did not stop entirely and unemployment offices were too overwhelmed and insufficiently staffed to respond to the influx of claims. Still, they were effective. Moratoriums on evictions made their number drop dramatically (Eviction Lab, undated). The $ 600 a week that the CARES act added to state unemployment benefits provided many with higher income than what they had earned before the pandemic (Snell, 2020), which may partly account for the surprising decline in personal debt during the summer of 2020 (Rosenberg, 2020).

Another policy area where substantive economization manifested was securing hospital supplies. In March, New York and Detroit quickly became major global COVID-19 epicenters, and many of the cities' hospitals crumbled under the torrent of badly ill patients arriving at their emergency departments. In the national media and within hospitals, discussions of how to ration limited resources proliferated. Much of the conversation was about how to allocate mechanical ventilators, but there were also shortages in far more basic supplies: Personal Protective Equipment (PPE), beds, and some medications. Hospitals instructed medical staff to reuse N95 face masks for the duration of an entire week. (In regular times they would be disposed after each visit to a patient's room.) Nurses and doctors in several areas scrambled to find appropriate gear, at times relying on donations from hardware stores. In New York City, clinicians were photographed wearing trash bags and swimming goggles in lieu of gowns and face-shields. The task of obtaining supplies to hospitals that were running low became a major economic concern — a most pertinent problem of providing material welfare.

During times of global crisis, Karl Polanyi wrote, production capacity becomes a strategic asset. This lends itself to a questioning of the otherwise absolute reliance on free trade in international markets (Polanyi, 2001, pp. 198–200). If PPE production is concentrated in China, which needs PPE for its own medical staff, it is obvious that global supply chains will be disrupted. Just like what Polanyi saw in interwar Germany, the fragility of the market order and its inability to provide material needs when international market exchange collapses were man-

ifest. Many commentators no longer took for granted that the economy, as a generic apparatus, would generate livelihood and began asking what specific type of economic organization would. In the *Wall Street Journal*, Galston (2020) maintained that markets were "efficient," yet warned that the U.S. would be devastated if it fully relied on them. "An autarkic economy," he wrote, "makes no more sense than an economy fully open to global forces. The challenge is to strike a sensible balance between efficiency and resilience, which we won't get unless the current crisis triggers a long-overdue debate on globalization and national security". Once growing "the economy" became an insufficient condition for securing material needs, figuring out other ways to provide these needs became the most cardinal economic challenge at stake. This made even the most firm believers in market capitalism engage an economic question that dated back to classical philosophy: where to strike a balance between producing for use and producing for market exchange (Polanyi, 1968).[14]

The Trump administration's response to the pandemic was feckless, yet it did recognize that the economic problem of the moment was securing supplies. After several weeks of claiming it was unnecessary, Trump invoked the Korean War era's Defense Production Act, which allowed him to make private companies prioritize federal government orders and "allocate materials, services, and facilities" for national defense purposes. He then ordered General Motors to produce mechanical ventilators, prompting several other car makers — Ford, Toyota, and TESLA — to publicly declare that they would commit their companies' expertise and production capacities to the battle against the virus (Bender & Colias, 2020). In a grand spectacle, Trump ordered the USS Comfort to dock in Manhattan and make its 1,000-bed hospital available for the city (Schwirtz, 2020). His public remarks after a meeting with "Supply Chain Distributors" described what seemed like a frenzied scavenger hunt for medical supplies:

> FEMA and HHS have shipped or delivered — delivered 11.6 million N95 respirators, 26 million surgical masks, 52 million face shields, 43 million surgical gowns, 22 million gloves, and 8,100 ventilators just over the last very short period. We shipped many to New York. We just shipped some new ones to New York City, for the mayor. We've just shipped a lot of — a lot of ventilators to Louisiana, New Jersey. We're shipping a lot of ventilators. We're grabbing and getting them, and we're doing it any way we have to, whether we use the [Defense Production] Act or we just use the Act as a threat.[15]

The possibly misplaced reference to "the mayor" may have been directed at New York's Democratic Governor Andrew Cuomo, who had clashed with Trump two days earlier over the management of his state's emergency stockpile. Trump claimed that the State failed to distribute to its hospitals the numerous ventilators it had in stock, and that it did not need the additional ventilators that Governor Cuomo had requested; Cuomo countered that New York's hospitals have not yet reached the pandemic's apex and that allocation had to wait until hospitals reported an actual need (Prokupecz & Kelly, 2020). The point of dispute was not how to better the economy, or strike a balance between economy and health. A Governor and

14. In a similar way, crises have shown to shift macroeconomic metrological thinking in substantive directions. During WWII, Simon Kuznets and his colleagues utilized national accounting measures to dispute the U.S. Army's evaluation of its war-plan's economic feasibility (Edelstein, 2001). In England, John Maynard Keynes used national accounting measures to formulate recommendations on "how to pay for the war" (Keynes, 2010). I thank Dan Hirschman for these examples.

15. https://www.whitehouse.gov/briefings-statements/remarks-president-trump-meeting-supply-chain-distributors-covid-19/

a President, who was boasting about his success in "grabbing and getting" ventilators, collided over the minutia of what Polanyi termed "locational movements" (Polanyi, 1992) — distributing material goods from a warehouse's inventory.

Under Trump's administration, this substantivist economization quickly assumed the form of outright clientelism. Trump requested and had his own signature appear on the checks that Congress authorized as a relief, effectively tagging them as support that he was personally giving to constituents (Rappeport, 2020). In the meanwhile, he built a federal stockpile of medical supplies, which would grant him much power over allocation. In mid-March, Trump instructed State Governors to "buy their own supplies" instead of relying on the federal government. A bidding war between states ensued, and the federal government, with far superior financial power, frequently outbid states. (By late March federal authorities staked first rights to $137 million in medical supplies (Jewett & Weber, 2020).) After being outbid three times, Republican Massachusetts Governor Charlie Baker told Trump, "I've got a feeling that if someone has the chance to sell to you and to sell to me, I am going to lose on every one of those." Trump reportedly chuckled in response (Fabian, 2020). Later that month, federal officials at a New York port confiscated 3 million masks that Baker had ordered from China; similar confiscations occurred in Colorado and Kentucky (Kanno-Youngs & Nicas, 2020). In a press briefing, Trump said he had requested that Vice President Pence not call the State Governors who were not treating Trump "right." (He immediately added that Pence was not following this request because he was "a different kind of person.") "I want them to be appreciative," Trump said and proceeded to list governors who have been "very nice" to him.[16] Treating the President "right" and being "appreciative" seemed to have become a condition for securing adequate medical supplies from a federal stockpile that had priority over state stockpiles.

Of course, economizing substantively and treating the provision of livelihood as the main policy matter of concern did not guarantee effectiveness. A month after it docked in New York to the cheers of local crowds, the USS Comfort somewhat quietly departed, having treated only 182 people (Simkins, 2020). Trump sparsely used the Defense Production Act, contending that it would hurt the private sector, and nearly 70 percent of what Congress allocated for the purchase of medical equipment in March was spent by the department of defense toward shipbuilding, space surveillance, semiconductors, and other unrelated ends (Congressional Research Service, 2020; Jacobs, 2020). Come July, shortages in basic protective equipment were still prevalent in U.S. health institutions. A third of the 20,000 nurses who responded to an American Nurses Association survey reported they were "out" or "short" of N-95 masks, and over two-thirds responded that they were required to reuse disposable PPE (American Nurses Association, 2020).

Nor was substantivist economization always persistent. In May, following pressure from Trump, the Republican Governor of Texas decided to remove restrictions. His spokesperson later on said that he was driven by the goal of "saving lives, while preserving livelihoods" (Mervosh, Baker, Mazzei, & Walker, 2021). Thinking substantively about how to provide livelihood directly, without leaving it to "the economy" (which would have allowed keeping life-saving restrictions in place) was out of the question. Come the summer of 2020, economizing substantively seemed to have completely fallen out of grace in Republican policymaking. Some cities and states lifted their eviction moratoriums, prompting spikes in their eviction rates (Eviction Lab, undated). Senate Republicans let the supplementary unemployment benefits expire,

16. Remarks by President Trump, Vice President Pence, and Members of the Coronavirus Task Force in Press Briefing, March 27, 2020.

falling back on Malthusian arguments that have reverberated in conservative discourse for several decades: welfare benefits would morally corrupt the poor, compel them to not work, and destine them to idleness and dependence (Klar, 2020; Somers, 2020; Somers & Block, 2005). Yet looking at the party's rhetorical strategies, its leader clearly recognized that providing material needs was the chief challenge of the moment and that it would be judged by its success in meeting those needs. Trump continued claiming he was acting in the area, insisting that his administration "has harnessed the full power of the Defense Production Act to achieve the greatest industrial mobilization since World War II, in our fight against the China virus."[17] In August, a White House Report listed 78 Defense Production Act actions that Trump supposedly took "to protect the American people from the China virus" (White House, 2020a). Only six of these actions actually drew on the Act and pertained to shortages in medical supplies (Jacobs, 2020).

Trumpist grandiosity remained, with its undisguised melodramatic effort to present calamity as success and distinctive tendency to add -est suffixes to a handful of overused adjectives. Now, however, the proclamations shifted in a slightly new direction. The economy was not only the "best," "strongest," and the "greatest it has ever been," but apparently the administration itself had managed to supply all material wants and needs that the pandemic created. Substantive economization was paramount.

We can notice the transition that the virus precipitated on two levels. On the first and most basic one, there was a shift from near exclusive reliance on capitalist markets to an approach that drew on centralized distribution of goods and resources. Economies, as Polanyi described them, are always variegated and multi-logical, and they may combine different types of institutions or "modes of economic integration" (Peck, 2013; Polanyi, 1992). Even before the pandemic, the U.S. economy did not draw exclusively on market exchange and combined markets with centralized mechanisms of distribution — for example Supplemental Nutrition Assistance, Section-8 Housing, Social Security, and Medicaid. The virus, however, led to a shift in the mode of integration. Relying on markets meant that access to the most basic and necessary resources and goods — housing, nutrition, and medical supplies — would depend on volatile forces, which were outside of policymakers' control: global supply, demand, and prices. Successful or not, mobilizing state-owned resources and distributing money directly to the population were attempts to exercise direct control over allocation, and these attempts occupied a far greater role in the U.S. economy during the pandemic.

Consider a second and more fundamental level of this transformation: the effect that the virus had on how people formulated economic problems. Both neoclassical and macroeconomization remained common during the pandemic, but the virus lent itself to a more concrete approach, which put the mechanics of bringing money to bank accounts, resources to hospitals, and food to tables at the center of economic considerations. Economizing substantively, in this context, meant thinking and acting pragmatically, at times improvising to stretch existing institutional structures (as weak and incapacitated as they were) to bring resources deemed necessary to households and healthcare organizations. No longer was the economy a mechanical apparatus that had stable rules, regularities, and functions. In the urgency of moment, many of the laws people had recognized in the economy were suspended: conservative lawmakers paid workers to stay at home, federal agents confiscated imported goods at airports, and car makers took a stab at producing mechanical ventilator parts. It therefore comes as no surprise that the COVID moment opened hitherto closed discussions

17. Remarks by President Trump in Press Briefing, August 12, 2020.

on economic organization, integration, and planning (Fligstein & Vogel, 2020): substantive economization meant reconsidering the institutional order that produces and provides material wants.

6 Conclusion: Whither Disruption?

Disasters are generally thought of as singular, spatially and temporally bounded, disruptive events. Colloquial expressions such as "disaster zones" or "times of disaster" reveal the tendency to delimit disasters and single out a specific place and period where their impact is felt. All other times and places are thereby designated as comparably unremarkable.

When pointing out the socially constructed nature of such designations, critics often highlight that the seemingly unremarkable normal, which gets excluded in the process of demarcating a disaster, is in fact highly remarkable. In many cases, this "normal" bears the seeds that ultimately help sprout a socially recognized disaster.

Such was the case with COVID-19. Despite the virus's wide geographical spread and the pandemic's still unknown temporal limits, COVID-19 is thought of as a delimited set of events. For one thing, COVID disrupted life at very particular places and times. There have been distinctive and relatively bounded "hotspots"; the pandemic had a relatively clear start date, and it struck in disparate stages or "waves." At second glance, however, this recognized disaster only brings to the fore long-enduring patterns that go far beyond the pandemic's temporal limits. "A plague it is," Zadie Smith wrote, "but American hierarchies, hundreds of years in the making, are not so easily overturned. Amid the great swath of indiscriminate death, some old American distinctions persist. Black and Latino people are now dying at twice the rate of white and Asian people. More poor people are dying than rich" (Smith, 2020). The insight that long-lasting social structures and inequalities surface in a most pronounced way during disasters has, indeed, been a key tenet of many sociologists (e.g. Klinenberg, 1996; Mojola, 2014). The disaster, therefore, becomes the site where normalized catastrophes — racial oppression, destitution, and governmental ineptitude in providing material welfare — are finally recognized.

In this paper, however, I argue that recognized disasters are also significant in their effect. Examining the formulation of COVID as an economic problem, I show that habituated ways of formulating problems economically persist during disaster times, yet they co-exist, at times even become subsidiary to, more substantivist, concrete, and empirical economic formulation.

By all accounts, the world is moving toward a disaster-prone period. No longer a threatening menace on the horizon, global warming is now here in the present: apocalyptic fire-blazes, frequent tropical storms, and sea level rise that make entire areas uninhabitable. If the pandemic reflects anything about the future, we should expect economization in its substantive sense to become much more prevalent and enduring. Should this be the case, amidst undeniable changes, countries may indeed become more exaggerated versions of themselves. Some would dedicate themselves to providing robust and sustainable material support to their populace, their pursuits assuming ever integrated and unified forms (Polanyi, 1992). In others, clientelism writ large would thrive, as masses living in great precariousness entrust those who purport to be their protectors and providers. In these places, we may very well see history developing in the direction that Edward Grey saw from his room at the British Foreign Office in 1914: lights going out across the world, not to be seen again in our lifetime.

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Viral Buzz: Rumor and Its Disruptions in Pandemic Uncertainty

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Abstract

Building on theory and research on rumor dynamics, I examine how the search for and acquisition of information during a time of medical crisis relies on the *politics of plausibility* and the *politics of credibility*. In this, I examine how the content and the source of information affects the spread of uncertain knowledge during periods of disaster, recognizing the social dynamics of ignorance, a key issue for domains of knowledge of which the public has little ability to judge. The assertion of multiple truth claims about the current pandemic leads to challenges to previously taken-for-granted realities, but also potentially provides solutions. The dynamic may be different in conditions that require an immediate response and those that evolve over a longer period (fast and slow rumors). Using rumors about the COVID-19 pandemic, I address how epistemic disruption undercuts established norms (disruption-of) but also creates the possibility of desirable change through new negotiations, strengthening community (disruption-for).

Keywords: Rumor; Knowledge; Disruption; Pandemic; COVID-19.

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Contemporary publics reside in a fishbowl of facts: a world of promiscuous claims. Which ones are we to believe and on what basis? How does authority and power bolster belief and marginalize doubt? What is likely and what stands beyond an epistemic boundary? Can we trust our social relations to discern hazy truth? And can the adjustment of alternate perspectives generate interactional harmony? These questions are central to the interpretation of rumor, conspiracy, post-truth, uncertain information, and contemporary legend.

As a community, we rely on a secure obduracy of the world, a world that is knowable. Human sociality depends on this confidence. A radical constructionism, however appealing as a theorist's game, destabilizes more than it solves. Knowing becomes a power play. Fake news, mischievous assertions, and bogus claims have long troubled us, even though they are now perceived as central to our current season of doubt. Disagreements and distrusts create conditions permitting alternate understandings of the past, views of the present, and expectations of the future. Nowhere are these challenges more salient than when considering the disruptions caused by unsecured information in the context of disasters, such as the global public health crisis brought about by the COVID-19 virus. What might otherwise have been embraced as consensual knowledge claims are disrupted, and this epistemic trouble is evident in a culture of rumor in which some judgments must be made rapidly (depending on improvised news (Shibutani, 1966)) and others only develop over time (spreading through a communal grapevine (Fine & Ellis, 2010).

While battles over what constitutes legitimate pools of knowledge occur in many domains (Maines, 1999), they are particularly evident when assessing scientific/medical discussions for which members of the wider public have only uncertain and insecure knowledge. This skepticism and uncertainty potentially lead to distrust of these proclaimed experts when their demands push against the desires of those who are the targets of their advice. This is clearly evident in the resistance to the advice of national and local virologists, such as Dr. Anthony Fauci, and the skepticism of those who doubt the validity of vaccines (Larson, 2020). Further, as scholars in the sociology of knowledge have long argued, rumors appear, expand, and spread at times of social stress, particularly in response to threatening uncertainty, often before the extent of the disaster has been fully understood, communicated, or responded to by authorities. This is clear in rolling disasters as with the recognition of pandemic diseases (Lee, 2014; Bodner et al., 2020; Kitta, 2019), such as AIDS and now COVID-19, but equally in the case of slowly emerging disasters, such as illnesses caused by environmental degradation. While natural disaster has been a primary case study for the examination of rumor because of its immediacy, in this essay I focus on the medical disaster of the COVID epidemic over the past year.

1 Rumor and the Pandemic Death Knell

In assessing the variety of claims made about the novel coronavirus, a consideration of belief and trust are vital. In this, the politics of plausibility and the politics of credibility are central. Specifically claims must make sense given a belief in the world as we know it (plausibility) and must come from trusted claimants (credibility). Both are linked to power: the power of epistemic consensus and the power of authoritative sources. These concepts permit us to parse the multiple truth claims spread about the pandemic in light of how they fit a shared epistemology (Fine, 2015).

The claims made about the COVID virus, its origins, cures, and the role of scientists are diverse and alternatively amusing or disturbing in light of their potential for disruption of communal responses. As I am not an epidemiologist or a clinician, I do not address their accuracy,

other than to note that in a world of viruses, physicians, and medical practices, there is truth to be found. However, there is a role for a sociologist to examine the effects of truth claims. For a claim to be a rumor, it is not that it must be false, but rather it is information that is unverified by those who are defined as being in a position to know. As Zerubavel (1997) points out in his promotion of cognitive sociology, knowledge — and presumably truth — is always positioned within a world of status and authority. We think as members of a social group, not as individuals or as a species, and our judgements of what is plausible and who is credible are shaped as a result.

In a world in which beliefs may be sharply contested and defined by politics, and in which mistrust is often evident, many — from multiple perspectives — believe that claims about COVID-19 represent "fake news" or deliberately slanted information. It is not simply that the information is incorrect or unproven, but that claims are being proposed by those who have a specific interest to mislead. This justifies a lack of trust and a belief in strategic disruptions. Trust depends on seeing each claimant as part of a collaborative search for truth, a view central to the sociology of knowledge. When this is not assumed, knowledge claims are viewed as weapons, using disruption for political advantage. Such malign agents may include national actors, whether Russian, Chinese, or American, or subnational interest groups.

In uncertain situations, claims emerge that contest with those that are officially promoted, but the claims of officialdom can be challenged. Although it is frequently remarked that we must "follow the science," "science" often is filled with competing claims. Even many scientists cannot entirely judge the obdurate reality of viruses. No one scientific orthodoxy exists, although there may be a preponderance of opinion, a set of beliefs that evolves over time. We must decide which scientists to follow, a challenge of credibility when viewed from outside of a social field.

Rumors about the COVID virus fall within several broad categories, including folk cures or propensity to become infected with the virus, but for this brief essay that addresses epistemic disruptions, I focus on claims of conspiracies in originating and spreading the virus.

2 A Viral World of Conspiracies

As might be expected, public concern focuses on how the virus originated, and, following from this in a conspiratorial vein, whose interest did it serve? Conspiratorial beliefs ask the question: Cui Bono? Who benefits? We look for responsibility. We assume that a disaster and our response cannot simply be a random fluctuation, biological perturbation, or unintentional error. Whose decision contributed to the disaster?

At the outset of the spread of the novel coronavirus, the leading explanation — and still a likely one — was that the virus transferred to human hosts in a Chinese "wet market" in the large city of Wuhan, a location where live animals are bought and sold. Perhaps the virus is zoonotic and jumped from bats or pangolins (a scaly anteater) to humans. In addition to the fact that epidemiologists know of zoonotic viruses, this claim had appeal in the West in that it emphasized the otherness of the Chinese. Consuming a bat or an anteater demonstrated the cultural divide. This claim had emotional punch for an uncertain public.

Soon claims about the origins of COVID-19 spread beyond zoonotic illnesses (Bodner et al., 2020). Wuhan, the epicenter of the Chinese outbreak, is the location of the Chinese Institute of Virology. The coincidence allowed for the suspicion on which rumor feeds and it could be used by those in the West — and particularly in the United States — who mistrusted the intentions of the People's Republic of China. During the election year, this claim could stand

in for a need to confront the PRC, labeling the disease, as President Trump did, "the China virus." While some alleged that the virus escaped from the laboratory unintentionally, suggesting an absence of competent security, others, more conspiratorial, felt that the viral escape was deliberate, designed to produce international chaos. The apparent success of the Chinese in controlling the virus after the first few weeks provided support for those who saw this as justifying their lack of trust in the Chinese government and, extending that in a disruptive fashion, to the Chinese people. Perhaps the virus was a bioweapon or that the goal was to wreck the American economy. In turn, some in China, with their own agenda, suggested that the virus was spread through an American military base or by the CIA to kill Chinese citizens or to ruin their economy. These rumors are, in effect, mirror images. Even if some doubt these claims, they are seen as plausible explanations. If the actual violence against those of Chinese descent seems small, the pattern of mistrust is large.

While the Chinese connection was the most prominent claim, some rumors pointed to the spread of the virus as resulting from the activities of other malign actors, again asking who benefits, denying trust to shadowy and powerful elites, frequent targets of previous claims. Some explained that the outbreak is a Zionist plot for world domination, while others point to the pharmaceutical industry that hoped to profit from medicines or vaccines. Still others suggested a plot by Bill Gates, founder of Microsoft, to profit from his own vaccine or perhaps to permit Microsoft to track the activities of those who are vaccinated. The power of the Gates Foundation and the resistance to the power of social media companies made Gates a plausible target. One sees something of the same suspicion in rumors that global investor George Soros owns a laboratory that works on COVID-19 vaccines. The fear of his global influence, particularly among those who see him as an agent for leftist or Jewish control, made the claim plausible when promoted through media that the audience considers trustworthy. Perhaps connected to these claims is the belief that the virus was created by President Trump's opponents (perhaps Soros or Gates) to defeat his likely re-election. Mistrust can attach itself to any purported villain, as long as the audience sees the claim as reasonable and the promoter as knowledgeable.

Finally, some rumors point to the developing 5G cellphone networks whose electrical fields either produced or spread the virus. While the linkage may seem obscure, the timing and the ambiguity of the technology permits the claim that can justify opposition to this technology that will enrich cellphone companies (just as earlier rumors referred to the dangers of the original cellular towers and electrical poles).

The variety of rumors and conspiracy theories about the COVID-19 virus are too vast to describe in depth here, but I underline that the claims that some audiences found plausible are linked to disruptions of current political realities. Taken together rumors provide a map of patterns of mistrust toward those in authority.

3 Fields of Disruption

Tavory and Fine (2020) have argued that it is essential to distinguish between disruptions-of and disruptions-for. The first is straightforward as disruptions can divide groups, undercutting continuing interaction by emphasizing the centrality of conflicting worldviews and interpretations. This leaves the outcome a function of power and resources. However, we also suggest, perhaps counter-intuitively, that some disruptions are disruptions-for in that by questioning taken-for-granted perspectives, we can promote new and more effective collaborations, reaching across epistemic divisions. These disruptions-for, while producing debate, builds the commitment of a community to resolving disagreements. For example, contention over the use of

facemasks and the amount of social distancing that is desirable can have disturbing elements of disruption-of when it reveals the contrary worldviews of hostile groups, but it also provides the possibility of disruption-for to the extent that these debates, while inevitably contentious, lead to eventual reconciliation as the parties recognize a middle-ground based on shared civic concerns over the value of health and sociality.

Inevitably uncertain knowledge — rumor — responds to larger contesting forces, as in this case emphasizing its role on occasions of medical and scientific trauma. One is unlikely to find rumor — at least in such great abundance — if all accepted "authoritative accounts" from officialdom or had the background to judge specialized, but crucial, knowledge. The power of "I heard that" in interaction among trusted colleagues often overwhelms the pronouncements of experts, providing an opening for disruption and the flowering of rumor.

Claims that individuals and their groups accept must make sense considering the world as understood. This explains the acceptance — by some — of the conspiracies cited above. Rumor scholars have argued over the past seventy-five years that the extent and intensity of rumor results from the importance of the event, coupled with its ambiguity and the lack of critical ability of the audience (Allport & Postman, 1947; Chorus, 1953). The more importance, the more ambiguity, and the less critical ability, the more rumors will flourish. This assumes that we can specify the importance of the events under discussion, the ambiguity involved, and the ability of the audience to judge the claims when they fall outside our domain of knowledge. While the judgment of importance is relatively consensual, ambiguity may be ambiguous itself. It can spark creativity or lead to ontological dismay. Further, as students of conspiracy theories recognize, who has the authority to judge critical ability can be a political matter.

In *Improvised News*, the classic study of rumors in the immediate aftermath of disaster, Shibutani (1966) argued that people collaborate to manage an ambiguous environment and one with direct effects on their survival. Disasters with immediate consequences have been iconic examples (tsunamis, tornadoes, or flash floods). But not all disasters are as rapid as these natural calamities. Others, and pandemics are a prominent example, may spread through society more slowly, allowing for claims as to their severe or mild effects and judgments assessing those who are providing "official information."

While the collective sensemaking of rumor is central to community stability, the process can also separate and upset. As Fine and Ellis (2010) argued in *The Global Grapevine*, this process was dramatically evident in the days and weeks after the terrorist violence on 9/11 as Americans speculated about the possibility of subsequent attacks and the responsibility for the attacks that had occurred. In time, Americans developed multiple interpretations, some of which led to hostility toward Muslims and others toward the American government. Similar rumor-based disruptions were spread in the early days of the AIDS epidemic. Should we mistrust gay men or those in occupations that were seen as gay-friendly, such as restaurant servers, or was it a CIA plot gone awry? Fear of the Chinese echoes today, including, ironically, toward some restaurant servers. The disruption-of society through rumor was clear, but what about disruption-for change as we need to collaborate on a response to the novel coronavirus? Can the evaluation of uncertain information provide a new consensus as implausible claims are weeded out?

How can we judge what best to believe? This returns us to plausibility and credibility. Do the claims seem believable, given shared experiences of the world as lived? If they do, does the communicator seem trustworthy, considering our past experiences? We interpret future horizons by evaluating the claim (belief) and personalizing the source (trust). We judge what we hear based on whether it make sense in light of how we define what is likely and on our connection with the narrator. Our responses depend on whether we wish to disrupt the social

setting in which the information is spread. While seemingly embracing doubt — or alternative realities — rumor privileges claims that the interactants share.

In much communication, networks are clustered or even cliquish. The people that we know are likely to know each other. By trusting each other, our friends avoid the epistemic disruption that interpersonal suspicion produces. This permits information to flow smoothly; however, it limits external checking outside the community. Psychologists label this process "groupthink" (Janis, 1972): the situation in which a close-knit group chooses not to reach outside its membership to acquire alternative views or diverse options for action. To do so might create tension that would make internal cohesion difficult. Our friends are likely to have similar ideas of when to wear masks and how far apart to stand. We avoid the tensions of disagreements and rumor, providing the illusion of confident claims. Without a push to consensus, friendships might dissolve. Relational structures shape the extent to which a community's beliefs can be disrupted. Bounded clusters are prone to become silos or echo chambers in which unsecured information is accepted when others have the same view.

4 Fast, Slow, Hot, and Cool Rumors

Rumors — all truth claims, actually — are embedded in two distinct realms of sense-making: emotions and cognition. When rumors spread, we hear fearful stories about COVID-19 and when they seem plausible, we trust the tellers. Our judgments are shaped within the crucible of social relations. Outside that circle, doubt remains. In accepting this reality, we think and feel as members of meaningful groups and our evaluations are shaped as a result (Zerubavel, 1997). Interpretations of the world are inevitably social. Rumors gain power because they add — or appear to add — knowledge as well as creating boundaries with what is false or misleading. In this case, rumor is tied to our considered thoughts, perhaps coolly rational, even if incorrect. In contrast, some rumors are powerful because they bolster emotions, and these we can refer to as hot rumors. Rumors can be thoughtful or emotionally intense.

In addition, rumors can be fast or slow, addressing an immediate crisis or interpreting a crisis that evolves slowly: tsunami rumors or those depicting rising sea levels; Ebola or AIDS. While we seek answers, rumors that we recall and that we transmit are those that excite and entertain us. This is the rumor paradox: a desire for security and for thrill. COVID rumors have components of each, as we judge how we might avoid infection and speculate on who might have caused the problem.

If we prize considerations that are slow and cool, we also must cope with excited and rapid responses. Information in either case is not necessarily accurate. It has been remarked that some rumors are "too good to be true," insisting that we refrain from doubting those claims that support our deepest desires. However, some rumors are "too good to be false." This means that they fit into our beliefs in such a cozy and compelling way that we ignore the weaknesses in their evidentiary basis. To challenge them leads others to condemn us as disruptive of their taken-for-granted phenomenology. Either cognition or emotion can mislead us, as we may believe that pandemics may vanish or expand, based on faulty assessments of expert knowledge.

Rumor scholars Allport and Postman (1947) wrote of an "effort after meaning," creating a comprehensible world. This effort can be readily appreciated. We are driven to comprehend the chaos that surrounds us when confronting strain, uncertainty, disorder, and even viral death. These rumors call for a response and by embracing them, we hope to read the future. Are authorities hiding the truth (the death count is much higher), do they have hidden inter-

ests (investing in pharmaceutical companies), or are they in league with enemies (protecting Chinese politicians).

Rumors may help audiences interpret a changing environment. At times this can produce disruption-for: finding a new "epistemic normal," if not an "interactive normal." Nowhere is this more evident than as we speculate on dangerous mutations of the COVID-19 virus or vaccine evaluation as shaped by politics. We extrapolate from the bits of data that are available, often from those whom media sources designate as "expert," possibly providing comfort, but also forcing us to wonder about the basis of this honorific designation. If this form of coping is not always desirable from an institutional perspective, denigrating knowledge from experts and authorities, it matters greatly as individuals work through complex emotions, wavering beliefs, and deep fears. This is seen clearly in those conspiracy rumors, noted above, that claim to expose the hidden plots of the powerful, ethnic out-groups, or global enemies. Will we accept that the virus "escaped" from a bioweapons lab in Wuhan, and, if so, should we despise the lab's minders? This would be a disruption, but not one leading to a better future.

Conspiracy stories are often carriers of uncertain information. Can we evaluate what is real through unseen viral plumes and auditory coughs? Conspiratorial claims depend on the disruption of the authority of institutions, postulating powerful evildoers who deserve condemnation. Rumor scholars such as French folklorist Campion-Vincent (2005) argue that there are more accounts of conspiracies currently than in the past, and they increasingly target elite actors and organizations. This response is apparent in the global rise of populism, nationalism, and nativism. While the evidence that is produced is rarely definitive and almost never from "experts" (defined by those very institutions that we mistrust!), those in the conspiracy community open a screen to reveal actors whom they consider to be malicious puppet masters. In conditions of mistrust, rumors blossoming from skepticism have fertile soil to take root. This sensitivity to conspiracy is what historian Richard Hofstadter (1964) has labeled a paranoid style, recognizing that people often claim that what appears on the surface hides a deeper, dangerous reality. When we confront fast crises — moments that demand immediate action and that depend upon accepting the claims of those with institutional responsibilities — such suspicions produce a destructive civic response. We attempt to cope through sharing claims and beliefs that address the valence of ambiguity, sorting through claims in finding a world that makes intuitive and social sense, but lacking accuracy.

5 Disruptive Knowledge and Comforting Ignorance

The flowering of rumor in a pandemic age suggests a vibrant arena of uncertain knowledge, a world of challenge and contention. In a world in which shadowy conspiracies are possible, some hope to change the subject, redirecting our eyes. This does not mean that there is no obdurate truth, but rather that facts are not orphans and must have parents to introduce them into polite society. In a mass democracy, political reputations are rarely known directly, but are known through those who shape those reputations: supporters, opponents, and those who serve these interests in the mass media. These individuals are reputational entrepreneurs (Fine, 2001).

Within the realm of rumor scholarship, many search for truth: readings of the world as told by experts (Sunstein, 2009). This is a noble goal. And it is understandable. People reasonably believe that the world is knowable; life would be too fearsome without this belief, and people, especially those without authority, present unofficial knowledge claims.

The linkage of the obduracy of the world and the influence of the sociable community allows for a rumor to permit its audience simultaneously to know and not to know: a doubling of the epistemology of rumor. As a result, rumor has a duality: an acceptance in the community of discourse and a fragility as events move in such a way as to make problematic assumptions of plausibility and credibility.

Yet, what about ignorance? How should we think about not knowing? Rumor and ignorance are cousins, but not identical twins. Rumor presents a claimed truth, while ignorance directs our eyes away, suggesting the dangers of unofficial knowledge, a comforting choice for those committed to maintain the status quo. A lack of awareness does not simply happen but occurs because of power structures that encourage this absence. We may be persuaded that some questions should not be asked or answered. Groups may wish to keep topics hidden or unaddressed because it serves their interest. The disruption-of rumor can lead to conflicts that the powerful wish to avoid. With sufficient information control, ignorance is solidified. Just as facts have provenance, so does their absence. Not knowing and forgetting what had been known do not simply happen; reasons exist for ignorance (High, Kelly, & Mair, 2012). Agnotology (Proctor & Schiebinger, 2008), as the study of unknowing is called, is an extension of the sociology of knowledge as applied to the producers of knowledge. Some things are considered not worth knowing — or even dangerous — at particular times and places. We see this in the desire, for example, not to examine potential explanations of the linkage of race and infection and death from COVID-19. Digging too deeply into these fraught questions might be socially destructive, particularly in light of the recent push for racial justice. Not knowing can, in some circumstances, avoid the disruptions-of that generates hostility and that challenge consensus. The question of what can be known and who has the right to make these truth claims is central to the spread of uncertain knowledge.

This field of research is particularly prominent in science studies. The approach involves seeing scientific practice as an occupation and as a form of knowledge construction. Such an approach demands that we ask how facts are uncovered and how they are accepted by a professional community. However, the examination of ignorance and "non-knowledge" is also valuable. The account of historian Proctor (2012) of what we know and what we do not know about the health consequences of tobacco and cigarette smoking reflects the politics (and the economics) of ignorance, resulting from realms of power. The same might be said of viral treatments, such as hydroxychloroquine. For Proctor, ignorance does not just happen; he argues that creating ignorance is strategic and political, and it is undeniable that some industries — perhaps pharmaceuticals — can avoid troubling information that they wish to shield from the public gaze.

Interest groups present or prevent data that they hope to incorporate in the public record, persuading their audiences and tamping down dissention. As in the case of rumor scholars who search for truth, those who examine conspiratorial theories often have a firm belief as to which claims are valid, which scientists are experts, and who should be respected. We see this in the case of COVID-19 in which some claimants are judged as standing outside expert knowledge, too bizarre or too political to be treated with respect. Serious knowledge communities hope to demonstrate that firm consensus exists and those with informational power attempt to suppress dissent, suggesting that there are boundaries on what can be taken as plausible and boundaries on who is considered to be a credible promoter.

Ultimately, not every disruption is a disruption-of. We recall those brave AIDS activists who presented their challenges an example of disruption-for, as scientists were forced to confront these grievances. However, often those who wish to continue what is treated as a "set-

tled" debate are stigmatized by those who control what is taken as secure knowledge, attacking the self-interests or competence of their opponents, erasing their assertions. (Consider, for instance, the opprobrium aimed at Anti-Vaxxers). These controversies are about the legitimacy of facts, but they are crucially about the right to believe. Who can control knowledge? While rumor suggests that there are many paths through which knowledge claims can be made, firmly established ignorance could prevent the disruptions from below to which elites object.

6 Rumor, Disruption, and Disaster

Research on rumor, uncertain knowledge, and promoted ignorance is a means to understand the consequences of disruptions to the social system, particularly at times of crisis. One might suggest that, given the multiplicity and elasticity of problems, societies are always in a state of crisis. Still, one might see the broad and lasting effects of the novel coronavirus as a special case in which nations and people must respond to uncertainty both rapidly and deliberately, determining whom to trust, who has expertise, which therapies work, and which vaccines are most promising, while keeping politics at bay. Given the urgency of the COVID-19 disaster, medical claims become doubted by some.

We know that rumors — information that is unsecured — can spread disruption and dissention. With beliefs about the manipulative power of elites, debates over mask-wearing, the safety of restaurant dining, the legitimacy of outdoor political rallies, and the effects of 5G towers have been intense and have led to protests. Senator Daniel Patrick Moynihan once claimed that everyone is entitled to their own opinions, but not to their own facts. Moynihan was famously a member of the cultural elite, men who felt that they could authoritatively determine what facts *are*. However, the vibrancy of rumor suggests that who controls facts and expertise is precisely what is at issue in understanding the politics of plausibility and the politics of credibility. Disfavored groups must openly engage in disruption. The question becomes whether it is disruption-of or disruption-for.

These debates when fairly and respectfully handled can provide a means through which disruption of previously taken-for-granted worldviews can work to benefit society. We see this in many domains. The Sunrise movement *has* changed the perspective of even those who are might otherwise doubt human ecological effects. Perhaps not all the demands of the Green New Deal have been — or should be — accepted, but increasingly there is a recognition that concern is warranted. We must be proactive stewards of the environment. This is disruption-for. We are witnessing this in pandemic politics, where even President Trump and Republican governors are now open to masking and some closures, responding to a cacophony of claims and the reality of viral illnesses. Again, we see disruption-for. These examples reveal that unauthorized information and that marketed as expert combine to create social change. The viral buzz of claims reminds us that debate is not destruction. Rumor is vital.

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Beyond Social Vulnerability: COVID-19 as a Disaster of Racial Capitalism

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Abstract

The hazards and disasters field routinely emphasizes that there is no such thing as a natural disaster. This is a nod to the fact that environmental disasters are caused by the human actions or inactions intersecting with the occurrence of a natural hazard, e.g. hurricane, fire, earthquake. This essay argues that the disaster literature can help us understand the causes and consequences of the COVID-19 pandemic but only if we consider the pandemic as a disaster and its profound impacts as outcomes of racial capitalism. Through intersectional systemic forms of oppression that both devalue Black, Indigenous and Latinx people and extract labor from them, racial capitalism has rendered these communities vulnerable.

Keywords: Social Vulnerability; Racial Capitalism; Disasters; COVID-19.

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1 Introduction

It might be said that the COVID-19 pandemic is somewhat primetime for those of us who write that there is no such thing as a natural disaster. What is more unnatural than a virus that threatens to wipe out a generation of grandparents, a myriad of poor Black, Indigenous and brown folks, immunocompromised folks and the intersections thereof? But to call this and other disasters unnatural does not mean they are anomalies that would not have happened if local, state, national and global governance structures, health care systems, worked as they should. As with the devastation caused by hurricanes and earthquakes, COVID-19 is ravaging the US and the rest of the world due to intersecting oppressive systems including sexism, racism, classism, and capitalism.

In this essay, I discuss the COVID-19 pandemic as a disaster. As an urban planning and disaster scholar, it is tempting to turn to the oft-used framework of social vulnerability to understand disasters, but I argue that social vulnerability is not critical enough a lens with which to analyze disasters, including the COVID-19 pandemic. Instead, I suggest that racial capitalism, with an understanding of intersecting oppressions such as sexism and ableism, allows us to understand some of the root causes of this pandemic. I reflect on how racial capitalism intersects with other forms of oppression. Lastly, I briefly discuss mutual aid as a response to the pandemic.

2 COVID-19 as Disaster

There is no consensus on the definition of "disaster" in the literature. Oliver-Smith (2020) argues that the lack of agreement is due to the word being commonly used in everyday conversations and disasters' "external variability", i.e. the plethora of natural and technological events that trigger disasters and their varied effects, and "internal complexity", i.e. the multitude of social, environmental and physical processes that result in and occur during disasters (p. 31).

Despite the lack of agreement on what disasters are, there is a consensus on the fact that disasters are not "natural". Researchers emphasize that while hazards, such as earthquakes and hurricanes, can be formed by natural processes, they become disasters, at least partially, due to socio-economic processes and policies that expose people to hazards and fail to adequately mitigate hazards, prepare populations for the hazards, and address uneven social and physical vulnerabilities (Moser Jones, 2009).

The COVID-19 pandemic has several markers of a disaster. The pandemic has disrupted the lives and livelihoods of billions of people with shelter in place and stay-at-home orders issued by governments globally, bringing jobs, economies, and lives to a halt. As of February 2021, there have been over 26.4 million cases in the US and over 103 million cases globally with over 446,000 deaths and 2.2 million deaths respectively in the US and worldwide (The New York Times, 2021). The US government deficit was sitting at $ 3.1 trillion at the end of 2020.

Like most disasters, the pandemic has both revealed and compounded existing racial and ethnic modes of domination. Initially, US states were slow to release infection and death rates disaggregated by race and ethnicity but now most states have, and the results are at the same time unsurprising and unsettling. People of color are dying at higher rates than white people. Black people in the US have died at 1.5 times the rate of white people, American Indian and Alaska Natives at 1.4 times the rate, Hispanic or Latino people at 1.2 times the rate, and Native Hawaiian and Pacific Islanders 1.1x the rate of white people (The Atlantic, 2021).

While it is clear that COVID-19 can be considered an unnatural disaster, it was not caused by a glitch in the system (something that should not have happened had policies and systems worked as intended) but by the system itself. What is truly disturbing is that the long-standing intersecting systems of racism, sexism, ableism, ageism, and capitalism are working in service of white supremacy, patriarchy, capitalism and the domination of oppressed populations.

In the next section, I detail why the social vulnerability framework is insufficient for understanding disasters such as COVID-19. Understanding COVID-19 requires us to understand the processes by which the lives of people of color are devalued in order to extract labor and the lives of disabled, immunocompromised, and elderly people are treated as disposable, viewed as unproductive and incapable of producing profitable labor for capitalists.

3 Why Not Social Vulnerability?

In the second edition of their 1994 book on hazard vulnerability, Wisner et al. (2004) define social vulnerability as the "set of characteristics of a group or individual in terms of their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard" (p. 9). While they discuss the root causes of vulnerabilities and note that socially vulnerable groups are often treated as victims, the definition they provide reflects the uncritical nature of much subsequent literature on social vulnerability. Social vulnerability literature is rife with discussions that attribute vulnerability to the supposed intrinsic characteristics of individuals and groups instead of the structural causes that force communities of color, poor, disabled, elderly, and health-compromised folks to bear the brunt of disasters (Bolin, 2006; Jacobs, 2019).

The social vulnerability literature in urban planning and related fields is dominated by studies that map so-called vulnerable populations. This mapping essentially amounts to counting non-white, disabled and poor people, households without access to a vehicle and single woman-headed households, along with other characteristics. Once all these so-called destitute populations are added up, they are mapped in red and called "hot spots" (Cutter et al., 2000; Cutter & Finch, 2008; Finch et al., 2010; Van Zandt et al., 2012). There are few social vulnerability mapping studies that include conversations with these "vulnerable" populations or critical conversations about the root causes of vulnerability. These hot spots are largely treated as passive populations that magically became vulnerable, or, even worse, by their own faults (Jacobs, 2019).

Fortunately, there are fields that do better jobs of unpacking and critiquing the term "vulnerability" than hazards and disaster literature in urban planning. Development studies scholars critique the notion of vulnerability. Bankoff (2001) discusses vulnerability as a western construct imposed on the developing world that construct the Global South as dangerous with little consideration of how colonialism and imperialism produced and continue to exacerbate said vulnerability. The concept is also critiqued as overused and paternalistic to those designated as vulnerable (Chambers, 2006). A critical disabilities scholar, Burghardt (2013) contends that vulnerability is "a social construct that limits the lives of people with disabilities due to its implication of weakness and need and its inattention to socially imposed barriers" (p. 557). Burghardt (2013) also points out that the designation of vulnerable imposes contradictory roles on populations both assuming that they need charity-like protection from the state and its systems and also denying them the right to participate in systems, and to some extent, society. This critique of vulnerability becomes even more salient when we consider how ableism and other forms of oppression intersect with racial capitalism, shaping, impacting, and reinforcing each other, as will be discussed in a subsequent section of this essay.

In a critique of social vulnerability within disaster studies, Bolin (2006) insists that the study of disasters "requires a historically informed understanding of the particularities of racial formations in specific places and times and how those shape the environmental risks to which people are exposed" (p. 116). Bolin (2006) encourages the use of an environmental justice lens instead of social vulnerability for hazards as it makes visible the "complex mechanisms by which certain ethnic (and racial, gendered and classed) categories of people are disadvantaged" (p. 117). Hardy et al. (2017) echo this in an a study of racial coastal formation, insisting that if "deeply racialized history goes unrecognized, what [they] label colorblind [climate change] adaptation planning is likely to perpetuate the"slow violence" of environmental racism" (p. 62). While there are valid critiques of environmental justice activism and scholarship taking a less critical turn (Harrison, 2015; Pulido, 2000), there are many environmental justice scholars who explicitly take racism and white supremacy to task (Bullard, 2008; Pellow, 2017; Pulido, 2015; Taylor, 2000).

In the next section, I take cues from Pulido (2016a & 2016b) who contends that environmental racism — the antithesis of environmental justice — is but a component of racial capitalism. I argue that racial capitalism, and its intersections with sexism, ageism, and ableism, can help us understand the root causes and impacts of the COVID-19 pandemic.

4 Why Racial Capitalism?

While not the first scholar to use the term "racial capitalism", Cedric Robinson is credited with expanding on its original usage in reference to South Africa's apartheid economy to a term that encompassed modern capitalism by chronicling capitalism's emergence in European feudal society (Robinson, 2000). The first racialized people under a racial capitalist order, Robinson argued, were Jewish, Irish, and Roma people (Kelley, 2017; Robinson, 2000). Racial capitalism expanded to the modern world through genocide, slavery, colonization, and imperialism, positioning processes of the devaluation of racialized people as central to the division of labor essential for the capital accumulation of those in power (Danewid, 2020; Robinson, 2000; Saldanha, 2020).

This essay is not the first to make the connection between racial capitalism and COVID-19. McClure et al. (2020) argue that racial capitalism in public health occupational settings is driving COVID-19 disparities. Laster Pirtle (2020) makes the more general case that racial capitalism is a fundamental cause of COVID-19 inequities. In this section, I draw from Laster Pirtle (2020) and from Pulido (2016b) who lays out an instructive example of how racial capitalism produces inequities through her examination of environmental racism.

4.1 The Production of Difference and Operationalization of Nonwhite Devaluation

Pulido (2016b) argues that environmental racism is a product of racial capitalism achieved by first producing social difference in order to extract value and then operationalizing nonwhite devaluation. Pulido (2016b) describes differential value as "the production of recognized differences that result in distinct kind of values... [which] become critical in the accumulation of surplus — both profits and power" (p. 4). The accumulation of capital is dependent on stark inequities between groups of people. Racial difference, and other produced differences based on gender, ability and age, are all central to capital accumulation.

Whiteness, and by extension white people, are seen as having innate value whereas non-whiteness, and non-white people, are only valued if labor, or some other value, can be extracted

from them by whiteness/white people (Leong, 2013). As Robinson (2000) put it, "The [then racialized] Irish worker having descended from an inferior race, so his English employers believed, the cheap market value of his labor was but its most rational form" (p. 39). Once devalued, racialized people are used for their labor or deserted by capital, like the poor people of color in Flint when their water was poisoned (Pulido, 2016a; Ranganathan, 2016).

The devaluation of non-white people has its origins in the past and present colonization of the Americas, global imperialism, and the genocide of people indigenous to the Americas and Africa. It is key that we understand these processes to understand how Black, Indigenous, Latinx people and other people of color are made vulnerable to COVID-19. People of color in the US disproportionately hold service-sector and healthcare jobs (Bouie, 2020). Despite the fact that these jobs are generally poorly paid, reflective of a long history of racially segmented labor, such workers in hospitals, senior homes, supermarkets and the postal service, quickly were recognized as essential (Bouie, 2020). Hence, fewer Black and Latinx workers are likely to have the flexibility to work from home (Rogers & Rogers, 2020), and are more likely to be in jobs that expose them to COVID-19.

4.2 Racial Capitalism and Intersecting Oppressions as Underlying Causes of the Pandemic

Laster Pirtle (2020) makes the case that racial capitalism is a fundamental cause of COVID-19 inequities because it (1) makes people of color more susceptible to diseases, such as hypertension and diabetes, (2) results in risk factors such as housing segregation and homelessness, (3) reduces people of color's access to resources including healthcare and (4) reproduces the inequities of past pandemics, all of which produce worse outcomes for people of color with respect to COVID-19.

While racism has received less attention than race in public health literature's examination of the social determinants of health (Kunitz, 2007; Robert & Booske, 2011; Walker et al., 2016), the field is increasingly recognizing the ways that structural racism shapes individuals' and communities' access to health and healthcare (Johnson, 2020; Yearby, 2020). A systematic review and meta-analysis of 293 studies in 333 articles showed that racism is associated with poorer mental, physical, and general health (Paradies et al., 2015). Health outcomes for communities living under oppression are worsened because they are denied access to quality housing, jobs that pay a living wage, education opportunities, and health care (Egede & Walker, 2020; Laster Pirtle, 2020). When we consider comorbidities, such as diabetes, with COVID-19, there is even more cause for concern. Studies have shown that racism is associated with increased risk of type 2 diabetes (Bacon et al., 2017) and racial segregation is associated with higher diabetes mortality (Kershaw & Pender, 2016). As Bouie (2020) states, "Today's disparities of health flow directly from yesterday's disparities of wealth and opportunity [...] If [B]lack Americans are more likely to suffer the comorbidities [...] it's because those ailments are tied to the segregation and concentrated poverty".

Racial capitalism does not act alone. Intersectionality's core insight tells us that "race, class, gender, sexuality, dis/ability and age operate not as discrete and mutually exclusive entities, but build on each other and work together" (Collins & Bilge, 2016, p. 4). Particularly with this pandemic, the gendered, ableist, and ageist arms of capitalism work to devalue and dispose of oppressed populations and the intersections thereof.

The COVID-19 pandemic has worsened gender disparities in the workplace. In December 2020, there were 140,000 jobs lost across the US. Men and white women experienced net gains in jobs whereas Black and Latina women experienced staggering losses (Kurtz, 2021). Given the

overrepresentation of women of color in service jobs, these disaggregated losses make sense as the hospitality industry lost close to 500,000 jobs. Women have also reported increases in caretaking responsibilities with many schools and childcare facilities closed during the pandemic (Center for Disease Control and Prevention, 2020).

Disability justice advocates have been aware of the dangers COVID-19 poses to disabled communities since the start of the pandemic. Beyond the fact that some disabilities are comorbidities with COVID-19, ableism (the oppression of and discrimination against disabled people) is deadly to disabled communities. A medical college in Italy published criteria for medical personnel to consider when the pandemic was overwhelming Italian medical facilities. The guidelines suggested that care should be prioritized for younger people and persons without comorbidities to make the best use of limited medical resources (Mounk, 2020). Disability justice groups in the US have filed complaints that some healthcare providers were discriminating against people with disabilities when making triage decisions (Shapiro, 2020). Also, consider the Lieutenant Governor of Texas, Dan Patrick's remarks on Fox News that "he would rather die than see public health measures damage the US economy, and that he believed"lots of grandparents" across the country would agree" (Žižek, 2020, p. 4). This type of declaration can only be made when capitalism has systemically devalued the lives of elderly, disabled, immunocompromised and the powers that be have rendered oppressed populations expendable.

Pulido (2016b) states "if environmental racism is a part of racial capitalism, then its regulation becomes the province of the state". Like most other countries, the US response to COVID-19 has largely been regulated by the governments with cities and states issuing and rescinding stay-at-home orders for its populations. It is not a far leap to understand the outcomes of this pandemic as the result of governments' actions and inactions because as Matthewman and Huppatz (2020, p. 3) state, "Outbreaks are inevitable. Pandemics are optional." The failure of the government to implement policies that protected vulnerable populations, provided hazard pay to essential workers, and allowed for non-essential workers to stay home without having to sacrifice their material needs, has resulted in the COVID-19 outbreak becoming a devastating disaster and pandemic.

5 Moving Forward

In her book, *Freedom is a Constant Struggle*, Davis (2016, p. 1) says, "Progressive struggles — whether they are focused on racism, repression, poverty, or other issues — are doomed to fail if they do not also attempt to develop a consciousness of the insidious promotion of capitalist individualism". In this essay, I have shown that racial capitalism as it intersects with ableism, sexism and other forms of oppression, offers us a powerful lens for understanding the root causes of vulnerability and the deep inequities that they result in. While social vulnerability researchers within the hazards and disasters field are well-intentioned, "social vulnerability" does not lend itself to critical analyses of structural inequities and the insidiousness of racial capitalism underlying the disparities in COVID-19 outcomes.

In Roy's (2020) often quoted essay, "The pandemic as portal", she encourages us to prepare ourselves not for a "return to normality" but to be "ready to imagine another world" and to be "ready to fight for it". In a pre-pandemic article, Hobart and Kneese (2020) describe a radical, collective care that sprung up during the Civil Rights movement and the women's movement a response to the failed "neoliberal model of care [...] of moralized self-management [that] glosses over the political, economic, and ideological structures that do the work of marginalization" (p. 4). They point to initiatives and projects that distributed pamphlets about women's repro-

ductive health to communities, provided free breakfasts for primarily poor Black children, and ran free medical clinics focused on preventative care.

Springer (2020) encourages us to see some of the imagining of other worlds that Roy seems to call for through the "resurgence of reciprocity that we are seeing" (p. 113) as response to the pandemic. This resurgence can be seen in the global, local mutual aid networks filling in the gaps that the state has left wide open. The Mutual Aid Disaster Relief organization describes itself as a "grassroots disaster relief network based on the principles of solidarity, mutual aid and autonomous direct action" that focuses on "solidarity not charity". They define mutual aid as "voluntary, reciprocal, participatory assistance among equals and being with, not for, disaster survivors" (Mutual Aid Disaster Relief Network, 2020). This national network has a directory of over 425 independent mutual aid networks in the United States representing 44 states and the District of Columbia ranging from neighborhood networks to racial, ethnic and religious-specific networks. As Springer states, the necessity of mutual aid networks "[serve] as a testament to the fact that the selfishness of capitalism was never going to produce a world in which we could find comfort." This other world that we must imagine and build should exist outside of systems of oppression such as racial capitalism.

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Seeking Shelter: How Housing and Urban Exclusion Shape Exurban Disaster*

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Abstract

From extreme weather to infectious disease, disasters now arrive in ever more rapid succession, combining with and compounding one another with increasing complexity and potential for crisis. In this context I suggest a particularly important site for analysis and intervention: the chronic lack of affordable housing and broader processes of exclusion now prevalent in cities around the world. These dynamics, I argue, help drive increasing movement to and development in interface zones between urban, rural, and undeveloped areas. In so doing, they also are implicated in a range of "exurban disasters", including wildfires and infectious disease, and in the broader crises these disasters generate for vulnerable populations. The article develops this relational argument across three moments. First, I posit contemporary dynamics of housing crisis and urban exclusion, which prevent people from finding adequate shelter in cities, as key drivers of displacement and settlement across various framings of urban interface zones — from the Wildlands Urban Interface [WUI] to the peri-urban fringe. I then explore how the increasingly forced settlement in these zones — themselves destabilized by prior processes of settler colonialism, neoliberal land-use planning, and climate change — contribute to both environmental and health related disasters. Here I focus on two contemporary cases: catastrophic wildfire in the WUI of California, and the emergence of zoonotic diseases in peri-urban regions around the world. Finally, with a focus on California, I explore how, once health and environmental disasters land and combine within a single location, inadequate housing increases the likelihood of multiple forms of exposure and susceptibility — e.g. to toxic smoke, respiratory ailments, and COVID. In conclusion, I argue for increased scholarly and political focus on the role of housing crises and urban exclusion in both the origins and outcomes of disaster. More scholarly and political work is needed that bridges city and hinterland, linking disaster research to critical approaches in housing studies and urban political ecology, together with wildfire ecology, epidemiology, and environmental stewardship.

Keywords: Affordable Housing; Urban Exclusion; Wildlands Urban Interface; Disaster; Sustainability.

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1 Compound Crises: Where to Begin?

It is no longer possible to consider the sociology of disaster in the singular, if it ever was. In a world that is increasingly unequal, precarious, and climate changed, disasters seem to multiply and spiral like ash falling from the sky on the outskirts of a wildfire, layering atop and combining with each other in uncontrollable and unimaginable ways. This thought struck me repeatedly living in Santa Cruz, California in the long hot summer of 2020, in which a catastrophic wildfire season, complete with showers of falling ash, mass evacuations, and the loss of 1000 homes, landed atop the COVID-19 pandemic and quarantine, which itself had landed atop our ongoing affordable housing crisis — as a result of which this small city is among the least affordable in a state that is the least affordable in the United States.[1] The housing crisis, meanwhile, had for years manifest itself through, deeply rooted socio-economic, environmental, and health disparities along lines of race, class, and immigration status — disparities which, facing the racial, nativist, and politically divisive animus of the Trump administration, were reaching a particularly dire tipping point.

Falling ash over a California home, August 2020

In the face of these new spiraling crises of fire, disease, and unaffordable housing, inequalities became "preexisting conditions", determining who had access to care and aid; who lived in cramped, multigenerational homes prone to viral spread; who was more likely to be a renter, lack insurance, and lose everything in a fire; and who worked "essential" jobs without protection from either COVID-19 or the toxic, ash-filled air.

This multiplicity adds dizzying complexity to the sociology of disaster's central tenet: that disasters and risk are socially produced. Whether immediate triggers are man-made or "natu-

1. For details on the Santa Cruz housing crisis, see the No Place Like Home website at https://noplacelikehome.ucsc.edu/en/ and report (Greenberg et al., 2021)

ral", we know disastrous events interact with and are rooted in historic and spatial inequalities of race and class, legacies of colonialism and capitalist urbanization, and compounding forms of inequality and dispossession. These forms are themselves integrated within socio-ecological systems, impacting groups and places in highly uneven ways. In previous work on the impacts of the 9/11 terrorist attack in New York City and Hurricane Katrina in New Orleans, I and my co-author extended this premise to two disasters with distinct triggers. Combining analysis of the uneven urban development that preceded the events with the "uneven redevelopment" that followed — from emergency aid to long-term rebuilding — we saw how disasters became "crises", particularly for those marginalized both before and after them (Gotham & Greenberg, 2014). I saw then, as now, how contingent yet consequential such escalating and unequal crises can be. Disasters are moments of radical rupture, with the potential to expose deep structural inequities in the status quo, forge novel coalitions, and marshal the broad public response needed to bring about far-reaching change (Greenberg, 2017). At the same time, powerful groups benefiting from this status quo coalesce to reinforce it, if not launch new modes of disaster capitalism. Out of intervention come new forms of urban development, which we dubbed *crisis-driven urbanization*. The question is whether this urbanization will rectify or perpetuate underlying inequality and risk, mitigate or exacerbate the potential for crises in the future.

We face these dilemmas today, only now on multiple fronts simultaneously, as disasters fall one atop the other, producing crises that become coupled in time and space. A range of theorists, from ecologists to philosophers, have referred to these variously as "concatenated" and "compounding" crises, noting how, in our increasingly interconnected, unequal, and unstable age, crises proliferate and link, with potential to propagate new ones (Biggs et al., 2011; Phillips et al., 2020; Taiwo, 2020). It may thus seem that this increasing complexity, what Donna Haraway calls "wicked problems," militates against comprehension, let alone intervention. How do we grapple with the underlying conditions that propagate *multiple* crises, from wildfire to disease, within cities and beyond them? How do we trace their relationships, and respond strategically, lest conditions spiral further out of control? Where to begin?

The experience of summer 2020, read against broader dynamics of compounding crises and the challenge of intervention, leads me to propose one strategic starting place: *housing*. By this I mean the chronic lack of adequate and affordable shelter, and with it the ability to create and protect a home, and the inequitable, exclusionary urban processes that produce this lack. Such processes include the commodification and financialization of housing and land; the underproduction of housing for the rural and urban poor; the exclusion of the non-wealthy, non-white, lower caste, and other marginalized people from housing markets in urban areas; the forced movement of excluded groups to sprawled or informal settlements within and beyond the city; and the consequent deterioration in housing security, living conditions, and socio-ecological sustainability on a wide scale (Madden & Marcuse, 2016; Rolnik, 2019; Aalbers, 2016; Schwartz, 2014; Roy, 2019; Yiftachel, 2020). The more I study disaster events, the more I find these housing and urban dynamics playing a central role — one that becomes only more urgent as disasters multiply, concatenate, and take on crisis proportions.

In saying this I do not wish to suggest that housing and urban exclusion are the only or even preeminent issues driving this crisis-torn moment. Indeed, one should also address the larger scale historical phenomena that shape local housing markets and regional development, including neoliberal deregulation and financialization, post- and neo-colonial struggles for land and sovereignty, underlying race and class inequalities, and destabilizing effects of climate change — themes I will also touch on here. However, as an initial area of focus, I would argue inade-

quate housing and urban exclusion play a singular role in the origins and outcomes of disasters and are a particularly crucial place to start. Moreover, this role is by now "pluriversal", on the rise in a variety of modalities and contexts in most regions of the world, and across quite distinct forms and sites of "disaster."[2] Thus, placing the "urban housing question" at the heart of disaster studies can open up vital approaches for analysis and intervention.

To this end, I will argue for the central consideration of the role of housing crisis and urban exclusion in disaster studies, and suggest this be addressed both in terms of the origins and outcomes of disaster. I will posit this argument across three important conjunctural moments:

1. *Housing crises, and the exclusion of large numbers of people from the urban core, play an increasing role in pushing people to settle outside of cities, generating marginalized residential development in interface zones between urban, rural, and/or "wildland" areas*.[3] Push factors include processes of gentrification and displacement (Marcuse, 1986) as well as "banishment" and "displaceability" tied to ethnicity, race, or other forms of marginalized difference (Roy, 2019; Yiftachel, 2020). Multiple factors converge to lay the ground for exurban development, from indigenous expropriation and expulsion, to rural rezoning and redevelopment, to the pull of "frontier" imaginaries. With such processes common to cities around the world, housing crises and urban exclusion may be seen as key contemporary drivers in historical processes of exurbanization.

2. *As residential development in interface zones puts people, housing, and infrastructure in greater contact with nonhuman nature — from forests to farm animals to soil microbes — it also helps to generate environmental and/or health disaster*. This can occur through human disruption of ecosystems and habitat, as well as human and animal exposure to pathogens. Researchers in a range of fields have begun addressing this in zones variously referred to as the Wildlands Urban Interface [WUI], wildlife-livestock-human interface [WLHI], and peri-urban fringe (Allen, 2003; Hassell et al., 2017; Radeloff et al., 2018). Unifying these approaches, I look at two key examples: a) wildfires in the WUI of California — where humans and housing play an outsized role in the incidence and severity of fires, and b) emerging infectious disease [EID], including zoonoses in the WLHI of rapidly urbanizing parts of China and Africa — where human-animal contact generate and spread disease.

3. *Once exurban disasters occur, housing conditions and urban exclusion play a role once again, exacerbating disaster impacts, allowing multiple disasters to compound one another, and generating crises for those most vulnerable throughout the region*. From housing shortages and rent gauging, to overcrowded and unsafe living conditions, to homelessness — housing problems increase the likelihood that environmental and health disasters generated in interface zones will have devastating impacts in cities as well. These problems are compounded by forms of exclusion along lines of race and citizenship, as well as pre-existing health disparities. Thus, we see multiple disasters landing upon localities in urban and exurban areas alike, interacting in new ways, combining flying ash and novel viruses in already marginalized communities.

2. On "pluriversal politics" see Escobar, 2020.

3. Land use designations include "wildland" or "wilderness" given their relative lack of development and human presence. However often can serve to erase histories of human settlement and land use, sometimes to the present day, especially by indigenous communities.

Ultimately, inadequate housing means the inability to protect ourselves and find shelter from the proverbial storm. Meanwhile, these storms are becoming more numerous and dangerous — in large part due to the search for shelter in urban hinterlands, with its destabilizing, disaster generating effects. Thus, we can argue that the origins and outcomes of the major public health and socio-environmental disasters of our time are linked in fundamental ways to the lack of sound, sufficient shelter in healthy, inclusive cities.

2 Housing Crisis, Urban Exclusion, and Exurbanization

Multiple issues result from housing crises. In a recent study of the affordability crisis in Santa Cruz County, which is among the most extreme in California and the world, I and my co-PIs conducted a large scale survey of area renters and identified four leading issues: rent burdens, overcrowding, substandard or unsafe housing conditions, and "forced moves", i.e. eviction and displacement of people from homes, neighborhoods and cities altogether (Greenberg et al., 2021). Such issues, in turn, have their own socio-environmental impacts. Among the most significant of these when manifest on a regional scale is the fourth one, that of urban displacement.

In the broadest sense, displacement is a result of being forced to move. This can include formal or informal evictions, or simply being compelled to leave one's home for reasons beyond one's control. Oren Yiftachel's (2020) definition of displacement as "the involuntary distancing of residents from full right to the resources and opportunities of their metropolitan region" (p. 154) is helpful in that it also emphasizes *what is lost* in the process of this displacement, with "distance" here understood in spatial as well as social, economic, and legal terms. In the foregoing, I will use *urban exclusion* to encompass this broader understanding of the act of physical dislocation and marginalization, as well as loss or lack of access to vital resources, in particular shelter and collective forms of support and provision, which adequate and affordable housing in cities and villages can uniquely provide.

This raises the question: What generates this exclusion? The process may be rooted in affordability itself, with displacement understood as a predictable outcome of inequitable, unregulated housing markets, and urban neoliberalism more broadly. Such analyses predominate in the global north, and in analyses that link processes of the reinvestment in and gentrification of the city with the displacement and disempowerment of renters and the precariously housed, particularly communities of color subjected to previous rounds of segregation and exclusion (e.g. Lees et al., 2017; Samara, 2014). In our study, we noted the interaction between displacement and the array of issues renters face, i.e.: once rent burden, overcrowding, or major problems with housing become too extreme, people are forced to move, sometimes only to find similar issues awaiting them in their new home (Greenberg et al., 2021). In this sense, we understand both those priced and pushed out of homes, neighborhoods and cities through gentrification, landlord action, and eminent domain — what Peter Marcuse calls "direct displacement" — as well as the exclusion of those who would otherwise move to an area to be near jobs, family, and school but are prevented from doing so due to high cost and lack of supply of adequate housing which he refers to as "indirect displacement" (Marcuse, 1986; Slater, 2009).[4] To the latter can be added, in the U.S. context, the role of real estate, banks and federal and local governments in practices such as redlining, exclusionary zoning, and predatory

4. Such an analysis underlies the geographic distinction made by the Urban Displacement Project at UC Berkeley between zones of "gentrification" and "exclusion." See https://www.urbandisplacement.org/ and the distinction between displacement, gentrification, and exclusion: https://www.urbandisplacement.org/san-

inclusion, designed to exclude non-whites and generate profit from racially segregated housing markets (Rothstein, 2017; Taylor, 2019).

We can contrast this northern, market-oriented approach to displacement and segregation with one set in motion by settler colonial and other state-centric relations. Framing "displacement" in a "southeastern" vs "northwestern" geographic and epistemological context, Yiftachel (2020) argues that in much of the world, ideas of the "displaceability" of individuals or populations are produced through various forms of nationalism and/or identity regimes, which then "interact with the exigencies of globalizing. capitalism to generate new types urban citizenship." In this case displacement "may take the form of physical eviction and expulsion; may manifest in home demolition and denial of services; may suspend rights and create 'gray spaces' of temporary living; or deny residents use of urban material and cultural resources" (p. 155). Scholars addressing the displaceable status of villagers in China, where the most rapid urbanization in the world is occurring, add that both "overt displacement by state-led development" and "in situ marginalization and dispossession without physical uprooting" should be recognized as violations of the "right to the city" (Shih, 2016). Writing from Los Angeles, Ananya Roy offers the concept of the "banishment" of marginalized and/or racialized groups through targeted policing, eviction, deportation, and other forms of forced mobility, thus showing the relevance of the concept of displaceability for cities of the North as well (Roy, 2019).

Combining concepts of direct and indirect displacement, segregation, displaceability, and banishment enables us to see the role of the state alongside the market in excluding people from cities, and the role of urban exclusion within broader histories of uneven socio-spatial development, settler colonialism, and racial discrimination. Within this broader framework, we can also see the phenomena of urban exclusion on the rise globally (Lees, Shin, & Lopez Morales, 2017; Rolnik, 2019; Roy, 2019; Sassen, 2014; Yiftachel, 2020), and as one of the defining features of contemporary urbanization, and targets of urban social movements.

With increasing numbers pushed or priced out of cities and towns, or blocked from entry in the first place, has come the explosion of precarious, exurban populations and development. Clearly demographic shifts are not the only driver of this development. Henri Lefebvre anticipated the unending spread of the "urban tissue" across the surface of the planet in the 1960s, with emphasis on the role of urban infrastructure in linking rural and urban environments, from mines to factories, factory farms to warehouses, making the life of the growing city possible (Lefebvre, 1968). Indeed contemporary scholars of "planetary urbanization" caution against focus on population counts so often used to measure the magnitude of the "urban age", at the expense of material dimensions that exceed classic urban boundaries (Brenner & Schmid, 2014). While empirical and theoretical problems in quantifying urban population are important to recognize, and while I will not attempt to address them here, the proliferation of socio-ecological disasters due to the physical presence of human population, their housing and infrastructure, in exurban interface zones makes grappling with these social and demographic questions nonetheless quite urgent.

To take on this examination we should also recognize that the exurb by now troubles imaginaries of the "lily-white" and exclusive suburb.[5] Such forms persist, as do disproportionate

francisco/sf-bay-area-gentrification-and-displacement

5. These stereotypes are prevalent in the U.S. and British context, whether the bucolic "garden suburbs" that arose as a reaction to the nineteenth century industrial city, or the sprawling, middle class suburbs that spiked post-WWII era — both of which were explicitly segregated by race and class e.g. as described by Peter Hall. Important critiques of the economic and environmental cost of servicing and protecting famously wealthy and exclusive suburbs at the expense of proximal inner-city neighborhoods have helped reify the idea of fixed

federal subsidies for homeowners, gated enclaves and resorts. Yet ours is also a "post-suburban" age, typified by "an increasing complexity of structural form and daily life in the periphery of cities" (Connolly et al., 2021, p. 248), and with this, increasing demographic diversity and concentrated disadvantage in these spaces. As the urban core has been selectively reclaimed, redeveloped, and gentrified, the ex-urban has been increasingly marked by socio-spatial marginality and inequality, much like the "inner city" and "ghetto" of the past century. Thus, newly common ex-urban development types include van encampments and farmworker barracks, mobile home parks and new iterations of working-class commuter sprawl. Demographic and development shifts intertwine to produce the "suburbanization of poverty" (Kneebone & Garr, 2010). In the context of the San Francisco Bay Area, this has taken on starkly racial dimensions, with the "re-segregation" of larger city-regions, due to the outmigration of low income African American, Latinx, and Asian American populations from the urban core to far-reaching exurbs (Schafran, 2018; Urban Displacement Project, 2019).

There is more work to be done to understand the relationalities between urban housing crisis and exclusion on the one hand and exurbanization on the other, including the full range and relative weight of the push/pull factors that both force and attract people to live outside the city. Push factors include the political and planning decisions that both constrain housing options in cities and lay the ground for them in exurbs. This ground laying, itself, often has a long and violent history, including expropriation of land from indigenous groups, rural villages, or earlier generations of informal settlement. Over time, it may involve clear-cutting, draining wetlands, and other means of creating developable land; new mechanisms and markets for the financializing and insuring land and housing; and the political and legal means of rezoning rural or wild lands for residential use.[6] These processes produce and exploit major rent gaps between city and hinterland — which of course can go in either direction, depending on the swing of uneven development. After decades of extreme urban gentrification and exclusion has come a new scale of relative affordability in the exurbs, even while parts remain exclusive, or are gentrifying themselves.

Added to this push is the pull of "living close to nature", which as Raymond Williams (1973) and scholars of suburbia have long reminded us is a desire deeply rooted in Western culture, as well as one stoked by frontier imaginaries, persistent anti-urbanism, and marketing. In my review of U.S.-based literature on the dangerous growth of the WUI in recent years, I found little else to explain causality beyond this seemingly obvious desire. Yet, I would argue, push factors have always been inextricably tied to pull factors when it comes to exurban development. And as green gentrification has made cities both desirable and unaffordable, the former are likely superceding the latter. In much of the world people would choose city over hinterland, if they had this choice (even with reversals currently occurring amongst pandemic-era teleworkers).

Among the outcomes of these processes is the production of relatively cheaper, less regulated, marginal and/or abandoned zones outside cities, in which those excluded from the city and facing few housing options have in recent decades increasingly settled — whether under duress, by choice, or some combination of the two. And it is this settlement that brings me to

race and class characteristics of urban vs suburban space. See e.g. the case made for "letting Malibu burn" by Mike Davis (1995).

6. Many recent literatures converge here. Two examples: On the role of insurance in enabling the development of disaster-prone landscapes, particularly those facing flood risk in the coastal U.S., see Elliot (2021). On the role of zoning and land use regulation on the "making of Lyme disease" in the exurbs of northern Virginia, see Kaup (2018).

the topic of disaster at hand. For by driving exurbanization, housing crises and urban exclusion have also helped drive up the likelihood of a range of disasters — as people and housing push their way farther into more biodiverse, climate changed, and hazardous "wild lands".

3 Exurban Disasters

Exurban development, from commuter suburbs to informal settlements, brings with it a host of new social, ecological and health risks. Important research has focused on this issue in regards to climate impacts. Building on a generation of critical planning research on the environmental perils of sprawl (e.g. Wilson & Chakraborty, 2013), a new literature unpacks the contradictions of "sustainable" urban planning that disregards affordability, and insodoing drives the very sprawl it sought to vanquish. From greenbelts to transit oriented developments to brownfield reclamation, we find most sustainability interventions have been equity- and housing-deficient engines of gentrification (Checker, 2011; Agyeman, 2013). They've also generated increased car use and greenhouse has [GHG] emissions — both by those who can afford the new luxury green city, and by those priced and pushed out to lower cost, car-dependent exurbs (Chapple et al., 2007; Pollack et al., 2010). Thus, ironically and tragically, we see larger carbon footprints in the "greenest" of urban regions intensifying risk of climate-related disasters (Aldana Cohen, 2017; Anguelovski et al., 2016).

Tracing exurban housing development and population shifts allows us build upon knowledge of GHG emissions to consider a broader range of socio-environmental impacts and disaster risk associated with exclusionary urbanism. Bringing the analysis down to earth, so to speak, we can examine the degree to which this development and population growth is rendering these remote areas *themselves* more disaster-prone. For, by bringing people in closer proximity to climate-changed ecosystems, and multiple species and pathogens in closer proximity to humans, these areas generate a number of new risks. In what follows I will focus on two: increased incidence and severity of wildfire, and of emerging infectious disease.

The effort to "ground" disaster and displacement research in this way is complicated by the challenge of what to call the ground itself. As processes of urbanization have continued to explode the boundaries of "the city", frameworks for conceptualizing the "urban hinterland" have exploded with them (Brenner, 2016; Angelo, 2016). Depending on disciplinary and geographic vantage point, the area has been defined in ways that emphasize one or another interface along the "urban-suburban-rural-wildlands" land-use gradient. In the post-WWII U.S., city and regional planners focused in on the troubling rise of "exurbs", then envisioned as far flung, amenity-rich developments taking over rural areas, tied via ever-expanding commute-sheds to urban job centers (Berube et al., 2006; Taylor, 2011), with planning studies now mapping the infrastructural legacies of successive eras of "sprawl" in the U.S. and globally (Barrington-Leigh & Millard Ball, 2015; Schneider & Woodcock, 2008). Urbanists and planners in the Global South concerned with expansion of informal settlements on the "peri-urban" fringe, have emphasized the porous interface between the rural and the urban, particularly as regards its implications for public health (Allen, 2003; Wandl & Magoni, 2017). Adding to this analysis, epidemiologists concerned with the proliferation and spread of EID, emphasize the capacity of informal urbanization, alongside rural to urban migration, to densify the "wildlife-livestock-human interface" across which zoonoses and other pathogens can travel (Hassell et al., 2017; Ahmed et al., 2019). Foresters, fire managers, and fire ecologists also center interface geographies, in this case the now widely used Wildlands Urban Interface [WUI], measured by the degree of housing density within or alongside "wild", undeveloped areas — with "housing"

here measured in terms of formal, census-mapped settlement patterns (Radeloff et al., 2018; Stewart et al., 2007).

On its own, each of these approaches might be deemed a "chaotic concept", referring to "a single or unitary phenomenon [yet] encompassing a wide range of [...] realities, actors, and causal processes." As Duminy and Parnell note, such chaos is par for the course in new "urban sciences", fueled by access to big data, from GIS to remote sensing to machine learning, yet divorced from urban social science more broadly (Duminy & Parnell, 2020). The goal here is to bring back urban social sciences and political ecology — with their mix of methods, recognition of relational geographies between rural and urban areas, and critical historical approaches that take into account legacies of uneven development, including the colonial and expropriation of indigenous lands and abandonment of traditional land use and stewardship practices. This can help us understand some of the causal processes behind these new hinterland formations, such as those rooted in housing crises and urban exclusion, as well as their outcomes in the spiraling disasters we now face.

4 Wildfire at the Interface

As defined by foresters and fire ecologists, and as mapped by geographers, the Wildlands Urban Interface [WUI] is now designated the fastest-growing land use type in the conterminous United States (Martinuzzi et al., 2015; Radeloff et al., 2018), and is on the rise globally (Modugno et al., 2016), with both WUI population and housing growing exponentially since the 1990s. With the growing incidence and destructiveness of wildfire in an age of climate change, and as correlations have been drawn between these fires and WUI growth, increased attention is paid to mapping and analyzing the WUI in particularly fire-prone climatic zones such as the U.S., Australia, the Mediterranean. Nowhere in this zone is WUI growth more pronounced than in California, where one in three households now live in the WUI, three times as many as in any other U.S. state, giving those of us here a perilous front row seat on the phenomenon. WUI expansion occurred contemporaneously with the affordable housing crisis and waves of displacement from urban areas nationwide. The extensive WUI literature, however, has not addressed this relationship, and indeed has paid scant attention to causality at all. Rather emphasis has been placed on the effects of WUI growth on wildfire, examining these effects in relation to other factors and within the longer historical arc of changes to regional and planetary fire regimes.

Humans have played an integral role in fire ecology for as long as we've settled on the planet. In the case of indigenous California, as in traditional, anthropogenic fire regimes around the world, this role involved setting intentional, periodic, small-scale fires to propagate plants, enable grazing and hunting, and prevent naturally-occurring fire from becoming catastrophic (e.g. Anderson, 2006). Yet the last two centuries have seen a profound shift: the rise of anthropogenic fire that is decidedly *nonbeneficial* (Syphard et al., 2007; Pyne, 2019). This shift from "good fire" to "bad" itself was driven first and foremost by fire suppression, which allow dry vegetative fuel to accumulate. In U.S. and Australian contexts, these policies originated with colonialism and the brutal expropriation of indigenous lands, and continued with fire management regimes aiming to "protect" forests for the purposes of leisure and logging. In other contexts — Southern Europe, the Middle East, and Latin America — fires were traditionally set by small farmers in mountainous, fire prone areas, yet many left these arduous plots after WWI, abandoning their lands to become overgrown. With climate change, these accumulated fuels were vulnerable to hotter, dryer, and longer fire seasons, and more likely to cause larger,

more devastating fires. Now, landing atop this fire-prone situation is exponential WUI growth, bringing population, housing, infrastructure, and new more incendiary fuels and firebrands into or adjacent to these poorly maintained, climate changed natural areas.

It is now estimated that over 95 percent of "wildfires" in California are caused by humans — with common ignitions due to power lines, car gas tanks, escaped fires, flammable materials in housing itself, and arson — all of which are attributable in whole or part to WUI growth (Syphard & Keeley, 2015 & 2020; Kramer et al., 2019). Indeed recent regression analysis find WUI growth *an even more important factor than climate change* in the severity of these fires (Syphard, 2019). 18 of the 20 largest fires on record in California have come since 2000, with six in the top ten occurring in just the last three years (Calfire, 2020). For all these, the WUI has played a decisive role.[7]

In 2017 the Tubbs Fire, at the time California's most destructive, burned 5,500 houses and cost 22 lives in outskirts of the sprawling city of Santa Rosa, and was caused by a private electrical system adjacent to a residential structure. This record was obliterated in 2018 with the Camp Fire in Butte County, set by faulty power lines near housing, which burned over 10,000 homes in the city of Paradise and surrounding WUI towns, causing the loss of 85 lives. Then in August 2020, following an historic heat wave, freak thunderstorms caused 10,800 lightning strikes and ignited 367 simultaneous fires throughout Northern California. While these small blazes were natural in origin, they soon converged, growing "so fast and so vast that Cal Fire didn't even give names to the largest ones as it usually does, resorting to acronyms" (Frank, 2020). This included the SCU Lightning Complex in Butte, Plumas, & Yuba Counties, the LNU Lightning Complex in Solano and Sonoma Counties, and our own fire to the north and east of Santa Cruz, the CZU Lightning Complex Fire. This rapid growth in the fires' size, severity and destructiveness can ultimately be attributed to human causes, lightning strikes notwithstanding. As preeminent fire ecologist Fred Keeley put it in a recent interview, each fire season we are now seeing a "perfect storm", with "everything [...] coming together at once," including the heat, drought, and tree die-off of a changed climate; the legacy of fire suppression; and what to him was most significant and novel, the expansion of the WUI, particularly in the areas where the fire was most catastrophic (Isaacs-Thomas, 2020).

While attention to the role of increased WUI housing in generating these disasters is welcome, less clear is *where this WUI growth came from in the first place*. Keeley explained this simply as "population growth" — ie the increase of the state population by six million since 2000, which, as if by osmosis, lead to "more people pushed out into areas of urban sprawl, of dangerous fuels, increased ignition sources, increased potential for people getting killed, an increase in the electric grid" (*Ibidem*). Analysis is lacking of the causal social processes driving this sprawl, and consideration of its link to the housing crisis happening in urban areas right next door. My scan of WUI literature reveals similar limitations: in the minority of cases in which causal explanation is offered, assumed drivers are population growth or amenity driven lifestyle decisions, without evidence.[8] More complex motivation is captured by investigative journalists covering post-wildfire struggles across California, frequently featuring communities that moved for affordability reasons, and now are on the verge of or experiencing homelessness (e.g. Anguiano,

7. CalFire data goes back to 1932. As they note: "There is no doubt that there were fires with significant acreage burned in years prior to 1932, but those records are less reliable, and this list is meant to give an overview of the large fires in more recent times."

8. The same is true for literature on exurbia. As cultural geographer Laura Taylor notes: "These authors ask where exurban places are in the US, when they emerged, and what their extent is. The remaining questions — how exurbs come to be and why — need more work..." (Taylor, 2011, p. 329)

2020; Healey, 2020).

Based on this, and preliminary research in the interface areas of the Santa Cruz Mountains and low-lying hills of the South County, my hypothesis — which I and colleagues aim to test in further research — is that migrants who moved to these areas for lifestyle reasons have been joined in ever greater numbers over the last two decades by those who've been pushed or priced out of rapidly gentrifying cities and suburbs in the region. People do often find home, create community, and find meaningful connection to nature in the hinterland, even under inhospitable and unsafe conditions. But increasingly they do so under conditions not of their own choosing, and at mounting personal and environmental cost.

5 Emerging Landscapes of Disease

Epidemiologists, researchers in public health and international development, scholars in emerging fields of landscape political ecology and Anthropocene studies, all are also doing groundbreaking work on the growing role of exurbanization and interface development on disaster, in this case in terms of the emergence and spread of disease. Of particular concern are emerging infectious diseases [EIDs], which are the result of pathogens that move from non-human vectors to humans and change their clinical presentation when they move into human hosts for the first time (Hassell et al., 2017). This creates novel diseases that are challenging to treat and that, under the right conditions, can spread so rapidly before treatment is found as to become pandemics.

The study of the relationship between urbanization and infectious disease courses through human history, with a decided emphasis on the figure of the "slum" and other dense inner-city neighborhoods. Cities are "promiscuous social spaces" in which people "literally and figuratively [bump] up against each other in smaller spaces and larger numbers" than in prior, less dense forms of settlement (Wald, 2008, p. 14). The earliest recorded pandemics from ancient times through the 1700s were associated with and often named for the cities where they spread. The origin of epidemiology, public health, and urban planning are bound up with the fear and reality of contagion in the nineteenth and early twentieth century industrial city. Global city formations and networks of the 1990s, it is argued, ushered in the contemporary pandemic period (Harris Ali & Keil, 2008; Reyes et al., 2013).

Yet as health geographers now note, urban promiscuousness alone cannot explain this relationship. Rather, as Connolly et al. (2021) note, new focus is needed on the changing spatial form and extent of urbanization, and its relation to biodiverse non-urban areas, i.e. "the socio-ecological flows and disruptions leading to an increased incidence of infectious disease *in peri- or suburban areas*" (p. 248, emphasis mine). Specifically, EIDs become increasingly likely in new interfaces where humans and their domesticated animals come into contact with pathogens that historically lay undisturbed in undeveloped areas. This contact can occur via water, food, or air, as well as living vectors like bats, rodents, mosquitos, or ticks. It occurs most commonly through the development of housing in these environments, and/or the excavation of materials in them to be used to construct housing and related infrastructure elsewhere. Thus, as in the WUI, we see housing development associated with habitat fragmentation and ecosystem disruption on a massive scale, increasing the likelihood of unintended and disastrous consequences.

These dynamics force us to question our spatial imaginaries once again. With suburbanization in the 1960s and 1970s, the Western belief in "epidemiological transition" caught hold, i.e.: of a societal shift from infectious to chronic diseases as the major cause of human mortality

and morbidity. Chronic diseases on the rise, like heart disease and obesity, were attributed to individual lifestyle choices — e.g. the sedentary, car-centric, and consumerist life of the suburbanite, which could be treated through diet and exercise. Overall the future for human health looked bright, thanks to suburban quality of life. It soon emerged the opposite was true. This was both in the sense that dense urban areas with adequate housing and social support were actually the healthiest settlement type (Freudenberg et al., 2005) — a point which contemporary urbanists argue holds true even in the COVID era (Florida, 2020), and in that suburbs, exurbs and informal settlements, with their continued and precarious expansion into the hinterland, have helped bring infectious diseases back with a vengeance.

Indeed, with extended urbanization since the 1980s, we've seen a *tripling* of the number of infectious disease outbreaks per decade, ushering in what some now call a new "pandemic age" (Connolly et al., 2021; Harris Ali & Keil, 2008; Smolinski et al., 2003). "New diseases" include those once isolated to non-humans now able to spread to new geographical areas and human hosts, as well as those that are entirely novel (Mayer, 2000). Recent examples include: yellow fever, the Marburg virus, the Ebola virus, Lyme disease, hepatitis C, HIV/AIDS, and West Nile virus (Drexler, 2002; Garrett, 1994). We've also seen "old" infectious diseases believed eradicated through vaccination campaigns, such as tuberculosis, reappear and spread once again under the right exurban conditions.

Not surprisingly, the most significant EID outbreaks have been in the most rapidly urbanizing regions of the world (Alirol et al., 2011). As Harris Ali and Keil (2008) trace, both SARS and Ebola originated in urbanizing hinterlands of China and Africa before travelling to and spreading in and between major cities such as Hong Kong and Toronto or Freetown and Monrovia, respectively.

As with the WUI, I would argue that the EIDs and the interfaces across which they travel are fundamentally housing questions. As we see with wildfire, the most significant factor driving the spread of disease is "*the degree of contact*" (Smolinski et al., 2003), itself a function of where people live, work, play, and commute daily, and how these spaces are designed and distributed. Whereas such contact zones may once have occurred primarily in the heart of swelling industrial cities, they now extend outwards into the peri-urban interface. From the perspective of epidemiologists, these dynamics, wherever they occur, affect the degree to which we are disrupting ecological systems and thus increasing risk for people. As Hassel et al. (2017) note, in describing zoonosis: while other factors on the animal side play a role, "it is the anthropogenic influence on ecological systems that dictates the level of risk that operates at the interface between humans and animals in zoonotic disease emergence" (p. 55).

Careful tracing of this disruption and contact across multiple interface zones help us disentangle the role of urban process and housing in a variety of ways. For instance, the onset of novel corona viruses of the last two decades — including SARS, MERS, Asian swine flu, and now possibly COVID-19 or SARS CoV-2 — can be traced to bats, which infected animal hosts that were brought to exotic animal markets in China's central and eastern urban regions, at which point humans were infected. It is now thought that these bats, however, originated in the massive, biodiverse cave complexes in southwestern Yunnan province (Best, 2020; Fan et al., 2019). The caves are made of karst, which over the same period was heavily mined to make the cement to build the new sprawling Chinese cities. Disrupted bat populations fled to other cave complexes, to intermix and exchange pathogens with bats throughout China, including in the caves of Hibbei Province on the outskirts of Wuhan. Wuhan, a sprawling Central Chinese city of 11 million, locally known as the "thoroughfare of China" (Huifeng, 2020, cited by Connolly et al., 2021), has nearly doubled its geographic scale, population, and average building size

in the previous decade (Best, 2020). Like in most Chinese cities, millions of displaced migrants from the countryside do essential jobs in Wuhan yet are denied urban citizenship, and thus access to adequate health care, education, or housing in the core urban areas. Migrants living in the outskirts near the exotic markets where animals and bats intermingle, and often traveling between regions, were also among the first infected by COVID. Thus, in the Chinese case as elsewhere, we see housing production and urban exclusion entangled with both the creation of new human-nonhuman interfaces, and the spread of novel diseases.

In what follows, I trace the impacts of these exurban disasters as they spread across the broader urban region, and as they themselves come into contact in new ways. Here again housing and urban inclusion are crucial, now in their capacity to protect us from infection and toxic air.

6 How Exurban Disasters Become Regional Crises

In Fall 2020, two agencies published distinct maps of health risks in California. One was from the California Environmental Protection Agency, with red zones showing the state's worst air quality following the state's unprecedented wildfire season. A second was from the state's health department, and marked in yellow the cases of COVID-19 after six months of the spread of the pandemic in the state. As anxious Californians overlapped the maps, we found certain areas where these twin perils could not be escaped, concentrations of orange from inner city neighborhoods in Los Angeles to the agricultural belt of the Central Valley to the exurban rings of south Santa Cruz County.

These zones of convergence are also home to majority poor and working-class communities, disproportionately communities of color, and communities with numerous underlying risk factors. Scholars in health justice emphasize factors rooted in lack of access to adequate healthcare, jobs that put people in harm's way, and legacies of racial segregation and discrimination (Benfer, 2015). Connolly et al. (2021) show how, under conditions of extended urbanization, factors of demographic mobility, infrastructural linkages, and uneven governance play particular powerful role across the urban exurban divide. To these frameworks I would add the risk of inadequate housing and urban exclusion, arguing such conditions play an outsized role in reproducing health and environmental inequities. This was particularly so with the converging disasters of COVID and the California wildfires, which required people have the personal space to protect themselves and their families from both airborne pathogens and toxins.

We see the swirl of these multiple factors in the air of the California Central Coast region where I'm based. The region has historically been and remains highly segregated along race and class lines. Working-class mostly Latinx population, are concentrated in what's called locally the "south county", around the city of Watsonville — itself a legacy of an earlier era of exclusionary and segregationist housing policy, and now also due to the relative affordability of housing there. They live disproportionately in cramped and overcrowded rental housing — our survey found 40% of renters in Watsonville were overcrowded, double the rate for those in majority white city of Santa Cruz to the north (Greenberg et al., 2021).[9] These conditions are also now determined to be a leading vector of the pandemic in Santa Cruz County. This is also due to the fact the population disproportionately commute hours to service jobs in "north

9. This figure is also more than ten times higher than the official count of 3% captured in census surveys, due to the fact that many of these surveys undercount renters and those in precarious situations, including the many mixed status Latinx families we surveyed.

country" or agricultural jobs further south and east. Given governance failures in developing mass transit (fueled by powerful NIMBY opposition to train service to connect the region), we've seen an explosion in the use of crowded vanpools for the commuting workforce. These trends continued unabated during the pandemic and wildfire, as the majority of South County workers were designated "essential"; obliged work in conditions in which they were exposed to potential contagion, toxic air, or both; and obliged to continue their now potentially contagion-spreading commute. Thus, those who contract the virus at work can bring it home more easily to their co-workers and families, including elderly and vulnerable relatives. As noted in a recent interview with the lead Santa Cruz County health officer,

> COVID-19 can quickly spiral into a nightmare scenario when combined with overcrowded multigenertational households full of frontline workers who don't have the space or resources to quarantine [...] Prohibitive housing costs mean it's "not uncommon" for 10 or more people to live in the same household in South County — often several generations in one home (Cruz, 2021).

In addition, a majority of renters in Watsonville complained of "major problems with their housing" (Greenberg et al., 2021). This includes living in spaces that are poorly ventilated, many with preexisting air quality issues due to mold, and with the inability to screen toxins already in the air due to pesticide drift from farm fields or exhaust fumes from proximity to traffic clogged highways. In recent years these conditions have been exacerbated by increasing amounts and duration of wildfire smoke. As we've come to learn, this smoke is a toxic cocktail of metals and carcinogens from burnt cars, petroleum products, and building materials. It is particularly dangerous for low income children and the elderly, who may now be developing chronic health problems as a result of smoke conditions from the summer, the multiple years in which annual smoke days have doubled due to the longer fire season, and the fact that their families can't afford expensive air purification systems in their homes (Sengupta, 2020).[10] Adult workers, meanwhile, particularly those with asthma, are also susceptible.

As early studies in China indicate, weakened respiratory condition due to previous exposure to wildfire smoke makes us more susceptible to, and likely to face extreme symptoms of, COVID-19 (Henderson, 2020). Thus, we're now beginning to see "syndemic" impacts (Singer et al., 2017), with the interaction of chronic respiratory disease, COVID, and underlying social conditions. Respiratory problems are exacerbated by wildfire smoke. Poor outdoor and indoor air quality tends to reduce exercise, and thus exacerbate chronic diseases like obesity, heart disease, and diabetes.[11] All of these conditions then heighten rates of morbidity and mortality from COVID-19.

COVID disparities for Santa Cruz county are now among the most extreme in California. *Latinos concentrated in South County represent 30 percent of the county population yet 62 percent of infections, while whites, concentrated in North County, represent close to 70 percent of the population, with just 20 percent of cases*.[12]

10. Marshall Burke, Stanford economist, and his colleagues found that, across California, as the number of smoke days has risen over the past 15 years, the impact is so extreme that all state gains in cleaning air from conventional sources of pollution are being reversed. (Burke et al., 2021)

11. I am indebted to my colleague James Battle, who studies diabetes and "syndemics," for this insight.

12. Data represents known cases of COVID-19 among residents of Santa Cruz County by date reported to the Communicable Diseases Unit from health providers or electronic lab reporting. Data extracted from the California Reportable Disease Information Exchange Nov 18, 2020.

This raises the question of why these conditions persist — on the job and commute, and at home. In our tenant survey, we found a significantly smaller number of Latinx vs white respondents reporting housing violations, such as persistent mold; in subsequent interviews, we found many of those not reporting were undocumented or part of mixed status families, and worried complaints could lead to loss of their housing, or worse, deportation (Greenberg et al., 2021). With the anti-immigrant agenda of the Trump administration, as well as ever-intensifying gentrification pressures, Latinx families found themselves to be particularly "displaceable" in California cities. Beginning in the 2017, legal-aid agencies in Santa Cruz County and throughout the state began reporting eviction threats against undocumented tenants by landlords as a means to void leases and raise rents — in which landlords "often mentioned Trump by name" (Caps, 2017).

Come 2021, 1,000 units of housing in Santa Cruz County were destroyed by fire, and hundreds more damaged — a devastating loss for this small community, and one that worsened the local housing shortage and demand for shelter. Meanwhile workers from Silicon Valley continued to move to new and often hastily reassembled homes in the area, pushing the post-fire market to new heights (Monroy, 2021). Thus, tenants who might consider speaking up about their housing conditions faced the very real risk of being evicted, compounded by the risk of infection should they join the growing ranks in cramped emergency shelters — as public health officials scrambled to retrofit gyms, hotels, and county buildings as best they could to enable social distancing. And if shelter beds were taken, there came the possibility of joining the homeless encampments then expanding throughout Santa Cruz County and across the state, in DIY campsites along the highways and river banks of the exurban fringe.

7 Conclusions

It has been generative for me to reflect on the role of urban housing questions within the sprawling interdisciplinarity of disaster studies. It has reminded me that, like urban scholarship more broadly, disaster studies produce their own epistemological center/periphery divisions — between the natural and social sciences, materialist and interpretive approaches, as well as "northwestern" and "southeastern" positionalities, among others. From epidemiology, fire ecology and urban and regional planning, to traditional environmental stewardship and ethno-botany, to critical and postcolonial urban studies and environmental health justice, it is my hope that a bridge-building analysis of disaster can be forged by centering the pluriversal need for adequate shelter, and the spiraling implications of this housing for both people and ecosystems. As such, I would argue that the study of housing crises and urban exclusion become central to broader efforts to advance a transdisciplinary and engaged urban political ecology of disaster.

I have attempted some preliminary work along these lines here, exploring the role of housing and urban exclusion across different conjunctural moments of disaster, shaping both their origins and outcomes. In terms of origins, this includes, first, their role in driving exurbanization, from informal settlements to sprawl, together with the historic factors that lay the ground for this development. We then see the complex impacts of this exurbananization, and its capacity to generate multiple kinds of disaster. The movement of people, housing, and infrastructure across the interface of urban, rural, and wilderness areas — whether referred to as peri-urban fringe, wildlife-livestock-human interface, or WUI — is recognized as a, if not *the* cause of the major socio-environmental and health disasters of our times, due to increased human-nonhuman interaction alongside the ongoing disruption and fragmentation of habitat and ecosystems, disruptions which themselves interact with and contribute to larger scale dy-

namics like climate change. I have discussed wildfire and pandemic, and their combination; we might in future explore the role of the interface zones in floods, droughts, and other climate related disasters afflicting us and our planet. Finally, housing and urban questions become vitally relevant again in the aftermath of disaster, shaping outcomes for vulnerable populations, and potentially turning disasters into crises. Through the case of compounding crises of COVID-19 and wildfire smoke Santa Cruz County, we see how inadequate housing makes it impossible to protect oneself and others from airborne pathogens and toxins, and how in turn, this leads to starkly unequal outcomes along lines of race, class, and residential geography.

Such understanding can then inform research on interventions. What would it mean to center housing within disaster research and response, and do so at each of these moments, and with broader urban/exurban regions in mind? How might we intervene simultaneously in advancing urban inclusion and limiting the growth of the disaster-prone interface?

Perhaps now, with the unprecedented scale and intersection of these crises, this is one of those moments of radical rupture when these ambitious questions can be asked, and when the ideas housing and right to the city activists have been advocating for for a generation can become common sense. In the U.S. context we're beginning to see evidence of this. In response to the pandemic, we've seen the use of the national stimulus to extend eviction moratoria and provide supportive housing for the homeless, with the recognition by the Centers for Disease Control that lack of adequate and affordable housing is fundamentally a "public health" issue. The question remains as to whether these programs will be extended and expanded, as well as whether the lessons of climate catastrophes, like wildfires and floods, will be harnessed to redirect housing policy and limit exurban growth on a national scale — along the lines of a Green New Deal for Housing legislation. If so this would make it possible to build on small scale efforts at "managed retreat", the "urbanizing" of informal settlements, and other means of mitigating disaster-prone development in interface areas, while reinvesting in social housing and protecting tenants in the urban core.

Housing advocates are seizing on these discursive shifts to push for such broader, longer term change. Much as urban housing activists should be recognized as "low carbon protagonists" (Aldana Cohen, 2017), and part of emerging "climate publics" (Elliot, 2021), we might argue that they also be seen as protagonists for public health and ecological conservation, as well as for environmental and health justice. Based on the relational analysis explored here, I would suggest that to elevate these protagonists it will also be crucial to forge new coalitions across geographic and disciplinary lines. Imagine housing and right to the city activists working together with those in conservation and public health, as well as those with traditional knowledge in stewarding the land and protecting habitat, such as farmers and indigenous groups. Might it be in our interest to find common ground, politically speaking, across the interface?

Perhaps this unprecedented moment offers such an opportunity. Disasters, we know, fall unevenly and in complex combinations, exposing and linking deeply rooted inequalities of race and class, citizenship and housing tenure, with the potential to spiral into far-reaching crises. Yet these crises are also full of the possibility of collectively imagining far reaching change. This can begin with one fundamental step: ensuring housing as a universal right. If pandemic isolation, wildfire evacuation, and any number of recent disasters have taught us anything, it is that all of us, in city or hinterland, depend upon each other to stay safe, and that this safety will require inclusive cities and homes for all.

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Disaster Urbanization: The City Between Crisis and Calamity

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Abstract

This paper asks what critical urban theory can add to the sociology of disasters. If the fundamental insight of disaster studies is that there's no such thing as a natural disaster, the starting point for critical urban studies is that capitalist urbanization is a disaster waiting to happen. Disasters are promoted and inflected by the specific forms of crisis and vulnerability created by neoliberal urbanization. Disasters are also ways in which urban space is produced and remade, in a process that can be called disaster urbanization. A critical account of the relationship between contemporary urbanization and disaster can help us better understand the disaster-prone, unevenly urbanizing future.

Keywords: Disasters; Urbanization; Crisis; Critical Urban Theory; Neoliberalization; Planetary Urbanization; Vulnerability.

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There are two common, related ideas about cities and disaster. The first sees urban life as teetering on the edge of survival, liable to go into rapid decline or end altogether as a consequence of disaster. In this view, disasters threaten to kill off cities, or cause them to become unviable. The second idea sees disasters as external events that intrude upon urbanization but which are unable to change the essentially heroic nature of city life. Both of these narratives have become common during the COVID-19 pandemic. The geographer Joel Kotkin, for example, sees population density as a sufficiently major problem to threaten the future of urban life. "This crisis is the right moment for the world to reconsider the conventional wisdom that denser cities are better cities... Sadly, many of the attractions that make places like New York so unique and appealing also make them more dangerous" (Kotkin, 2020). Conversely, economist and urbanist Ed Glaeser sees global urbanism as the key to post-pandemic economic life. Writing in a London newspaper, he argues,

> The age of urban miracles is not over. If the Government raises its shield against disease and can ensure that the UK's capital is a good place to do business and live, then the people of London can get back to their ordinary business of inventing the future" (Glaeser 2021).

For a sociologically and politically useful understanding of disaster, neither the anti-urban perspective nor the Promethean view are helpful. Cities have been both surviving and contributing to disasters for a long time. A critical understanding of the relationship between urbanization and disaster requires a different analysis. Rather than demonizing or deifying contemporary urbanization, it would be more helpful to ask if there are ways in which contemporary urbanization encourages and amplifies disaster, and to examine the ways in which disasters might be productive of certain types of urban space.

I want to try to shed some light on these questions by considering what critical urban theory can add to disaster studies. The first critical injunction would be to historicize: rather than asking today about the possible relationship between urban life in general and disasters, we should ask if the specific kinds of injustices and inequalities that are produced by contemporary capitalist urbanization contribute to disasters or are shaped by them. We need to ask how neoliberal urbanization helps to make disaster, and is in turn remade by it.

The challenge for analysts of contemporary urban disasters, I argue, is to understand the relationship between disaster and crisis. The crisis tendencies and contradictions of neoliberal urbanization are creating new structures of vulnerability and risk. It is this uneven pattern that is the relevant context for understanding the relationship between disasters and urbanization today. Disasters are, in this sense, encouraged by contemporary urbanization, and their harmfulness is channeled in specific ways. They are also used to produce particular kinds of urban spaces and processes, which we can call *disaster urbanization*. As disasters become more common (Gu, 2019), disaster urbanization will become more prevalent. This presents something of a paradox: disasters are defined precisely by their departure from the norm (Perry, 2007), yet this abnormal state is becoming increasingly routine. Disaster urbanization therefore points to some of the political and economic fault lines that will define that dreaded anticipatory condition which disasters seem to call into being: the new normal.

It is not my goal here to revisit debates over the meaning of urbanization or planetarity, or to rehash terminological disputes regarding the difference between disasters and related terms (Tierney, 2019; Calhoun, 2004; Quarantelli, 2000). I am not claiming that disasters are exclusively or uniquely urban. Nor am I focusing on the ongoing debate about specific factors that

are currently shaping the transmission of COVID-19 in cities. Rather, I want to explore the relationship between the routine forms of destabilization that increasingly defines contemporary urbanization and the specific forms of destabilization that occurs with disasters.

For this reason, I am not drawing a sharp distinction between so-called natural disasters, such as extreme weather events, and human-made disasters, such as the 2020 Beirut port explosion. The fundamental insight of critical disaster studies is that there is no such thing as a natural disaster (Hartman & Squires, 2006; Smith, 2006). "The origins of disaster lie not in nature, and not in technology, but rather in the ordinary everyday workings of society itself" (Tierney, 2014, p. 5). Disasters may be triggered by any variety of causes, but they are distinguished by the socially-produced damage to human lives, spaces and projects that they cause. "An earthquake happening in a region where no humans live is not a disaster, it is just a trembling of the earth" (Guggenheim, 2014, p. 3). Humans can both directly cause putatively natural disasters as well as decisively shape the contexts that are necessary for them to be recognized as disastrous. As I shall explain, the structure of vulnerability created by contemporary urbanization is one of the most important contexts in this respect.

There are concrete political stakes to properly understanding the relationship between disaster, crisis, and contemporary urbanization. Disasters activate something within cities that crises do not. Disasters are not only actionable — they *demand* action, such that failing to address them is prima facie evidence of misrule. In most places, the onset of a disaster makes it possible to officially declare a "serious incident" or state of emergency, thus triggering not only new executive powers but also additional discretionary funding. Crisis, on the other hand, is a much looser term, more at home in the rhetoric of activists and social theorists. Declaring a crisis may be a way for a political actor to try to dramatize a problem, but most countries lack an official crisis designation. Crises often seem to simply grind on, and only demand action when they boil over into disasters. If the conceptual, political and legal frames around normalcy, risk and harm were altered, perhaps the housing crisis, the climate crisis, or the crisis of care (Fraser, 2016) could generate some of the urgency and energy summoned by disasters.

Understanding the relationship between urbanization, crisis, and disaster is not, ultimately, a question of terminology, but one of concrete political power. What kinds of urban political power and authority are necessary to address both disasters and crises? What is the baseline urban condition that defines normalcy? After a calamitous event, should the urban status quo ante be restored or superseded? In order to answer questions of this sort, we need a critical understanding of contemporary urbanization, its crisis tendencies, and the ways in which it both shapes and is shaped by disaster.

1 Urban Crisis Tendencies

It is possible to imagine a version of urbanization that socializes risk, makes universal residential stability an explicit policy goal, and deescalates the climate emergency. But that is not the version of urbanization that currently predominates. After at least forty years of neoliberal development, urbanization today tends to intensify inequality, risk and precarity. This is the specific context in which urban disasters take place today. If disasters such as pandemics or wildfires are exceptional events, the routine urban life they intrude upon is itself marked by a number of crisis tendencies. The first step in a critical urban sociology of disaster is recognizing that contemporary disasters disrupt urbanization that is already in a state of crisis.

There is a copious literature detailing the development, since the late 1970s and 1980s, of neoliberal urbanization (Hackworth, 2007; Brenner et al., 2010; Brenner & Theodore, 2002 &

2005; Pinson & Journel, 2016). As a term to describe overall urban political-economic change, it is usually accompanied by other processes at various scales, such as financialization (Fields, 2017), commodification (Fenton et al., 2013), and assetization (Birch & Muniesa 2020). These interlocking processes having occurred unevenly, in different ways and to different extents in different cities and urban regions, but they tend to appear together. This is not an argument about every urban region developing in identical ways or following the same logic. But it does name a broad, variegated, ongoing historical process.

For this discussion, one of the most salient elements of neoliberal urbanization is the growth of precarity (Philo et al., 2019; Lancione, 2019; Watt, 2018; Ferreri et al., 2017). This can be seen most clearly in the housing system. As urban development becomes commodified and financialized, housing becomes increasingly inaccessible and insecure. Residential precariousness can be seen in many forms, including the expansion of temporary and insecure tenures, reduced housing accessibility, the undermining of stable forms of social housing, overcrowding, the expansion of informal and illegal housing forms, and the growth of homelessness. In some instances, the creation of fluid or temporary housing was an explicit policy goal, while in others it has been the unintended if not unpredicted outcome of other policies (Madden & Marcuse, 2016).

The housing crisis should be seen as part of a broader crisis of social reproduction (Madden, 2020). Nancy Fraser identifies the "crisis of social reproduction" as the fact that "on the one hand, social reproduction is a condition of possibility for sustained capital accumulation; on the other, capitalism's orientation to unlimited accumulation tends to destabilize the very processes of social reproduction on which it relies" (Fraser, 2016, p. 100). What Fraser calls "financialized capitalism" is undermining its own conditions of possibility by disrupting the processes by which labor reproduces itself, without which it cannot continue to exist. This takes the form not only of unstable housing but also exhaustion, depleting household resources and damaging the networks of informal care that make all economic action possible. For many poor and working-class households in big cities today, social reproduction is increasingly taxing and difficult, a burden that is disproportionately though not solely borne by women. In addition to creating extensive misery, this constitutes a crisis tendency at the heart of urban political-economic life.

More generally, urban neoliberalization entails the redistribution and reorganization of risk and vulnerability. Risk is being de-socialized, redistributed away from the state and corporate actors and onto newly "responsibilized" individuals, families and communities (Pyysiäinen et al., 2017; Gray, 2009). The movement of risk within the neoliberal city mirrors other neoliberal policy areas, in that it involves both the rolling back of sources of protection as well as the rolling out of new forms of hazard. The privatization of social services, the recommodification of housing, the deregulation of many industries and the erosion of old-age pensions and other forms of social security are all examples of the rolling back of protections against risk. But the neoliberal metropolis is also a place characterized by the creative invention and expansion of new forms of risk, speculation, securitization and hedging that are migrating out of financial contexts to become broader tools of governance (Breger Bush, 2016; Konings, 2016).

The language of risk suggests a set of calculable, knowable hazards. But this picture may be too rationalistic. The uneven exposure to the chances of harm and death in cities today is closer to what Judith Butler (2012) invokes as "an unequal distribution of precarity, one that depends on dominant norms regarding whose life is grievable and worth protecting and whose life is ungrievable" (p. 148). Butler here is describing a far more fundamental process of valuing and protecting some lives while rendering others unprotected and worthless. After

decades of neoliberal development, city life today is characterized precisely by a tactical, uneven distribution of precarity. The question is not the differential expression of manageable risks so much as the systemic generation of the social condition within cities that Oren Yiftachel (2020) calls "displaceability" and Ali Bhagat (2020), calls "disposability": the condition of being easily removed, erased, and forgotten, as a result of direct displacement as well as unequal citizenship, weakened supportive institutions, inadequate and insecure housing, and blatantly unfair juridical procedures.

The neoliberal redistribution of risk and vulnerability varies greatly between global contexts, but in most places where it appears it is deeply racialized. Neoliberal urban capitalism is a form of racial capitalism, and as such, Black urban spaces and communities of color are subjected to specific forms of exploitation and displaceability, and denied the security and protection granted to others. As Ida Danewid (2020) argues, "the racial structuring of life and death in the global city" (p. 291) is deeply marked by histories of empire and colonialism, as well as by neo- and post-colonial patterns in the present.

Neoliberal urbanization itself has neo-colonial qualities, in that it is both expansionary and centralizing. As urbanization develops across the planet, it is in some places densely inhabited, and in others just an infrastructural shadow of city life. Urban development causes the production of space and consumption of resources well beyond the boundaries of urban areas (Bulkeley & Betsill, 2005). In its contemporary form, it directly causes the creation of extraction zones, mineral frontiers, plantations, transit corridors, wastelands, and other spaces that are geographically and socially far from city centers but which are still central to the urban process (Brenner, 2014). Many of these spaces are not inhabitable or appropriable as social space, but they do require some forms of social practices and residential capacity. And of course a planetary-urban system based upon carbon capitalism is at the center of the climate crisis, with urbanization a major cause of carbon emissions and other greenhouse gases. As Mike Davis puts it, "the urbanization of humanity" is "the single most important cause of global warming" (Davis, 2010, p. 30). Between the commodification of nature and ecological destabilization, the imprint of urbanization on the planet harbors its own crisis tendency, as urbanization threatens the ecological conditions upon which it depends.

If disasters are by definition "non-routine events" (Kreps, 1998), it is important to recognize that the routine state of urbanization into which they intrude is itself a social and ecological crisis. COVID-19 arrived in urban areas that were already enduring housing crisis and a broader crisis of social reproduction. These crisis tendencies are routine parts of neoliberal capitalist urbanization, not signs of its failure or breakdown. Yet by threatening the social and ecological conditions of possibility of urban life itself, they also put it in danger and make it highly unstable. It is not surprising that they set the stage for disaster and sometimes directly cause it.

2 Urban Structures of Vulnerability

If neoliberal urbanism is characterized by ongoing crisis, how specifically does it encourage disaster? One of the key concepts in disaster studies is vulnerability (Faas, 2016; Cutter, 1996). Vulnerability needs to be understood as a social and political condition, located within axes of class, race, gender and other forms of power (see Jacobs, 2019). Making a social group vulnerable, I would argue, is among other things an urban process, one that unfolds through time within variegated, unequal urban spaces. The crisis tendencies of contemporary urbanization outlined above — as well as the specific morphologies and built forms of urbanization today

— create a distinctive structure of vulnerability within cities that is conducive to disasters and tends to channel their damage in distinct ways.

This is not to claim that the urbanization of disaster is unique or new. To some extent, of course, social space in any form is conducive to disaster, because no human is invulnerable. And obviously urbanism has long had to contend with the threat of catastrophe. Ancient urban thought — as found in biblical sources as well as secular texts, such as Thucydides' account of the plague of Athens — is replete with descriptions of disasters befalling cities. But the ways in which urbanization creates disaster varies historically. Generally speaking, there are relatively distinct, identifiable ways in which neoliberal urbanization encourages and shapes disasters.

Neoliberal cities feature distinctive patterns of inequality, and when disaster strikes, these patterns channel harm towards the least powerful city dwellers, those who are relegated to the most deprived neighborhoods and buildings, required to labor in the most risky conditions, and denied the most up-to-date technological and medical protections. Disaster's impact upon place and space is highly uneven, but in neoliberal cities, space and place are highly stratified by race, class, gender, family structure, language, migration status, and other factors. Summarizing a large body of research, it is clear that "the impacts of disasters often fall most heavily on those who are most vulnerable: the poor, racial and ethnic minorities, and other marginalized groups" (Tierney, 2019, p. 19). Working class households, racialized groups and minoritized communities experience greater harm during them and are given fewer resources to recover from them (Fothergill et al., 1999). Due to gender norms, political exclusion, relegation to social-reproductive labor and incidents of direct violence, women are more likely to die in disasters than men (Juran & Trivedi, 2015; Fothergill, 1998). Disasters are more likely to strike those groups that experience the most acute forms of urban precarity.

Neoliberal urban inequalities have a complex, intersectional character that can become self-reinforcing when disasters occur. Thomas et al., (2019) demonstrate that oppressed or disenfranchised groups tend to experience simultaneous social, economic, political and epistemic marginalization that strongly reinforces their vulnerability to disaster. Differential vulnerabilities are also exacerbated by "colorblind" preparedness policies that fail to recognize the distinctive hazards caused by structural racism (Hardy et al., 2017) and which fail to account for inequalities between different urban districts or neighborhoods as well as inequality within them.

The neoliberal housing system is particularly conducive to disaster. By introducing new sources of precarity, instability and inaccessibility into the housing system, neoliberal changes to the political-economy of housing in many places since the 1980s has meant that many households face new forms of hazard. Private rental housing has greatly expanded in neoliberalizing cities, and public housing authorities have faced severe cutbacks, in both cases shifting risk and vulnerability onto renters. When disasters occur, rent and eviction are significant vectors of harm. According to the large body of research summarized by Lee & Van Zandt (2019), at all phases of disaster, from preparedness to impact, response to recovery, renters are more vulnerable and less protected than owners. Comparing the impacts of Hurricane Andrew on Miami, Florida and Hurricane Ike on Galveston, Texas, Peacock et al. (2014) demonstrated among other things that owner-occupied housing tends to suffer lower levels of damage and to recover more swiftly after a disaster, and that these effects where exacerbated by racialized inequalities. A study of a 2018 tornado in Marshalltown, Iowa (Hamideh et al., 2021a) found that renters, immigrants and other precarious households were less prepared before the tornado and slower to recover after it. Other research (Hamideh et al., 2021b) has also found that disaster vulnerability and harm are shaped by housing type, with occupants of single-family homes tending

to enjoy greater protections before disaster and to be given more support following disasters, compared to residents of multifamily buildings.

Some forms of neoliberal urban development are directly implicated in increasing vulnerability to disaster. A study of La Condesa in Mexico City suggests that gentrification contributed to the vulnerability of working-class residents (Castillo-Oropeza et al., 2018). Expensive, inaccessible housing and urban development has the effect of pushing working-class and minoritized people into informal residential zones, with legally unrecognized tenancies, inadequate infrastructure and hazardous maintenance standards that are also more vulnerable to floods (Taş et al., 2013), typhoons (Morin et al., 2016), and other disasters. As a result of neoliberal policies, increasingly unequal employment structures, and new real estate strategies, contemporary housing systems heighten the vulnerability to disasters of the least-powerful households.

There are of course many elements of urban life today that help to reduce and collectivize vulnerability (Vale & Campanella 2005), including public health infrastructure, social housing, and other state institutions as well as social movements, community groups, and dense networks of solidarity and mutual aid. But the neoliberal transformation of the state tends to undermine the public institutions tasked with socializing risk. Privatized social services tend to produce outcomes that are more uneven than those of democratically-accountable alternatives. Weakened public health infrastructures produce less healthy publics, and are less able to respond swiftly in the event of disaster. And while 'bottom-up' responses to disaster play an important role in ameliorating social suffering, they operate at a different scale and must struggle against the effects of the state's abandonment of particular urban populations.

Neoliberal urbanization's distinctive patterns of vulnerability are not only to be found in the centers of cities and urban regions. In its moment of "extension" (Brenner & Schmid 2015; Brenner, 2014) — in the expansion of operational landscapes and urbanizing spaces into new zones — urbanization in its neoliberal-planetary form fosters disaster by placing people and infrastructure in harms way. New forms of agriculture, deforestation and resource extraction, and new patterns of migration and settlement in urban peripheries have been found to encourage a variety of devastating events. These include heightened risks of flooding (Shatkin, 2019; Adikari et al., 2010), wildfires (Radeloff et al., 2018; Greenberg, 2021; Buxton et al., 2011), geo-hazards such as landslides (Cui et al., 2019), zoonotic disease transmission (Connolly et al., 2020, 2021; Ahmed et al., 2019), and other disasters. It would be an error to theorize the link between planetary urbanization and disaster in a neo-Malthusian vein that imagines the problem is too many people in too many megacities on a finite planet. The problem is not population growth; it is the domination of urban life by a system dedicated to accumulation for accumulation's sake and production for production's sake. Significant parts of the world, and especially areas with high population growth, produce negligible amounts of greenhouse gas emissions (Satterthwaite, 2009). It is not urbanization per se, but the specific political-economic form of contemporary urbanization that is pushing the planet towards disaster.

3 Disaster Urbanization

As much as urbanization today contributes to and shapes disasters, at the same time, disasters also produce certain kinds of urban space. What can be called *disaster urbanization* signifies the contested, contradictory processes of citymaking that occur in anticipation of, during and as a result of disasters. Disaster urbanization appears very differently in different contexts, but a few overall patterns can be provisionally observed.

Even before any disaster occurs, disaster preparedness involves the arrangement of urban space in particular ways (Carpenter & Grünewald, 2016; Anderson, 2010; Lakoff, 2007). This can include infrastructure at the scale of the street, larger urban-scale technologies, particular approaches to design, complex systems of surveillance and detection, and a range of domestic and neighborhood practices, sensitivities and knowledges. All spaces and technologies of preparedness, from levees to shelters, raise questions about which people and places the authorities seek to protect, and which people and places will be abandoned (Deville et al., 2014). Urban evacuation and disaster management plans may be based on abstract spatial knowledges, but they can fail if they do not take into account actual spatial practices (Kammerbauer, 2013). The logic of protecting vulnerable people can clash directly with logics of protecting valuable spaces, and the results of these conflicts becomes durable through its installation in the built environment. Efforts at preparedness and prevention are a crucial responsibility of the state, but they can take manifestly unjust forms, as the pursuit of preparedness uses urban space to shield some groups and their resources but not others. Building regulations, planning guidelines and insurance policies also format urban space in anticipation of disaster, but as Elliott (2017 & 2021) has demonstrated, these policies entail thorny conflicts over deservedness, justice and differential risk exposure.

Because disasters are so different, it is difficult to generalize about the production of urban space during their immediate impact phase (Wray et al., 2020). I would argue that what disasters do seem to open up in cities when they strike is the possibility for urban space to swiftly change valences from a support to a threat. Residential districts are suddenly emptied as inhabitants flee danger. Public spaces that had been sites for conviviality suddenly become deadly. Transportation infrastructures that had been central tools for mobility suddenly fail or become conduits for hazards. At multiple scales — from the elevator in an apartment building to the rivers that support urban regions to the transportation networks that connect disparate cities — disasters can transform urban spaces and infrastructures from the material support for urban life to a threat to its stability and continuity. Part of what makes urban life during disasters feel so uncanny is this valence shift, as familiar urban amenities abruptly become threatening. At the same time, the process can work in reverse as well. First responders or neighbors engaging in emergency aid may make new use of shared spaces like hallways, parking lots and other everyday sites (Wallace and Wallace 2008), in essence turning social infrastructure that had been lying fallow into a crucial lifeline for delivering care and assistance.

In the immediate aftermath of a disaster, urban space becomes a tool drafted into the response effort (Rodriguez et al., 2006). Mutual aid takes place in public, using the city, its spaces and its patterns of solidarity as a resource in acts of creative improvisation (Solnit, 2009). Public facilities like sports stadiums, community halls, hospitals, hotels or convention centers become sites for relief distribution, shelters or response coordination. The emergency transformation of urban space in the aftermath of a disaster has a strong makeshift character, and may involve extensive volunteer participation dispersed throughout neighborhoods and city spaces (Twigg & Mosel, 2017). During Superstorm Sandy in New York, grassroots responses like Occupy Sandy had a radical quality that managed to question the priorities of the state while also in many ways outperforming it, providing assistance to housing blocks and neighborhoods that the official response was failing to reach (Conroy, 2019). Yet there is still the potential for self-organized responses to perpetuate inequality in terms of race and class (Medwinter, 2020).

The more long-lasting forms of disaster urbanization occur after initial emergencies have passed. During the return and rebuilding phase after disasters, urban space gets reconfigured again. There are examples of democratic, grassroots efforts of neighborhood rebuilding

(Anguelovski, 2014), but rebuilding also offers the possibility for more exclusionary urban space to be produced. Temporary displacement from the impact of a disaster can become permanent reconfigurations as different groups return unevenly to their previous homes (Levine et al., 2007). The racialized impacts of disasters can be compounded by racialized recoveries (Gotham, 2014). Following Hurricane Katrina, neighborhoods with larger proportions of Black residents received less assistance relative to the damage they sustained (Kamel, 2012). One analysis found that in New Orleans, "the damage caused by Katrina did not have a strongly differential impact on black neighborhoods; the differences arise in the ability to return and rebuild in the city" (Bates, 2006, p. 17). Destroyed sites, if they occupy strategic locations, can be treated as opportunities for post-disaster gentrification or speculation. Neighborhoods that sustained greater damage from Katrina were more likely to subsequently undergo gentrification than less damaged areas (van Holm & Wyczalkowski, 2019). Disaster gentrification can be both a cause and outcome of racialized displacement. In the name of repair and restoration, a new urban landscape can be built that purges the city of less powerful populations or less profitable land uses.

The anticipation of future disasters is now a major rationale and ideological justification for urban development. Disaster avoidance and the democratization of safety are often major goals for radical projects that pursue decarbonization or ecosocialist urbanism (Cohen, 2020). But in actually-existing neoliberal cities, the disastrous future is more commonly used to justify elitist urban developments in the present (Castán Broto & Robin, 2020; Shi, 2020; Sovacool et al., 2019; Long & Rice, 2019). The logic of disaster avoidance and resilience provides ubiquitous justification for exclusionary developments promoted as green enclaves. In many cases, these projects do not reduce risk or increase overall protection from catastrophe — they merely shift risk onto other, more vulnerable populations. Thomas & Warner (2019) describe numerous examples of threat displacement, climate gentrification, elite fortification and other forms of weaponizing vulnerability to disasters linked to climate change. The luxury mega-enclave Eko Atlantic in Lagos, for example, is promoted as a utopian solution to a flooded future, but it has endangered the communities beyond its boundaries. Ajibade (2017) found that, "For the most part, the project commodifies not just nature but the idea of adaptation by converting a publicly owned common-pool resource (ocean space and seabed) into a prime estate for capital accumulation." (p. 89) In their attempts to fortify against and secede from the disaster-prone city, some extreme forms of resilient urbanism verge on eco-apartheid (Ernstson & Swyngedouw, 2019). More routine green development can also be associated with a slower but consistent accretion of exclusionary urban space. Philadelphia's suite of stormwater management adaptions, part of their strategy to become "climate ready," were concentrated in wealthy enclaves, and when deployed elsewhere in the city, were associated with gentrification (Shokry et al., 2020). In the name of avoiding future calamities or building resilience against them, disaster urbanization can end up contributing to the very social and ecological catastrophes it supposedly tries to avoid.

Disasters also transform the nature of urban authority and the scope of urban policy. In Zeiderman's (2016) study of the government of "zones of high risk" for disasters in Bogotá, risk becomes central to a pervasive political rationality that shapes both the state's understanding of its own tasks and the demands that city-dwellers pose to it. In Bangladesh, Paprocki (2018) has demonstrated that climate adaptation predicated on the inevitability of accelerated urbanization serves as a form of governance that legitimizes agrarian dispossession. In other cities, "resilience" has become the dominant political frame, focusing urban authority around technocratic solutions to the climate crisis while defining other issues — such as housing injustice

or labor exploitation — as irrelevant to the new policy emphases (Ranganathan & Bratman, 2021; Meriläinen et al., 2020).

Disasters in their destructiveness have the power to reveal the fissures and injustices of contemporary urbanization. It is certainly possible for urban disasters to be used to rearticulate public understandings about who is helped and who is harmed by the dominant model of urbanization and become vehicles for city-dwellers to make new claims about welfare, social citizenships, and the distribution of safety. The space of exception that disasters enact within urban politics can be deployed for a variety of purposes, including a critical politics of disaster that seeks to transform the normal urban condition, not just prepare and repair it. But the predominant direction of change for the politics of disaster urbanization has been technocratizing rather than democratizing. Disasters endow urban government with new emergency powers and a new remit to reorganize space in the name of preparedness and recovery. This often coincides with spectacular forms of municipal failure. But so far they have not led to the establishment of new governing regimes or political-economic configurations within cities.

4 Conclusion: For a Critical Urban Disaster Studies

If the fundamental insight of disaster studies is that there's no such thing as a natural disaster, the starting point for critical urban studies is that capitalist urbanization is a disaster waiting to happen. Both of these perspectives will be needed to make sense of the disastrous, unevenly urbanizing future. Disasters, I have been arguing, are ways in which urban space is produced and remade, just as disasters are promoted and inflected by the specific forms of crisis and vulnerability created by contemporary urbanization. The intersection between the event of disaster and the process of urbanization will be a crucial point of social and political conflict for the foreseeable future.

If the world will be marked by more frequent urban disasters, then disaster urbanization is going to become an increasingly dominant mode through which urban space is produced. Activists, advocates, political actors and engaged scholars need to develop ways to pursue a critical politics of urban disaster that can address the ongoing crises that are endemic to neoliberal urbanization as well as the periodic disasters that impact it. There should be mechanisms that allow the housing crisis or the crisis of social reproduction to activate the same urgency as disasters, as addressing them in a democratic way would not only reduce immediate injustices but also help de-vulnerabilize the city. Disaster preparedness needs to be aimed at critically reconstructing urban life along more democratic, egalitarian lines. There must be radical understandings of preparedness and risk (Ranganathan & Bratman, 2021; Jacobs, 2019) that take into account situated knowledges and intersectional oppressions.

More generally, disaster urbanization should be recognized as a major way in which the urban landscape is negotiated and shaped. Cities will not be destroyed by disasters, but they are being changed by them. As disasters become more common, disaster urbanization will become an ever more dominant mode of citymaking. Urban disasters are anticipatory, future-shaping events that entail moments of destruction and moments of creation, when urban space and urban politics are torn apart and reconstructed. An adequate understanding of urban disasters needs to be attuned to both of these moments, as they contain the threat of immense harm as well as the potential for profoundly remaking urban life.

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Mourning and Memory in the Age of COVID-19

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Abstract

Contemporary disasters are frequently accompanied by a rush to memorialization. Although there have been significant grassroots efforts to memorialize the tremendous losses that the United States has sustained during the COVID-19 pandemic, there has been no coordinated national commemoration, no single place or moment that has channeled public grief in a genuinely *collective* manner. While acknowledging the political dynamics at play, I also go beyond them to consider the challenges that COVID-19 poses for meaning-making: how it creates obstacles to both ritual and narrativization. Drawing on literary approaches to sociology, I consider how the discipline can respond humanely to ongoing disruption and the protracted sense of liminality that it creates.

Keywords: Collective Memory; Mourning; Ritual; Narrative; Lyrical Sociology.

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As the COVID-19 death toll neared 100,000 in the United States, the *New York Times* marked the "grim milestone" with the names of the dead. On May 24, 2020, the front page was filled with type — no images — listing the names of COVID-19's U.S. victims, along with fleeting snippets from their obituaries. "*Alice Chavdarian, 92, Michigan, loving, generous and adventurous spirit*." "*Kyra Swartz, 33, New York, volunteered for pet rescue organizations*." "*Israel Sauz, 22, Broken Arrow, Oklahoma, new father*." "*Doris Brown, 79, Gary, Ind. Died on the same day as her husband*." Tom Bodkin, the *Times*' chief creative officer, described the all-type approach as "hugely dramatic", remarking that he could not remember any front pages without images during his 40-year career with the paper (Grippe, 2020). In the online version, headlined "An Incalculable Loss", readers scroll down, and down, and down (*New York Times*, 2020). Tiny figures in black represent the victims whose obituaries are excerpted. But many more are nameless and depicted in gray, as if they are already vanishing from memory.

By autumn, several groups of activists and artists had mounted temporary exhibitions in Washington, D.C., in attempts to represent the enormity of the nation's losses and create sites of mourning. In late September, a group called the COVID Memorial Project placed 20,000 American flags on the National Mall, each representing 10 of the dead that, by then, numbered over 200,000. In early October, shortly after President Donald Trump tested positive for COVID-19, COVID Survivors for Change set up 20,000 empty black chairs on the Ellipse, just south of the White House, with the same symbolic rationale. A few weeks later, a public art project conceptualized by Suzanne Brennan Firstenberg began planting thousands upon thousands of small white flags in the ground at the D.C. Armory Parade Ground, outside RFK Stadium. By the time the project concluded on November 30, community volunteers had planted 250,000 flags, commemorating as many deaths.

In the United States and around much of the globe, a powerful impulse toward memorializing victims of disaster has coalesced over the past several decades. Rather than, or at least in addition to, monumentalizing iconic leaders and other public figures, today's culture of memory revolves around commemorating the loss of ordinary individuals: from the tradition of reading the names of Holocaust victims aloud at Yad Vashem in Jerusalem, to the 58,000 names inscribed on the black granite walls of the Vietnam Veterans Memorial in Washington, D.C., to the mourning rites held after the 2008 Sichuan earthquake in China, "mourning for the ordinary" (Xu, 2013, p. 510) has become virtually compulsory in the aftermath of contemporary disasters. Frequently, plans for memorialization take shape almost instantaneously, before the full shape of an event becomes clear.[1]

As the COVID-19 pandemic rages, this impulse to memorialize and mourn for ordinary people — and, in doing so, to underscore the significance of each individual life — remains strong in the United States. Since assuming office in January 2021, President Joe Biden has begun to oversee rituals for collective mourning: presiding over a memorial ceremony on the national mall on the eve of his inauguration and holding another just a month later, when COVID deaths in the United States alone numbered over half a million. Yet even as plans for some coordinated national commemorations have begun to take shape, no single place or moment that has channeled public grief in a manner that feels genuinely *collective*. Part of the reason, of course, is political: the callousness of an administration that steadfastly refused to mourn the thousands upon thousands of lives lost during the pandemic's first year. Throughout the 2020 presidential campaign, media coverage juxtaposing Trump's rallies with those of his rival — and eventual successor — made manifest the moral and emotional chasm that

1. See, for instance, the November 11, 2001, conversation in *New York Times Magazine*, "What to Build", on the shape of a future 9/11 memorial (Riley, 2001).

opened between Trump's most fervent supporters and their fellow citizens who were (and are) actively grieving massive losses, both personal and collective.

Sociologically speaking, however, President Trump's utter disdain for human suffering, for the pain of mourners whose numbers multiply daily across the landscape, is only part of the answer. That is because meaningful commemoration — commemoration with the power to ameliorate grief, foster solidarity, and restore trust in the social — requires capacities for *ritualization* and *narrativization* that are strikingly absent in the era of COVID-19. In the pages that follow, I juxtapose classical social theory with our disorienting circumstances in the present in order to elucidate the barriers to collective mourning and memorialization in the age of COVID-19. I then consider what sociology can do to foster human connection and restore social bonds amidst the ongoing pandemic, building on sociological frameworks that take their inspiration from literature — including lyricism (Abbott, 2007) and tragedy (Simko & Olick, 2020) — to contemplate how the discipline can reckon humanely with disruption, fragmentation, and loss. Indeed, I argue that a literary-sociological approach to disaster may even help to transform our culture of memorialization more generally: namely, by carving out space for reflection and contemplation *before* constructing definitive representations of events in the form of memorials, museums, and other sites of memory that are designed for permanency.

1 Ritual, Embodiment, and the Body Politic

1.1 Ritual and the Body

Émile Durkheim's (1912) descriptions of ritual and the emotional electricity that it generates readily evoke contemporary spectacles such as football games and rock concerts: the positive rituals for which so many of us yearn amidst the current need to practice social distancing.[2] Yet rituals are just as crucial in times of mourning as they are in times of joy and exaltation. When disastrous events threaten the moral foundations of a society, Durkheim argued, that society

> pushes its members to give witness to their sadness, distress, or anger through expressive actions [...] It does so because those collective demonstrations, as well as the moral community they simultaneously bear witness to and reinforce, restore to the group energy that the events threatened to take away (1912/1995, pp. 415–416).

Durkheim called these collective demonstrations "piacular rites".

As with all rituals, the essential foundation for piacular rites is physical co-presence. That is, piacular rites restore the spirit first and foremost by bringing *bodies* together in common space, enabling the shared focus and mood that lifts people outside of themselves and into the transcendent realm of collective effervescence (see Collins, 2004). Randall Collins' (2020) research conducted amidst the pandemic confirms that disembodied rituals simply do not generate the same sense of uplift and solidarity as their in-person counterparts. For all its virtues in enabling

2. Some sociologists have argued for using the terminology of *physical*, rather than social, distancing (e.g., Menjívar et al., 2020). Although I understand the desire to underscore our continued interdependency and inspire generosity, as I argue in this section, sociology clearly shows that physical distance in fact *creates* social distance, fraying the bonds that are nurtured and sustained through face-to-face interaction. Accordingly, I maintain the language of social distancing while also seeking ways to illuminate our interconnectedness and common humanity, even during the pandemic.

life to carry on amidst the pandemic, in the end, Zoom generates more fatigue than effervescence.

Sociological accounts of past disasters also confirm the importance of what Collins, combining Durkheim with Erving Goffman (see, e.g., Goffman, 1955) calls "interaction ritual chains": the face-to-face interactions through which we move on a daily basis, attracted by those encounters that fill us with emotional energy and repelled by those that do not. In one of the most influential and enduring studies of disaster that the field of sociology has ever produced, Kai Erikson (1976) documented the loss of "communality" that followed the 1972 flood in Buffalo Creek, West Virginia. The wave of black floodwater that suddenly swept through the close-knit mining town not only claimed 121 lives. It also left over 4,000 of Buffalo Creek's 5,000 residents homeless. People whose lives were once bound together by place suddenly found themselves grieving alone and apart. The U.S. Department of Housing and Urban Development (HUD) created 13 trailer camps to house displaced residents. But there was no effort to replicate the structure of Buffalo Creek's old neighborhoods. And so the intangible fabric of the community was swept away as well. Erikson (1976, p. 154) describes the effects in the language of trauma: "a blow to the basic tissues of social life that damages the bonds attaching people together and impairs the prevailing sense of communality." In Buffalo Creek, the damage was ultimately irreparable. People found that they were "isolated and alone, wholly dependent upon their own individual resources." Without the communality that provides a foundational sense of ontological security, Erikson explains, " 'I' continue to exist, though damaged and maybe permanently changed. 'You' continue to exist, though distant and hard to relate to. But 'we' no longer exist as a connected pair or as linked cells in a larger communal body."

According to Collins (2004), emotional energy is the binding agent that creates an intangible sense of community and sustains our social institutions. Emotional energy is generated in and through satisfying interaction rituals: "momentary encounters among human bodies charged up with emotions and consciousness because they have gone through chains of previous encounters" that provide this intangible charge (p. 3). In fact, Collins goes so far as to suggest that "the individual *is* the interaction ritual chain [...] the precipitate of past interactional situations and an ingredient of each new situation" (p. 5). If people are to feel connected to large modern social formations such as the nation-state, their sense of belonging surely must be mediated through micro-level interaction rituals that offer energy and inspiration.

In Buffalo Creek, Erikson's ethnographic observations make clear, the taken-for-granted chains of interaction were broken. People no longer felt a sense of connection to the town and community, let alone a broader collectivity. Today, the COVID-19 pandemic extends this phenomenon around the globe. Without the chains binding us to communities both near and far — not only highly ritualized events such as family reunions and Thanksgiving feasts, but also the simple yet emotionally potent day-to-day interaction rituals at the "water cooler" or the yoga studio or a favorite lunch spot — how can we possibly feel the moral and emotional pull of even larger and more abstract collectivities like the nation?

1.2 Images of Atomization

Consider another comparison across time, this one visual. As a caveat, I am deeply wary of analogies between the COVID-19 pandemic and the events of September 11, 2001. The war metaphors that almost instantaneously became the dominant frame for understanding 9/11 shaped the trajectory of that day's events in decisive and profoundly destructive ways. Presi-

dent Trump's claims, in the early days of the pandemic, that COVID-19 had made him a "war president" made analogies between 9/11 and COVID-19 feel particularly alarming. Nevertheless, I agree with the broad Durkheimian insight that very different kinds of disruptions necessitate a similar response on a human level: namely, collective, in-person gatherings that serve to restore our social bonds, providing a kind of security and inspiration that we simply cannot access from the privacy of our own homes.

From this standpoint, then, it is worth comparing the images of New York City in the days after September 11, 2001, with the haunting stillness that fell over the city during lockdown in March 2020. In September 2001, makeshift memorials across the city — in Washington Square, in Union Square, on the Brooklyn promenade — overflowed with flowers, photographs, letters, and flags. They became gathering places for coordinated candlelight vigils and for spontaneous expressions of grief. Looking through the archives of the September 11 Photo Project at the New York Public Library a couple of years ago, I was awed at photographers' impulse not only to witness these scenes in person, but also to document them, to preserve images of the solidarity that arose amidst mourning.

By contrast, during the COVID-19 lockdown in the spring of 2020, even the ads that continued to play on a loop over Times Square had no audience, save for the photographers who ventured out to preserve the disquieting scene. These photographs preserve the visceral feeling of life in a society without sociality: revealing atomization where there was once community, isolation and atomization amidst the human craving for interaction and ritual. In place of the makeshift memorials that mourned the dead and heroized the first responders after 9/11, the photos from the 2020 lockdowns reveal a digital message that calls out for attention amidst the ads: "THANK YOU #HEALTHCARE WORKERS!" The hashtag reminds viewers of the digital spaces to which our interactions are now primarily confined. As a Coca-Cola ad exhorts, "staying apart is the best way to stay united."

But for most of us, unity remains elusive. The chain is broken. Without the gathering of bodies, the body politic withers.

1.3 Exceptions

The hunger for co-presence became powerfully evident as spring wore on. On May 25, Minneapolis resident George Floyd perished under the knee of a uniformed police officer. Bystanders captured the brutal murder on video, as Floyd cried out for his mother. "*I can't breathe*," Floyd said more than 20 times, to no avail.

His words became a rallying cry. Protests erupted in Minneapolis — then across the nation and even around the globe. Notably, these events drew multiracial crowds, all operating under the tacit assumption that the moral urgency of structural racism and police brutality demanded breaking the rules of social distancing.

I cannot claim to provide any definitive explanation for why such widespread and multiracial protests erupted in this precise moment: late spring 2020, months into a global pandemic that had no end in sight. Surely the causes are multiple and intersecting: the absolute inhumanity on display as Floyd drew his final breaths; the longer arc of the Black Lives Matter movement whose leaders have worked relentlessly to promote social and political change; the incidents of racial violence that have captured national attention under the banner of the places where they unfolded — Ferguson, Charleston, Charlottesville. By May, public health data had also laid bare the deep, insidious, systemic inequalities that the pandemic had both illuminated and exacerbated, inequalities that are older than the republic itself. Yet, in considering what motivated

the protests, and what enabled participants to break the rules of social distancing that otherwise garnered support among progressives, it also seems important to consider the deep yearning for something like the piacular rites that Durkheim described.

In Minneapolis, a group of five artists almost immediately transformed the site of Floyd's death into a makeshift memorial onto which public sentiment — anger, mourning, the thirst for justice — could be projected. Their mural situates Floyd's likeness in the foreground of a sunflower. At the flower's center, the artists inscribed names of other Black victims of police brutality. On Floyd's chest is a message of hope: "I can breathe now." The mural provided a focal point for mourners, who left signs and flowers on the ground beneath. Conversations about a permanent memorial at the same site are underway, with funding from the nonprofit National Trust for Historic Preservation (Walsh, 2020).

The state of exception that emerged during the spring and summer protests reveals both the conditions for public mourning and the human longings that animate it. Eventually, the historians, curators, and architects who construct and preserve images of this period will need to contend with the relationship between pandemic and protest. At present, however, we are still in the midst of disaster, groping our way toward safety as well as understanding.

2 Broken Chains, Broken Narratives

The word "disaster" connotes a disruption to taken-for-granted narratives. The *Oxford English Dictionary* defines disaster as "an event or occurrence of a ruinous or very distressing nature," especially "a sudden accident or natural catastrophe that causes great damage and loss of life." It is an interruption: to lives, to livelihoods, to the life course. As much as I agree with the Durkheimian point (powerfully refashioned for contemporary micro-sociology in Collins' notion of interaction ritual chains) that regenerating emotional effervescence is the first stage in restoring the social amidst disaster, it is not the last. For rituals are not, in and of themselves, narratives. Yet they may be a precursor to narrativization: a way of generating the common sentiments that underwrite a common interpretation of events. Without ritual, which requires that first and most foundational ingredient of *embodied* interaction, people — and their germs, their breath, those invisible aerosolized droplets that now imperil the people we love — coming together synchronously in physical spaces, can we repair the disruption in the narrative? I am not so sure.

Disasters generate moral and existential questions. The only words in Suzanne Brennan Firstenberg's installation, emblazoned on a giant billboard, are: "In America. How could this happen..." Such questions require something akin to what Max Weber (1946), borrowing from philosophy and theology, called *theodicy*: an explanation or interpretation that imbues suffering with meaning. For his part, Weber focused attention on religious explanations for suffering.[3] But secular societies seek after them, too (Berger, 1967). Since the advent of radio, U.S. political leaders, especially presidents, have devoted substantial energy to *political consolation*, responding to disaster with words of comfort and expressions of solidarity, weaving disruptions into familiar collective narratives by addressing the moral and existential questions that they generate (Simko, 2015).

President Trump's callousness, his horrifying refusal to acknowledge the human need for empathy and consolation, is certainly part of the reason why we are still grasping for a COVID-

3. The term originated in Leibniz's 1710 treatise *Theodicy*, which endeavored to justify belief in a Christian God by arguing that the world we inhabit — the world God created — was "the best of all possible worlds."

19 narrative in the United States. But uncertainty, fragmentation, and disorientation are also integral to the pandemic itself, to the *temporality* of this particular disaster.

2.1 TikTok Temporality

Strange as it may seem, I first reckoned seriously with the temporality of COVID-19 through the prism of my students' social media habits. After the students in my senior seminar at Williams College were dismissed from campus in March 2020, several of them reported a new preoccupation with the video-sharing app TikTok. "We're *obsessed*," two friends confessed, Zooming in for office hours from their childhood bedrooms.

Initially, I thought little of my students' quarantine obsession with TikTok. The reasons seemed self-evident. They were trapped at home with an unanticipated abundance of unstructured time, and aren't these apps designed to hack our psychology and ensnare us in vicious cycles of clicking and scrolling?

It was only when students returned to campus in the fall that I began to consider TikTok through a sociological, rather than only psychological, lens. To be sure, the psychological dimensions of social media are crucial to their appeal — and crucial to understanding their role in enabling the widespread dissemination of disinformation and fueling ever-intensifying political polarization. But I do not think that psychology can tell us the whole story of why TikTok, an app that many of my students had previously written off as a space for tweens, became so attractive — addictive, even! — amidst the COVID-19 pandemic in particular.

Brevity is the soul of TikTok. Originally, the app limited videos to 15 seconds, though users can now record up to 60 seconds worth of content by stringing four "segments" together. Does TikTok temporality have an affinity with the phenomenological experience of life under COVID-19: *segmented* and choppy, punctuated by continuous disruptions? There would be no senior week, no commencement, no job offer — never mind the promises from last summer's internship supervisor. The Fulbright fellowship was not to be. On Facebook, Instagram, and Snapchat, users create "stories". On TikTok, randomness, rather than narrative, rules the day. One video is juxtaposed with the next, driven by the mysterious algorithm that we all know about but that none of us seem to understand. What will capture our attention next?

The affinity between COVID life and TikTok goes beyond randomness and disruption, though. It is also evident in a shared repetitiveness. As one widely circulated meme proclaimed, 2020 is a "unique leap year, with 29 days in February, 300 days in March, and 5 years in April." The disaster is never-ending; the days bleed into one another. Likewise, TikToks are designed to be replayed over and over again. I am even willing to admit in print that I have watched Elizabeth Warren and Kate McKinnon's contribution to the #FlipTheSwitch TikTok challenge at least two dozen times.

In short, perhaps clicking and scrolling on TikTok is an entertaining, even soothing, counterpart to the disorienting combination of repetition and disruption that is the hallmark of COVID-19. It just flips the switch.

2.2 Biden's Politics of Consolation

Of course, there have also been countervailing forces to the disruption and disorientation of COVID-19. As the Democratic nominee for president, Joe Biden attempted to step into the void that Trump created: to offer consolation, and perhaps even narrativization, in response to the immense suffering that COVID-19 has wrought. In many ways, Biden's biography and temperament seem to have shaped him for the task. His own story is marred by grief, including

the loss of his first wife, Neilia Hunter Biden, and 13-month-old daughter, Naomi, in a car accident, shortly after he was first elected to the U.S. Senate. From its beginnings, then, Biden's career on the national stage was intertwined with his personal losses: he was sworn in at the hospital in Delaware where his two sons, 2-year-old Hunter and 3-year-old Beau, were still receiving care for their injuries. During his eight years as vice president, Biden often displayed empathy and vulnerability, voicing his experience with grief as he consoled people mourning their own losses. Speaking with a group of military families and friends in 2012, for instance, Biden described the "black hole that you feel in your chest like you're being sucked back into it." He recalled his own anger, the way he questioned his faith, and even the moments when he contemplated suicide. He acknowledged the reminders — things as small as a flower, or a "tune on the radio" — that arise "just when you think 'maybe I'm going to make it,' " interrupting a healing process that is never linear (quoted in Slack, 2012). In 2015, Vice President Biden once again grieved on the national stage, after losing his son Beau to brain cancer.

During his acceptance speech at the 2020 Democratic National Convention, Biden channeled these experiences in order to speak directly "to those of you who have lost the most" in the pandemic.

> I know how it feels to lose someone you love. I know that deep black hole that opens up in your chest. That you feel your whole being is sucked into it. I know how mean and cruel and unfair life can be sometimes. But I've learned two things. First, your loved ones may have left this Earth but they never leave your heart. They will always be with you. And second, I found the best way through pain and loss and grief is to find purpose. [...] And we have a great purpose as a nation: To open the doors of opportunity to all Americans. To save our democracy. To be a light to the world once again (quoted in Stevens, 2020).

Acknowledging and describing pain; offering hope by gesturing toward an upward narrative arc; connecting the purpose of the individual to one of the nation's animating myths — Biden's address had all the hallmarks of a resonant and uplifting consolation speech.

Yet Biden's efforts to embody the consoler role were frequently interrupted, and at times simply thwarted, by the course of the pandemic and the chaos of the campaign. Condolences delivered to a camera in an empty room — or even on a national mall filled with 400 lights that symbolize 400,000 lives lost, rather than the physical bodies of their mourners — do not have the same force as those communicated face-to-face. The upward narrative arc that Biden projected was relentlessly contradicted by the experience of life — and, more to the point, loss — under an administration that insisted, despite evidence to the contrary that grew exponentially on a daily basis, that the virus was disappearing.

In the first presidential debate, Biden's consoling narrative was literally, and not only figuratively, interrupted. Throughout the chaotic 90-minute exchange, Biden occasionally endeavored to speak to mourners' pain once again, turning away from his opponent and breaking the "fourth wall" to address viewers directly. Time and again, however, the debate degenerated into incomprehensible crosstalk. By the end of the first of six segments, just 18 minutes into the debate, Biden's frustration was plainly visible. Perhaps the most memorable line of the night was Biden's: "Will you shut up, man?" Whether viewers booed or cheered, changed the channel or simply stared aghast at the unfolding scene, they certainly could not have derived much coherence or consolation from the display.

Instead, even with a new administration in place, we are living in the midst of what Arthur Frank (1995) terms a "chaos narrative". This is really a misnomer, though, for the chaos nar-

rative is better described as "an *anti-narrative* of time without sequence, telling without mediation, and speaking about oneself without being fully able to reflect on oneself" (p. 98). To live amidst a protracted disaster, one whose boundaries and contours are not yet clear, is to live with anti-narrative, to be called upon to speak (and perhaps even write for sociology journals) without the time and distance required to process the disorienting daily happenings. If TikTok is a temporary balm for chaos — the heart of a world that may appear, for members of the economically unluckiest generation(s) in U.S. history (Van Dam, 2020), to be heartless indeed — the first presidential debate was both a representation and an unleashing of that chaos at the macro level.

3 Lessons for Critical Disaster Studies

3.1 Sociology Without Narrative

What can these ruminations on COVID-19, written *in medias res*, contribute to building "critical disaster studies"? In a moment when I, too, am struggling to formulate a narrative, I find myself drawn to sociological approaches that take their inspiration from literature.

The first is Andrew Abbott's (2007) meditations on lyrical sociology. Rather than engaging in canonical sociology's quest for an explanation, lyrical sociology "is in some profound sense *not narrative*," meaning that "its ultimate framing structure should not be the telling of a story — recounting, explaining, comprehending — but rather the use of a single image to communicate a mood, an emotional sense of reality" (p. 73).

To what end? At heart, lyrical approaches cultivate and foster a specific emotional response that Abbott calls *humane sympathy*. Abbott has in mind something akin to compassion, but with a stronger sense of mutuality. While compassion moves in one direction, *toward* the sufferer and *from* the one who chooses to suffer with them, "the nature of humane sympathy reads both ways; it heightens our awareness of our own limitation in times and space by showing us, in all its intensity, that of others" (Abbott, 2007, p. 94).

I admire the vision of those who have sought to fill the void in Washington, D.C.: to construct sites of mourning and memory in the absence of political consolation by visually representing the lives lost. I am profoundly grateful to hear the words of a president who speaks of loss with compassion, as well as the wisdom of one who has grieved deeply. For me, though, the most affecting reminders of all we have lost — all we are still in the process of losing — have been those that focus on a constructing "single image," portraying particularity rather than quantity. Consider the gorgeous, haunting essay that appeared in the *New York Times*' popular Modern Love column in October, under the headline "Thank You for Ruining Me." In it, writer Jared Misner (2020) mourns and commemorates the best friend who, as he puts it, "ruined" him.

Misner is happily married to a man whom he loves deeply. But he also enjoyed a platonic sort of partnership with his late friend Alison, who embodied an irreplaceable form of companionship.

> In college at the University of Florida, and then continuing for the next eight years, Alison and I would say to each other, "Thank you for ruining me." It was our way of telling each other: You're so perfect, your understanding of me so nuanced and deep, that no man could ever match you.

What Misner (2020) mourns and commemorates — and, in the process, renders visible to his readers — are 29-year-old Alison's quirky particularities, inclinations and eccentricities that were magnificently well-matched with Misner's own. Their relationship was so intimate that, although they were never entangled romantically, they once jokingly claimed one another as partners in a Facebook marriage, changing their status to make their relationship "Facebook-official". Misner reflects:

> Now that I'm actually married (the legal kind), I can say that I love my husband very much. He is pragmatic, kind and handsome.
>
> But he does not pull over for garage sales. He does not smuggle bags of dog costumes and treats out of press events to later give to my dogs and my parents' dogs. He does not bring friendship bracelet crafts or design-your-own hats to our annual Labor Day trip and does not understand my references to the Beehive. He has no idea why Alison and I, eight years later, still laugh at the thought of when the chickens finally come home to roost.

Like Misner's husband, we readers are left to wonder about the Beehive, and we are never let in on the joke about the chickens coming home to roost. We cannot fully appreciate Alison's particularities, or fully grasp the bond she shared with Misner. But, as Abbott (2007, p. 94) puts it, "in their mutability and particularity, we see our own" — in this case, the ineffable power and irreplaceable gift of the people who "ruin" us, and in doing so leave their indelible mark on our lives. In Misner's lyrical tribute to Alison, the particular conjures the general. Uniqueness and universality interpenetrate.

So it is true, as Biden frequently underscores, and as one of the public displays in Washington, D.C., so vividly depicted, that there are empty chairs at a heartbreaking number of tables where families sit to enjoy that mundane yet intimate act of sharing meals together. We should not lose the sight of the collective toll of those absences, or stop documenting their numbers, even as they grow beyond comprehension. Someday, we should find ways to memorialize these losses together, and to narrativize them not merely as the result of a virus, but as the profoundly tragic outcome of a callous and hubristic administration that nevertheless garnered a shocking degree of support from the general populace to the very end, even as its leader incited a violent insurrection on the U.S. Capitol on January 6, 2021. Rituals, as Durkheim understood so well, simultaneously express and instill social values. If we are to transform the nature of our social bonds — for instance, to solidify the solidarities that were visible in protests across the country following the killing of George Floyd; to create a healthcare system which understands that each individual's well-being is bound up with the well-being of the surrounding community — we will need rituals that are both immersive and transformative.

For the moment, however, one of the most humane acts that we can undertake, as sociologists and as people, is to dwell in the particularities of some of those we have lost: to engage the world in a lyrical mode before we cast the complexities of 2020 into a narrative. Speaking from that terrifying yet quintessentially human place of searing grief borne of immense and abiding love, Misner (2020) writes: "To die from this plague is a tragedy. To witness a loved one do so is a merciless, unrelenting kind of sadness — prolonged and filled with false hope."

Engaging the COVID-19 world in this contemplative, lyrical mode may seem too modest or even misguided in the face of big questions about disaster and modernity. Yet the pandemic has made painfully clear that we in the United States, and in many places beyond, desperately need the humane sympathy that lyricism has the capacity to foster. Much more than President Biden's inaugural address, the lyric poet (and sociology B.A.) Amanda Gorman offered

uplift and inspiration during the post-insurrection transfer of power, inside a capital city that had been transformed into a fortress for the occasion. Even more, resisting the temptation to narrativize too quickly, to reduce the intricacies and particularities of human experience — especially the experience of suffering — into familiar plot structures, may even have a salutary impact on the predominant culture of memorialization more generally.

3.2 Lessons for a COVID Memorial

This essay began with the observation that, for the past several decades, we have lived amidst a rush to memorialization. As a result, we erect statues and construct museums before we have the time and emotional distance to contextualize and historicize events that we are still actively mourning. To be sure, many (and perhaps even most) of the motivations behind the rush to memorialize are noble: the desire to honor and name each individual life extinguished, to offer spaces for the gathering of bodies and the replenishing of the spirit that are so crucial to our very humanity. But moving too quickly to narrativization, to *finalizing* a story of disaster or crisis, may also have unintended consequences.[4] In New York's 9/11 museum, which presents the story of September 11 over a cavernous 110,000 square foot space that is situated directly beneath the footprints of the Twin Towers, the expansive historical exhibition devotes only a single panel to discussing the War on Terror *and* the PATRIOT Act. In place of a broad historical narrative that chronicles the events leading up to the attacks or traces their ongoing reverberations is an intricate, moment-by-moment account of September 11, 2001: an attempt to recapture the shock of the original events and the pain they unleashed in lower Manhattan and around the globe.

As Robin Wagner-Pacifici (2017) points out, the bounding of events is always a negotiation, and the distinction between "event" and "memory" is not as clear-cut as we ordinarily make it out to be — as publics or even as scholars. One of the dangers of bounding events too narrowly, declaring them "over" before their consequences have come fully into view, is that we allow definitive representations to congeal too quickly. In the case of 9/11, the rush to memorialization has too often entailed preserving raw grief for posterity, nurturing anger and even a quest for vengeance (Simko, 2020). Representations, Wagner-Pacifici (2017) explains, are "copies" of an event that "attempt to stabilize and sediment" historical transitions "in the face of uncertainty, distance, and resistance" (p. 26). When grief is stabilized without the benefit of time, contemplation, and historical reflection, mourning may become melancholia: grief without end (Freud, 1917). Even as she planted flags to remember each life lost as of November, the artist Suzanne Brennan Firstenberg warned against the rush to memorialization. "People called this [installation] a memorial, and I'm kind of hesitant to do that because you don't memorialize a plane crash in the middle of it crashing, and the plane is still crashing here" (quoted in Buhre, 2021).

Eventually, though, the time will come for emplotting the COVID-19 era: for distilling its complexities and encapsulating its lessons for the future. As Firstenberg notes, in the spirit of our historical moment saturated with commemoration, "in time, I think we will find a magnificent way to honor all of our losses and to allow this to be a real pivot point in who we are as

4. In *Letting Stories Breathe*, Arthur Frank (2010) draws on Mikhail Bakhtin (1984) to argue that an ethical storyteller does not "finalize" her subjects by "claim[ing] to speak the last word, especially about who another person can be" (p. 193). Portraying an event in the past tense, sites of memory — especially those that are "official" or "national" — make an implicit (and in some cases, explicit) claim to speaking the *authoritative* word, if not the last.

a country" (quoted in Buhre, 2021). In anticipation of this possibility, I turn toward another ancient literary form for inspiration: tragedy.

From its inception, the genre of tragedy was integral to socio-political life. Sociologists have shown that it remains so (e.g., Wagner-Pacifici, 1986; Alexander, 2002; Smith, 2010). In sociology, tragedy is often understood as fostering fatalism in the face of persistent and seemingly intractable suffering (e.g., Jacobs, 2001). Yet, as the philosopher Martha Nussbaum (2001) underscores, in ancient Greece, "tragedies were vehicles of political deliberation and reflection at a sacred civic festival." For their original audiences, tragedies "did not bring the good news of resignationism; it brought the bad news of self-examination and change" (pp. xxxvi–xxxvii).

Elsewhere, my colleague Jeffrey Olick and I have argued for sociologists to recover and embrace a tragic sensibility in their own work (Simko & Olick, 2020). Most of all, this tragic sensibility stands to reshape the way that sociologists respond to the suffering they inevitably encounter in the course of their research. Without ever lapsing into fatalism, *tragic sociology* (at least in our view) recognizes the limits and fallibilities that are integral to human experience: our vulnerability and, in the end, our mortality. It strives to ameliorate pain while recognizing that some forms of suffering are chronic or fatal. Like its lyrical counterpart, tragic sociology strives to communicate such experiences in all their complexity, to bear witness and stir the emotions while also demanding the reader's full intellectual engagement. In doing so, it may even produce something akin to catharsis, a term that refers to both the emotional purgation that is now typically associated with it and a more cognitive kind of reflection that tragedians also seek to inspire (Young, 2013). In the process, tragic sociology may ultimately give way to wisdom.

What would it mean to understand COVID-19 through the lens of tragic sociology? To be sure, any sociology of COVID must foreground the brute fact that the suffering unleashed by the pandemic has been distributed in profoundly unequal ways. It has exacerbated existing inequalities and added disruption to lives that were already precarious. Even more, sociology shows us how the conditions of life that some of us associate with COVID-19 in particular — disruption, uncertainty, unpredictability, chaos — plagued so many lives long before the virus. But a distinctively tragic approach will also linger on the broader human fragilities and vulnerabilities that life in a pandemic makes painfully evident. We do not have the control over nature that optimistic narratives of modernity promised. We are susceptible to infection. We must live with unpredictability. We must live with dependency — on systems, structures, and ultimately, one another. Yet tragic sociology may help us narrativize COVID in order to bring about a world that more fully addresses these dependencies by acknowledging them, and carving out space to contemplate how best to live with them.

As vaccines lead us into a new stage of the pandemic, can we channel the disruptions and arrhythmias that we are all experiencing, albeit to vastly different degrees, into an image of interconnectedness that reflects our social and biological realities? Again, we will never achieve total control over nature. We will all have moments when we are confronted with no choice but to live with uncertainty and fragmentation. But perhaps there is still a way to reimagine and reconfigure our relationships to one another that creates a deeper sense of security, and the possibility for a meaningful future, for a far greater number of people. For our fates are indeed tethered to one another, now and always.

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Editors' Note. Introduction to the Symposium on 'Preparedness in an Uncertain and Risky World'

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Abstract

This is an introduction to the Symposium on "Preparedness in an Uncertain and Risky World".

Keywords: Disaster; risk; preparedness; collaborative governance; knowledge; uncertainty.

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If uncertainty, complexity and unpredictability have been long theorized by sociologists as a characteristic of the contemporary society, they have become a very tangible cypher of the present. Disasters and catastrophes are no more rare events or "pathological" moments but a condition increasingly experienced on an everyday basis by a growing number of human beings. The Covid-19 outbreak, the last in a line of insurgent or resurgent infectious diseases, as well as the societal challenges related to climate change, encapsulate the relevance of the governance of socio-ecological uncertainty. The failures to adequately address them call for the rethinking of science and innovation practices, leading to the need for renewed approaches combining science, technology, public action and social organization.

The approaches to disaster risk reduction and management have stressed the importance of developing resilience, a notion that has been the subject of animated debates in the social sciences, but the concept of preparedness has also gained traction in the last years. First developed in regard to military issues (nuclear threats, bioterrorism), it has subsequently been extended to the management of crises related to disasters, health threats and climate change. Considered a style of reasoning, an ethos and a set of governmental techniques for reflecting about and intervening in an uncertain, potentially catastrophic future (Lakoff, 2017), preparedness has been analysed as one logic of action that is growing relevance in different spheres of society, inspiring tools that are being adopted in various fields.

In this respect, the essays of this Symposium of *Sociologica* tackle the concept of preparedness addressing its societal implications in terms of power, inequalities and vulnerabilities, connecting preparedness to the uncertainty that characterizes society-environment relations and focusing on the role of knowledge and its uses in governing the unexpected and the unpredictable.

The lead article by Bifulco et al. (2021) entitled "For Preparedness as Transformation" is a theoretical statement on preparedness that introduces the symposium. Starting from the literature on disaster management, it reconstructs the shift from disaster as an external threat to disaster as an internal process along with a valorization of uncertainty as a fundamental characteristic of the social system. This shift advocates for the creation of "boundary infrastructures" for knowledge production, able to deal with both incomplete and uncomfortable knowledge and to detect the unexpected in the ordinary, while promptly responding to potential threats. But it also calls for a territorial approach able to consider the socio-ecological interdependencies that take shape in a particular context, so as to try to tackle the existing vulnerabilities. The article concludes with a reflection on how a transformative preparedness calls for a territorial governance grounded on tools able to promote and enhance the ability to generate and share knowledge, information, and socio-technical solutions.

In "Preparedness Indicators: Measuring the Condition of Global Health Security," Lakoff (2021) reconstructs the genesis and rationale of the Global Health Security Index, tracing it back to the post-war period. Its point of departure and main question is the discrepancy between the index ranking and the actual performance of the United States when facing the Covid-19 pandemic. The article focuses on the failure of such index in anticipating national performances in a real emergency, addressing the definition of "health security," its formulation and the choices made about how to measure it. In the end, the author highlights that the goals of the index drove it into measuring certain issues and disregarding others that proved to be crucial in the Covid-19 pandemic.

The topic of human-non human relations is addressed by Keck in his article "Preparing and Repairing: The Conservation of Heritage after the 1997 Bird Influenza Outbreak in Hong Kong" (2021). Keck analyses public health rationalities in Hong Kong in the measure imple-

mented to prepare for an influenza pandemic coming from birds: the author shows how those work together with conservation, alongside or in conflict with each other. Focusing on the role of memory, experience and heritage in preparing for future pandemics, the article points out the tensions in managing risks of transmission at the frontiers between species as a space where humans and non-humans share a common vulnerability. Showing in this way the existing connections "between preparing for future disasters and repairing vulnerable environments as two perspectives on the same event" (p.).

Pellizzoni & Sena (2021) in "Preparedness as Governmentality: Probing the Italian Management of the Covid-19 Emergency" address preparedness through the Foucauldian concept of biopolitical governmentality to highlight how its security rationale shows a "post-securitarian" take on threats. Through a focus on the Italian management of the Covid-19 emergency and the main regulatory provisions issued in this time span, the authors reflect on the securitarian framework of responses based on prevention (or precaution). The authors highlight the inconsistency of these measures, which were developed through a mix of disciplinary tools and preventive techniques with a limited role played by preparedness, obscured by the post-securitarian implications of measures designed to chase rather than precede the virus. A situation turning out to aim at the governmental goal of the — potentially endless — crisis modulation: a constant readjustment of the emergency government to the fluctuations it itself contributes to engender in the socio-material collective comprised of humans and the virus.

The thresholds of catastrophe, which guide the measures conceived to fight the Covid-19 pandemic and climate change, are at the core of the article by Folkers (2021), "Preventing the Unpreparable: Catastrophe Thresholds from Covid to Climate." It demonstrates that in both cases the thresholds are identified and operationalized through the interaction between prevention and preparedness that comes to operate in the same security assemblages, and it is only the transgression of the catastrophe threshold that marks the point when the crisis becomes uncontrollable. In addition, the article illuminates how the thresholds contribute to silence death and suffering below them, while failing to provide guidance when the threshold is already overcome, claiming for a shift from the pre- (prevention, preparedness) to the re- (carbon removal, ecological remediation and reparation) in the contemporary politics of environmental security.

The Symposium closes with the paper by Caselli et al. (2021) "Prepared to Care? Knowledge and Welfare in a Time of Emergency" which reflects on the social emergencies that followed the Covid-19 pandemic in Italy and how to deal with them. The article develops a dialogue between the sociology of disasters and the sociology of public action focusing on the role and the forms of knowledge in welfare policies. The authors show how the Covid-19 pandemic resulted in a process of visibilisation of diverse form of precarity and social injustice that are structurally inscribed in the Italian social fabric and that are not actually tackled by the current welfare system. Welfare unpreparedness facing the social emergency is thus addressed by the article as a problem about informational basis of welfare policies construction and recognition, that can be overcome through a certain take on preparedness able to reinvigorate the democratic and inclusive nature of welfare with a perspective based on care ethics.

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For Preparedness as Transformation

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Abstract

In this paper we point out the topic and the rational of the symposium aiming on the one hand to connect preparedness to the uncertainty that characterizes society-environment relation, on the other hand to emphasise the need for sociology not only to denounce the governmental implications of preparedness but also to engage constructively with this category. We begin by recalling the framework changes that have characterized the social sciences' understanding of disasters by showing how progressively the idea of disaster as a one-time event that disrupts a society from the outside has been complemented by an idea of disaster as a critical moment embedded in historically determined social structures. We will then discuss how the emergence of the preparedness paradigm fits within these developments and how sociological research can help to better understand what is at stake in the governing of (and by) preparedness. In this perspective we advance a reading of preparedness from the vantage point of knowledge. As a conclusion, we discuss how the understanding of preparedness as dependent on socio-ecological transformation raises specific challenges for territorial governance.

Keywords: Disaster; risk; preparedness; collaborative governance; knowledge; uncertainty.

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In an influential article published in the *Annual Review of Sociology*, sociologist Kathleen J. Tierney (2007) depicted "Disaster Research" as being "at the crossroads". It is worth quoting the concluding paragraphs of the essay at length:

> Disaster researchers must stop organizing their inquiries around problems that are meaningful primarily to the institutions charged with managing disasters and instead concentrate on problems that are meaningful to the discipline. They must integrate the study of disasters with core sociological concerns, such as social inequality, societal diversity, and social change. They must overcome their tendency to build up knowledge one disaster at a time and focus more on what disasters and environmental crises of all types have in common with respect to origins, dynamics, and outcomes. And they must locate the study of disasters within broader theoretical frameworks, including in particular those concerned with risk, organizations and institutions, and society-environment interactions (pp. 520–521).

In our view, the invitation Tierney addressed to the disaster research community over a decade ago is still relevant today, especially as far as society-environment interactions are concerned. However, as stressed by Hagen & Elliott it is also time for sociology to question the usual understanding of disaster itself as "pathological" moment while acknowledging that "the boundaries between the suspect terrain of disaster and the regular social landscape are increasingly obscured" (2021, p. 2).

In this symposium, we move forward in both the directions indicated by these authors, by seriously addressing the issue of what should be considered as "preparedness" and who is entitled to the definition of the vital infrastructures that need to be protected in an increasingly interconnected and at the same time catastrophe-prone world.

On the one hand, we connect preparedness to the uncertainty that characterizes society-environment relation and the "quest for certainty" (Dewey, 1984). These issues bring to the fore the place of knowledge and the link between knowledge, action and control. On the other hand, the condition of "slow emergencies" (Anderson et al., 2019) societies are facing leads us to emphasise the need for sociology not only to depict the governmental implications of preparedness (see Pellizzoni & Sena, 2021), but also to engage "constructively" (in the sense of Vandenberghe, 2018) with this category that, from the technical language of the circles of disaster management experts, is increasingly becoming part of the common sense. We thus follow Luc Boltanski's invitation to develop a critical analysis that goes beyond the opposition between denunciation and collusion (2009).

The articles in this symposium all agree on stressing a trend towards the blurring of the boundary between disaster and normality, prevention and preparedness, and also of the distinction between man-made and natural disaster and between human beings and other living beings. This blurring of boundaries, however, seems to benefit technocratic optimists that claim that "we," the humanity, can control the transformations of the world system and the biosphere through new technologies and expert knowledge. This implies that the *status quo* is considered as the only possible world. In this context of techno-optimism, preparedness operates in a "defensive" fashion, i.e. it is entirely oriented towards preserving the existing sociotechnical order against the risk of collapse.

Moreover, the articles in this symposium converge in stressing the importance of the "frictions" (Tsing, 2005) between globally oriented disaster governance mechanisms, actors' heterogenous normative expectations and territorial historicity, in the sense of the specific way in which structures are the sedimentation of territorially inscribed histories. It is through these

frictions that both the reproduction of existing power relations and potentially transformative collective action take place.

In order to analyse these frictions, however, sociology needs to develop a critical perspective about the expert knowledge of disaster science. Using Michael Burawoy's categories, one can say that mainstream sociological research on disasters is still primarily a "policy sociology," whose "*raison d'être* is to provide solutions to problems that are presented to us, or to legitimate solutions that have already been reached" (2005, p. 9). In other words, mainstream disaster research takes the form of instrumental knowledge to support other actors' problem-solving capacities, often without questioning the processes that brought to the definition of problems, their democratic inclusivity but also their normative presuppositions and underlying "ontological politics" (Mol, 1999).

More precisely, mainstream sociological research on disasters mainly addresses problematic issues that have been formulated within the "international disaster community." This latter is a "social world" whose logic of formation and functioning has been ethnographically investigated by anthropologist Sandrine Revet (2020). Revet described the diversity of actors who populate "Disasterland" and who include representatives of international institutions, disaster researchers, state representatives, NGOs representatives, experts, technicians, financial institutions and other economic actors who circulate across the globe from one workshop on global climate change to the next conference on "Building Back Better" configuring a "community of practice" (Wenger, 1996). Revet (2020) described the hierarchies that structure Disasterland, in particular the hierarchies of knowledge, showing that there is little room for the reflexive knowledge of "critical" and "public sociology" of disaster. In this respect, the mainstream sociology of disasters is not only losing sight of broader theoretical issues but also isolating itself from the diversity of disaster experiences.

It is in Disasterland that disasters are defined and measured, and "apparatuses" (Revet, 2020) for managing disasters are set. These operations are increasingly done on the basis of a "disaster science" that is meant to support the international capacity of "disaster risk reduction" on a global scale. Disaster science supports technical solutions and approaches to disasters dominated by natural sciences, especially climate science (Cabane & Revet, 2015). The apparatuses that govern disasters reinforce a trend of governing societies, and especially society-environment interactions, through standardized indicators and benchmarks defined with the aim to work globally (Rottenburg et al., 2015; see Lakoff, 2021). In fact, the increasing relevance of climate change as a common background of disaster situations gives strength to the position of those who think that an effective disaster risk reduction can only take place via global coordination. Global coordination, however, is conceived more as a top-down process than a bottom-up work of coordination across a variety of local situations. Still, disasters are always happening in specific situations and they do not exist outside contentious social processes defining what counts as damage, who is to blame, who deserves to be protected, how to build back (see Caselli et al., 2021; Centemeri et al., 2021; Folkers, 2021).

A form of governing societies "by disasters" (see Revet & Langumier, 2015) has progressively taken shape with the exceptionality of emergencies becoming an ordinary condition of exercising institutional power. Emergency is no more interpreted as an event but as an enduring condition (see Pellizzoni & Sena, 2021) that goes hand in hand with a view of precarity — understood as "life without the promise of stability" (Tsing, 2015) — as the generalized condition of the present.

These transformations help to understand why the terminology of disaster management increasingly permeates the vocabulary of everyday life. As we are going to discuss, this has

particularly been the case with the notion of resilience but, with the experience of the pandemic, another notion usually confined in the circles of disaster management has entered the common knowledge: preparedness, i.e. the ability to effectively anticipate and act promptly in the face of an imminent threat.

This symposium helps to go beyond the way in which preparedness is defined in the community of disaster risk management to explore from a socio-anthropological perspective what it means to be prepared to highly probable, still uncertain catastrophic situations. This work is necessary, on the one hand, for an analysis of preparedness as a contentious battleground where ideologies, interests and powers confront each other; and, on the other, for supporting processes of social re-appropriation of preparedness beyond emergency management. We argue that the need to "be prepared" could be seized as an opportunity to promote a socio-ecological transformation aimed at valuing collaborative ways of dealing with the uncertainty of socio-ecological interdependencies (Keck, 2021), producing knowledge about them and implementing technologies, strategies and tools to manage them.

In this introduction, we briefly recall the framework changes that have characterized the social sciences' understanding of disasters by showing how progressively the idea of disaster as a one-time event that disrupts a society from the outside has been complemented by an idea of disaster as a critical moment embedded in historically determined social structures and existing as such through the "normative work" (Dodier & Barbot, 2016; see also Stark, 2014; Folkers, 2021) of social actors. We will then discuss how the centrality gained by the preparedness paradigm fits within these developments and how sociological research can help to better understand what is at stake in the governing of (and by) preparedness. In this perspective we advance a reading of preparedness as transformation, from the vantage point of knowledge. In the concluding section, we discuss how the understanding of preparedness as dependent on socio-ecological transformation raises specific challenges for territorial governance.

1 From Disaster as External Threat to the Social Production and Social Construction of Disasters

The category of disaster first emerged in social sciences in the United States and in a particular historical conjuncture, that of the Cold War (for a more detailed reconstruction see Tierney, 2007; Cabane & Revet, 2015; Dahlberg et al., 2016; Fortun et al., 2017). Research on disasters was strongly influenced in its beginning by governmental and military needs connected in particular with nuclear issues. More specifically, disasters were conceived by public authorities as "laboratories" to study social and organizational behaviour in stressful situations. In this sense, disasters were seen as "a duplication of war" and human communities as "organized bodies that have to react organically against aggression" (Gilbert, 1998, p. 4). In this view, the causes of disasters are situated on the outside, in the form of an external aggression, or sometimes an internal threat, as in the case of social unrest. As pointed out by Perry (2018), in this "classic period" of disaster research authors defined disasters as "rapid onset events", in which the impact or threat of an agent causes social disruption requiring readjustments. Disaster studies then focused on organizational and emergent social behaviour during and immediately following such disruptive events.

Claude Gilbert (1998) distinguished this paradigm of "disaster as war" from two successive frameworks in which the definition of disaster undergoes a reframing and progressively evolves towards an idea of disasters as "social phenomena" (Perry, 2018). In fact, since the 1970s, the

understanding of disasters as events caused by exogenous factors has been challenged by a group of critical, politically engaged geographers who broke with "realist" techno-engineering and natural science approaches to disasters. They showed how poverty resulting from forms of economic and political domination often related to colonialism was the key factor explaining humanitarian crisis situations that had supposedly been triggered by "natural" disasters, especially in countries of the global south (Revet, 2020).

These critical approaches, which had their roots in a political economy perspective inspired by Marxism, were also influenced by contemporary developments in systems thinking that provided evidence of the anthropogenic nature of the ecological crisis. They led to the emergence of the notion of vulnerability as a key concept for understanding disasters as socio-ecological phenomena. The "vulnerability approach" to disasters implies that "critical to discerning the nature of disasters [...] is an appreciation of the ways in which human systems place people at risk in relation to each other and to their environment" (Hilhorst & Bankoff, 2004, p. 2).

This implied that disasters should be studied taking into account a temporality that goes beyond that of the emergency since they are a social product of historical processes. Therefore, disasters started to be analysed as "the result of underlying community logic, of an inward and social process" (Gilbert, 1998, p. 3). In other words, the understanding of disaster evolved from an isolated event caused by an external agent into the outcome of long-term processes that had generated conditions of vulnerability. Even in high-income countries, disasters were shown to have different impacts on a population within the same city, region or nation depending on socioeconomic indicators, including class, gender, age and race (Cutter, 1996; on disaster and racial capitalism see Jacobs, 2021).

The vulnerability paradigm also led to an interest in "local knowledge" and to a critique of development policies as interwoven with top-down processes that increase the vulnerability of entire regions (Cuny, 1983). However, the notion of vulnerability has been progressively "emptied of its political and social essence" (Gaillard, 2019, p. 10). Paradoxically, the development of vulnerability indices contributed to this process since these measurements were implemented to accompany top-down interventions that left little room for community involvement. The framework of social vulnerability has thus been used to legitimize state interventionism, international programs of development and, more recently, initiatives of "philantrocapitalism" (McGoey, 2012).

Starting with the 1990s, the rising concern with the uncertain impacts of techno-scientific developments has brought disaster research closer to the sociology of risk and collective crises. In this third paradigm, disasters are defined as entirely socially constructed phenomena and they are related to the shared perception of the incapacity of making sense of a situation otherwise seen as serious or worrying. Disasters are then related to the loss of "key standpoints in common sense, and the difficulty of understanding reality through ordinary mental frameworks" (Gilbert, 1998, p. 9).

This transformation is accompanied by the emergence of a new understanding of uncertainty. Uncertainty is no longer a problem of information deficit, in line with the idea of bounded rationality (Simon, 1991), but emerges from a profound deconstruction of the contexts and meanings of action that call into question the very relationship between action and cognition. Confronting this condition requires a great deal of "negative capability" as defined by Giovan Francesco Lanzara, that is, as the ability to generate from indeterminacy "possibilities of meaning and action not yet thought of and practised" (1993, p. 14). It emerges and can be observed more easily in situations of radical destructuring of the context of action, hence the qualification of "negative": it is the capacity to experience the loss of order and sense with a

cognitive disposition of openness, without immediately trying to re-establish a direction, thus suspending the search for certain facts and reasons. This state of suspension, says Lanzara, does not mean passivity but, on the contrary, can pave the way "for the activation of contexts and the generation of possible worlds" (1993, p. 13).

The acceptance of non-anticipatable crises as inevitable features of complex societies explains the observable shift in disaster research from a discourse of prevention to one of resilience and preparedness. At the same time, an interpretation of disasters as related to sense-making activities brings to the forefront "the intricate interaction between events, individual perceptions, media representations, political reactions, and government efforts at 'meaning making' " (Boin et al., 2018, p. 35), while also stressing an understanding of disasters as "windows of opportunity that competing interests can exploit for their advantage" (Tierney, 2007, p. 512). This "constructivist" interpretation also invites to extend research on disasters beyond the temporality of the event to investigate how the recovery programmes and the activities of imagining and planning for future disasters become opportunities to orient societies' development in ways often outside political accountability (Fortun et al., 2017, p. 1011; see also Keck, 2021).

As noted by Luigi Pellizzoni:

> the intensification of the governmental salience of uncertainty has led to a pluralisation of anticipatory frameworks beyond probabilistic prediction and its governmental correlate, "risk prevention"; frameworks which differ from one another in a number of respects, from cognitive and ontological assumptions to the implied temporal structure and model of agent. (2020a, p. 43)

In fact, the shift from disaster as related to an external threat to disaster as an outcome of the complex dynamics of socio-ecological systems has been accompanied by a shift from well-known threats to be prevented, to ill-known threats requiring "precaution" and to "hidden threats" that can be dealt with via "pre-emption" (Pellizzoni, 2020b) and preparedness. These logics of anticipation (prevention, precaution, pre-emption, preparedness) today coexist in the ways of governing disasters and they point to the coexistence between models that manage uncertainty assuming, as their ontological basis, the separation between society and nature and models that instead are based on overcoming this distinction.

The rejection of nature-society dualism, however, does not necessarily imply the development of more sustainable forms of sociotechnical organisation since it does not automatically trigger a transformation of the systemic conditions that generate structural vulnerabilities. The "constructivist" ontology can confirm the "neoliberal governmentality" that positively celebrates uncertainty, danger, insecurity, volatility, disorder and non-predictive decision-making (Pellizzoni, 2020a, p. 50; see also Pellizzoni, 2015). This is where resilience and preparedness come in, as the two key frameworks of disaster risk reduction when uncertainty and catastrophe "cannot be avoided but can only be prepared for" (Lakoff, 2017, p.7). Both these approaches can contribute to the generalization and normalization of the crisis conditions which are propitious to the maintaining of the "there is no alternative" scenario. Still, both offer insights into ways to combine the quest of security with the managing of uncertainty in ways that could be potentially "transformative" towards non-dominative society-nature relations.

2 Resilience and Preparedness between Governmentality and Frictions

When applied to disaster research, resilience is defined as "a system's capacity to persist in its current state of functioning while facing disturbance and change, to adapt to future challenges,

and to transform in ways that enhance its functioning" (Keck & Sakdapolrak, 2013, p. 8). This definition eclipses the evaluative dimensions involved in qualifying what disturbance is and the normative standpoint of judgement concerning the desirability of the system to "persist in its current state". Against the supposedly normatively neutral understanding of resilience, Stark (2014) highlighted the relevance of the heterogeneity of evaluative principles and practices as the basis of social reflexivity. Nonetheless, as stressed by Hall & Lamont (2013), the "social resilience" framework promotes a specific normativity that is sustained by neoliberal policies and narratives and is based on individual and collective capacities to cope and creatively adapt to unavoidable catastrophes, which are seen as opportunities for change.

In disaster analysis, it proved its limitations since the resilience framework has often been co-opted as a justification mobilized by neoliberal projects for withdrawing government support for universalistic welfare measures and more generally public infrastructure investments (Quenault, 2016). Communities are then asked to compete for public, and increasingly private, funding to support resilience building. Consequently, the resilience framework conceals the role of the structural factors in producing conditions of social vulnerability, and it has thus been defined as a 'post-political' framework (Swyngedouw, 2010).

Preparedness, instead, points to the capacity of ensuring the security of "vital systems" against threats of any kind, known and unknown. Vital systems are those infrastructures that, if failing, will bring to a systemic collapse (Lakoff, 2008). But the emphasis on maintaining "vital systems" can lead to neglecting the consequences of maintaining them in terms of social inequalities, which have in turn a negative impact on resilience. Moreover, both resilience and preparedness take the desirability of the current state of affairs for granted.

Resilience and preparedness are also linked because when a system is prepared, and therefore successful in avoiding systemic emergencies, its capacity of resilience is less crucial. At the same time, being prepared is part of a culture of resilience, even if preparedness has a specific and distinct logic.

Following Lakoff (2006), preparedness is both an ethos and a set of techniques for reflecting about and intervening in an uncertain, potentially catastrophic future. It points to a new form of knowledge about collective life that Collier (2008) defines as "enactment". Departing from "the archival-statistical knowledge of social insurance" that played a fundamental role in the development of a modern welfare culture, enactment "comes to 'know' collective life not through the regular processes of population or society, but through the uncertain interaction of potential catastrophes with the existing elements of collective life" (p. 244). Even if unpredictable, catastrophes are not ungovernable and new forms of knowledge and assessment are developing. In particular, catastrophe insurance is turning into a key instrument to reshape "our political and moral landscape" (p. 288).

According to Lakoff, the so-called "preparedness techniques" — scenario-based planning, early warning or "vigilance" systems, and medical supply stockpiling — emerged historically in the US during the Cold War, having been subsequently repurposed to address other emergencies like terrorism or health emergencies, like pandemics. In the European context, the debates on new disasters and catastrophes have focused mainly on the issue of precaution while less attention has been paid to understanding preparedness.

An exception is the work of French anthropologist Frédéric Keck (2020) who studied the impact of SARS emergency (2002-2003) in three countries: Hong Kong, Taiwan and Singapore. His research (see Keck, 2021) explores the impact of the pandemic emergency in terms of reconfiguring humans-animals relations. According to Keck, prevention and preparedness are not simply two risk management techniques. They are concepts referring to two distinct

ways human beings have developed to manage uncertainty in their relationship with the environment and its potential threats. Keck names these two ways as "cynegetic" in the case of preparedness, and "pastoralist" in the case of prevention, referring to anthropology's traditional distinction between hunting and pastoralist societies.

Following Keck, prevention (or securitization) is "the management and control of populations in a territory through the use of statistics", and preparedness (or mitigating) is "the imaginary enactment of disasters in a community where humans take the perspective of non-humans" (2020, p. 7). More in general, Keck invites "a shift in the reflection on preparedness from the short temporality of emergencies to the long temporality of ecologies" (p. 177). In his view preparedness is based on "simulations designed to identify points of vulnerability" but also on "sentinels" (Keck, 2015; see also Keck, 2020) and it should be explored as a specific mode of understanding causality nexus, as a specific argument on nature-society relation and as a specific form of evidence production.

Sentinel is defined by Keck as an ecological notion that points to "sites where early warning signals are produced" (2020, p. 6). They can span from sentinel cells in organisms, to sentinel animals, sentinel actors, sentinel ecosystems, "digital sentinels". These signals, however, must be elaborated and integrated into processes that allow for appropriate evaluation and responses to be taken at different scales.

Preparedness, when understood in Keck's sense as one specific logic of relationship to life-world, is not based on the aspiration to control but on the promotion of forms of collaboration between humans and between humans and other living beings (plants, animals, bacteria, viruses, etc.). Of the three techniques indicated by Lakoff (scenarios, stockpiling and vigilance), it is the third that crucially characterises preparedness, the others being also found in preventive approaches. Still, the development and promotion of forms of collaboration between humans and other living beings can be absorbed into exploitative apparatuses that engender inequalities and ecological degradation (Pellizzoni, 2020a).

In fact, how preparedness is enacted and practiced and the logic of action it promotes is a question that can only be answered through a sociological analysis that takes into account how the preparedness instruments and apparatuses operate in concrete situations and the "frictions" (Tsing, 2005) they produce in the confrontation with actors' "normative expectations" (Dodier & Barbot, 2016) and the diversity of their practical "modes of engagement" (Thévenot, 2007).

In fact, there is a fundamental heterogeneity of the resources that individuals and groups recur to in order to assess risks and position themselves relative to them. The fact that disasters are governed and that governing by disasters is by now a distinctive feature of contemporary societies should not induce the integration of disasters into a "general economy" as a smooth process (Dodier, 2015, p. 226). *Dispositifs* do not automatically ensure the alignments of actors' practices and normative expectations.

This is the reason why the concepts developed or adopted in disaster research and that inform public action but also, more in general, social reflexivity on disasters, should always be analyzed genealogically as an expression of socio-historical contexts and intellectual and political traditions marked by a certain understanding of collective security and its requirements, while also paying attention to the existence of conflicting interpretations. Moreover, the tools and instruments that are devised on their name always have to be observed in action: this means that social scientists should pay attention to how they are used by actors as operators to make sense of an experience, to explain a "problematic situation" (in the Deweyan sense) and to act upon it, or to connect phenomena across time and scales.

Conflicts of interest and power struggles should be then analysed in their interdependen-

cies with processes that aim at the definition of a shared "sense of things" across a variety of arenas, of scales and temporalities (Chateauraynaud, 2016). This implies to recognize that the definition of what kind of knowledge should be taken into account to define the critical situation, and act collectively upon it, is of fundamental importance (see Caselli et al., 2021). Still the operations that bring to define the "informational basis" of public action during emergencies and crises are more often than not subtracted to public scrutiny in the name of the exceptional nature of the situation. In this respect the sociology of quantification (Espeland & Stevens, 2008; Desrosières, 2011; Rottenburg et al., 2015) can help to highlight whether knowledge resembles, to borrow a metaphor from Bruno Latour (1987), a black box that hides the process of compromise, choice and negotiation that led to their definition or, on the contrary, if such a process remains visible and accessible to public discussion and modification, building up a form of knowledge grounded and rooted in the context where it was created.

3 Preparedness and Knowledge

When discussing preparedness from a knowledge perspective, emphasis is usually put on data analysis and data sharing and transmission. High-tech solutions of the type Early Warning Systems (EWS) are today the key infrastructure of preparedness. A "preparedness market" has in fact developed, which "brings together those who construct tools for surveillance, such as satellites and GPS, and the telecommunications sector, particularly mobile phones and radios" (Revet, 2020, p. 165).

Emphasis is also put on the role of information and education in order to change (and discipline) individual behaviours and support "low-cost" community-based preparedness. According to Revet:

> Preparedness may thus be considered a matter for specialists, bringing into play high-tech apparatuses that allow users to anticipate the occurrence of hazards and to communicate expert information by satellite with national authorities. Or it may be considered a local matter that enables residents equipped with whistles or megaphones, scrutinizing their environments, to warn their neighbours of any threats. (2020, p. 167)

The polarization between investments in global surveillance techno-infrastructures and the training of citizens on how to behave in case of disaster mirrors a more general trend of disaster management towards (i) the replacement of the design of reconstruction processes with a set of technical solutions that should ensure safety and (ii) a shift in the centre of gravity of disaster management to the community level and the individual capacities for emergency response.

These trends end up obscuring the link between preparedness and territorial development choices, which are strictly related to territorial governance. As a consequence, what remains largely unaddressed is the way in which the organisational solutions adopted for the production and distribution of goods and services for vital needs create conditions of vulnerability and unpreparedness (de Leonardis, 2021). Disasters thus become an opportunity to reinforce and reaffirm development choices that have been producing and reproducing vulnerabilities, more often than not with a lack of democratic scrutiny in the decision-making process (Imperiale & Vanclay, 2020).

This situation relates to the technocratic matrix of the governance rationality which has gained strength in recent decades due to a tangle of related events: the neo-liberalization and the

neo-managerialization of public action; the institutionalization of an evaluative state (Neave 2012); the entry of ICT and big data into the array of governance tools (Courmont & Le Galès, 2020); the change in the relationship between power and expertise (Raco & Savini, 2019); the mechanisms of de-politicization (Hay, 2007; Busso, 2017).

This is particularly clear in the urban context, where technological solutions have become increasingly central for urban governance. What Brenner & Schmid (2015) defined as "techno-scientific urbanism" is an example of how new modes of spatial monitoring, information processing, data visualization and other technological "fixes" to "intractable governance problems" are today shaping the future of territories and the conditions of their (un)preparedness to future threats. The expression "smartmentality" (Vanolo, 2014) similarly points to the performative power enacted by the models of the smart city thanks to technologies (Kitchin et al., 2020). The smart city model is posited today as a paradigm combining Building Back Better with preparedness, what Madden (2021) calls "disaster urbanization".

Yet the reliability of these technological tools to detect early warning signals is far from proven, as shown by the case of Google Flu Trends, which was launched in 2008 to monitor changes in the amount of online search queries related to flu-like symptoms and was supposed to work without involving people in any way. Actually, it ran into a number of problems, overestimating for example the prevalence of the flu by more than fifty percent (Lazer et al., 2014).

This shows the urgency of reflecting on the conditions necessary to promote a form of preparedness that is not limited to these technological solutions but also includes territorial knowledge that addresses in a transformative way the determinants of socio-ecological vulnerabilities. Early warning systems are necessary but not sufficient to meet the challenge of being prepared for a future of uncertain catastrophic events and preparedness cannot be reduced to the capacity of the early detection of global threats.

If considered from a territorial perspective, preparedness can instead be conceived as the result of social and ecological care practices that are based on the recognition and maintenance of vital interdependencies as they are experienced in territorially specific situations. These practices express a form of socio-ecological solidarity. It is indeed in the ordinary practice of "material care" (Puig de la Bellacasa, 2017) of the territory that a form of preparedness can be grounded, in its capacity to detect and deal with "contaminated diversity" of nature (Tsing, 2015).

The point is clearly made by Keck (2021) who stresses the importance of the role of sentinels. As devices that "can provide early warning of an encroaching danger" (Lakoff, 2015, p. 6), sentinels deal with experiential knowledge and knowledge incompleteness. They rely on actors perceiving signals at the borders of endangered collectives and on their capacity to read them as symptoms and clues. From the vantage point of sentinels, what knowledge is vital for a system and where this knowledge is produced, that is, the scale that matters to decide about what constitutes a potentially vital threat is not defined once and for all.

From the perspective of sentinels and at the territorial level, preparedness also implies to deal with the problem of "uncomfortable knowledge" as defined by Rayner (2012). Sentinels are often unheard whistle-blowers whose alerts are ignored because knowledge "is in tension or outright contradiction" with those "simplified, self-consistent" (p. 107) representations of the reality that allow individuals and institutions to act upon it. Following Rayner, confronted with uncomfortable knowledge, institutions usually react with *denial* (refusing to acknowledge or engage with information), *dismissal* (rejecting the information as faulty or irrelevant), *diversion* (distracting attention away from an uncomfortable concern) and *displacement* (addressing a simplistic chosen representation of a problem). Unpreparedness is related to these

many ways in which ignorance is not only socially constructed but socially maintained and nourished.

An effective preparedness, on the contrary, entails the capacity to take uncomfortable knowledge into account. It also requires to communicate alerts in meaningful ways according to the diversity of territorial conditions. Neither local knowledge nor "summaries", as intended by Tsing (2015), alone can be the solution for a territory to be prepared and heterogeneity (see Stark, 2014) is a crucial feature of the knowledge needed for effective preparedness. As a consequence, preparedness requires an investment in the creation of "boundary infrastructures" able to serve "multiple communities of practice simultaneously, be these within a single organization or distributed across multiple organizations" (Bowker & Star, 1999, p. 313). In this respect, a boundary infrastructure of knowledge-making for preparedness is an infrastructure that can accommodate heterogeneous forms of knowledge and "formats of information" (Thévenot, 1984, 2007) and produce relevant "informational bases" (see Caselli et al., 2021) for anticipation and action in a specific territory, in the face of a variety of potential threats.

It is in this sense that preparedness requires governance tools which promote and enhance the ability to generate and share knowledge, information, and socio-technical solutions. In this perspective the territorial governance of preparedness could help to address the social and ecological causes of vulnerability to disasters while also ensuring the territorial capacity to cope with sudden crises.

4 From Governing (by) Disasters to the Governance of Transformative Preparedness

In this article we have argued for an approach to preparedness as an opportunity for societal transformation, in the direction of increased socio-ecological solidarity and a change in the logic that currently guides the organisation of the response to vital needs. As we have discussed, this requires to develop forms of territorial governance of preparedness that turn its potential for transformation into a reality.

Such a governance must overcome some demanding challenges. One is the cognitive challenge, which concerns the centrality of forms of rationality that cope with radical uncertainty by enhancing heterogeneity and interdependence, and favouring the adoption of systemic rather than sectoral interpretative frameworks. The One Health approach, promoted by several international organizations, is a significant case of an integrated method that assumes that human health, animal health, and the health of the ecosystem are inextricably linked. However, what has happened in several countries in regard to management of the Covid-19 pandemic has made the limited implementation of this approach more evident than its potential. In the same way, the debate on the syndemic[1] has brought onto the agenda the need to adopt a systemic perspective in order to understand how several factors interact in the creation of risk situations, and to act accordingly in an integrated manner on several fronts. But if there is no governance that interprets the systemic approach by starting from territories

1. Richard Horton, editor-in-chief of The Lancet, defined the Covid-19 as a "syndemic" and called for governments to "devise policies and programmes to reverse profound disparities" (2020, p. 874). A syndemic, or synergistic epidemic, refers to the idea that the virus does not work in isolation but in combination with conditions (such as obesity, diabetes and heart disease) which aggravate the damage caused by Covid-19 and that are characterized by a distribution that is closely linked to social stratification, and especially to conditions of poverty and inequality.

and their specificities, these debates are unlikely to have any real effect on the processes that generate vulnerabilities.

Preparedness poses a further challenge as a specific mode of 'governing through time' (Samimian-Darash, 2011). Research conducted on health services coping with Covid-19 has shown that, in several countries, unpreparedness has been associated with insufficient resources and reserve capacity. In the UK, "government abandoned the public health buffering technique of home testing and self-isolating individuals in the community because available laboratory test capacity and trained tracers could not cope with the number of new cases" (p. 11).

In this respect, redundancy appears as a crucial component of preparedness governance. As Fraud et al. point out in their analysis of the Covid-19 pandemic in the UK: "Redundancy is not simply about having a backup. It is also about the backup being on-line and ready to go[...] Redundancy is also a function of time" (2020, p.16). A connected concept is that of buffering "which puts stores or reserve capacity into some systems. The components within the system become more autonomous, less likely to be disrupted by events upstream, and less likely to disrupt whatever is happening downstream if they themselves go wrong" (p. 17).

The theme of redundancy and buffering techniques in a certain sense warns us of the risk that renouncing long-term perspective may give rise to a reduction of resources and reserve capacities, in an adjusted version of the just-in-time logic which marked the advent of a new model of business efficiency decades ago.

It is not just a question of quantity but of heterogeneity and diversity. In Italy, the case of Covid-19 shows all too well how the poverty of territorial healthcare services — the result of neo-liberal waves of marketization — has greatly reduced the adequacy of the response to the pandemic, evidencing the limitations of an allocative strategy that has massively concentrated resources in hospitals (already scarce and decreasing) to the detriment of other intervention methods (Bifulco & Neri, 2022). A governance that preserves and supports the diversity of practices in the territories is therefore decisive with respect to a transformative goal. As Stark observes, "this means [...] that we have a greater diversity of practices available for recombination when the environment changes. And because we have not organizationally locked in to only one way of doing things, we are also not cognitively locked in" (2014, p. 68).

It should be clear at this point that redundancy also has a social dimension. Redundancy is the latent potential for cooperation and coordination which is present in the territories, thanks to reservoirs of social resources, networks of relationships and collaborative skills that can help the development of 'boundary infrastructures'. From a preparedness perspective, these resources, whose production and reproduction are linked to the ordinary functioning of society, must be considered as a crucial endowment for dealing with catastrophic events. In other words, preparedness has social foundations, provided that the notion of social is considered in a broad way that opens up to a more than human perspective of social life (Keck, 2021).

The problem of how to build, develop, and preserve these reservoirs is central to a perspective that we may call 'collaborative governance'. Although the technocratic approach is the one predominant today, collaborative governance still enjoys some favour as the driver of public action reorganization (Bifulco, 2017; Voets et al., 2021). It is central for effectively impacting on vulnerability factors that so heavily influence responses to disasters, since the term 'collaborative' underlines co-creation actions that enhance the interdependence between actors and contexts.

The last — and perhaps the most crucial — challenge for a transformative preparedness concerns the power dimension of such collaborative governance. Firstly, there is an issue of

multiscalarity, i.e. the complex interdependence among different power spaces of governance. Since Brenner (2004) it has been evident that, whatever the modelling and engineering of governance may say, these are spaces of tension, conflict and change. It is equally clear that, from the point of view of multiscalarity, 'territorial' does not mean 'local'; rather, it refers to the set of relationships, interactions, alignments and misalignments ranging from the supra-national to the local — and vice versa — that end up in concrete relations with the territories.

Secondly, the question is how, under what conditions and at what degree governance actually strengthens the democratic process. Indeed, as Blakeley (2010) argues, in many cases of collaborative or participatory governance power transforms but does not transfer.

From the point of view of the democratic dimension of governance, the preparedness that does not affect the determinants of vulnerability is shifted to the side of power devices transformation, in accordance with the logic that the notion of governmentality has highlighted for some time. On the other hand, a preparedness able to affect these determinants is obviously placed on the side of power redistribution. This is the 'deep democracy' that Appadurai (2019) defined when studying cases of extreme social and environmental vulnerability. This view seems to provide a way out of the bottlenecks of a governance that is stubbornly technocratic, on the one hand, and reductively communitarian on the other.

Nonetheless, this process cannot be taken for granted. In fact many local governance structures operate mainly with a view to allowing the market logic and economic and financial interests to penetrate the public domain, in an attempt to comply with objectives of growth and competitiveness. As a consequence, the territory can become a mere reservoir of resources to be exploited. The marginalization of objectives of inclusion and democratic participation is not such a rare event in governance and a large body of research shows that even when watchwords like 'participation' prevail, citizens are not necessarily endowed with greater power as a result (for a synthesis see Bifulco, 2017).

How multiscalarity and democracy can take shape as constitutive elements of a territorial governance centred on preparedness is difficult to say at present. We can only point out that today more and more disasters are striking territories already "ruined" by global dynamics that have exploited their natural and human resources without attending to their reproduction (Centemeri, 2019). Hence the need for a renewed engagement of sociologists in disaster situations to support a broader understanding of preparedness that includes a vision of socio-ecological transformation. These efforts are indubitably uncertain in their outcomes but are necessary nevertheless.

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Preparedness Indicators: Measuring the Condition of Global Health Security

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Abstract

One year before the onset of the Covid-19 pandemic, the Global Health Security Index (GHSI) ranked the United States first in the world in preparedness for the outbreak of a novel infectious disease. In turn, a number observers have asked why the US, despite this high ranking, proved to be so ill-prepared for the pandemic. This article argues that we should, rather, pose a different question about the significance of the GHSI: We should ask what "health security" meant from the perspective of this comparative index, and how it was formulated as a measurable condition. The article examines why this system for measuring and comparing pandemic preparedness among different countries was developed in the first place, what its goals were, and how these goals directed the attention of the index toward measuring certain capabilities and not others as keys to calculating and comparing levels of national readiness.

Keywords: Preparedness; Covid-19; indicators; measurement; health security.

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During the first year of the coronavirus pandemic, the belated, disorganized and fragmented response of the United States repeatedly prompted the question: why had the country been caught so unprepared? In this period, the death toll from Covid-19 in the United States was among the highest in the world, leading observers to compare the nation's pandemic response unfavorably to that of other advanced industrial countries, and to seek explanations for its apparent inability to develop a coherent response. "The United States is among the hardest-hit nations in the world, with more than 327,000 deaths, 18 million infected, the fourth-highest per capita mortality rate among nations and more suffering to come," editorialized the *Washington Post* (2020), "What went wrong?" A comparative study of national responses to the pandemic similarly pointed to the puzzle of "why some nations have contained the virus completely while others have struggled to prevent multiple waves of community transmission," noting that "despite the impressive US achievements in biomedicine, and despite extensive planning for pandemic preparedness, the US record in addressing the public health crisis of Covid-19 is among the worst in the world" (Jasanoff et al., 2021).[1]

The question of why the US response to Covid had failed so spectacularly was all the more perplexing in considering the amount of attention and resources that the federal government had devoted to preparing for an outbreak of a novel infectious disease over the prior two decades (Lakoff, 2017). An initial drive for biological preparedness began in the late 1990s, as biodefense officials became concerned about the whereabouts of Cold War era bioweapons and the prospect of a future biological attack, leading to the creation of a Strategic National Stockpile of biomedical countermeasures. The 2001 anthrax letters led to further biosecurity initiatives, such as the passage of Project Bioshield, designed to enable the government to develop, acquire, and stockpile biomedical countermeasures against bioweapons threats. In the wake of the 2002–2003 SARS outbreak, and as the specter of avian flu came to the attention of US health and security officials, the problematic of preparedness extended beyond biological weapons to address the threat posed by "emerging infectious diseases" such as pandemic influenza. Among other measures, antiviral medications and equipment for managing a respiratory disease outbreak were added to the national stockpile. During this period, the US Homeland Security Council released the *National Strategy for Pandemic Influenza* (White House, 2005), the Centers for Disease Control made federal funds available to incentivize local public health agencies to improve their pandemic readiness, and the National Institutes of Health greatly increased its support for basic research in influenza virology. Meanwhile, pandemic preparedness efforts extended internationally. In 2005, with support from the US Centers for Disease Control, the World Health Organization revised its International Health Regulations, a set of legally binding measures for managing infectious disease outbreaks, in order to make it easier for health authorities to detect an emerging disease outbreak and to coordinate international response at an early stage (World Health Organization, 2005). Multiple governmental and non-governmental organizations ran test exercises that simulated catastrophic disease outbreaks, exposing vulnerabilities in public health systems and pointing to policy solutions. These various efforts continued over the following decade, in relation to events such as the 2009 H1N1 pandemic, the 2014 Ebola epidemic in West Africa, and anxieties around birth defects linked to the spread of Zika in Latin America in 2016.

As the nation that had initiated and provided support for many of these efforts, the United

1. Moreover, as a prominent journalist put it, summarizing the position of a range of public health experts, "almost everything that went wrong with America's response to the pandemic was predictable and preventable" (Yong, 2020).

States was arguably the world's capital of pandemic preparedness. A 2019 assessment conducted by two Washington, DC-based think tanks, the Nuclear Threat Initiative and the Johns Hopkins Center for Health Security, confirmed US leadership in the field, ranking the United States first among 195 countries "in their readiness to deal with the threat of an epidemic or pandemic" (Center for Health Security, 2019). The analysis, entitled the *Global Health Security Index* (GHSI) was the "first comprehensive assessment and benchmarking of health security and related capabilities" among the state parties to the revised International Health Regulations. In the GHSI rankings, the US was rated well ahead of countries that, observers later agreed, were far more successful in responding to the early stages of the coronavirus pandemic, including South Korea (rated #9), Germany (#14), Singapore (#24) and Vietnam (#50). In late February 2020, President Donald Trump cited the GHSI rankings in assuring the American public of the nation's readiness for the arrival of the novel coronavirus, boasting that after comparing the "countries best and worst prepared for an epidemic," the index had concluded that "the United States, we're rated No. 1" (Alltucker & Hauck, 2020). Six months later, a *New York Times* columnist pointed to the GHSI in describing the US response as a "colossal failure of leadership," writing that "the paradox is that a year ago, the United States seemed particularly well positioned to handle this kind of crisis" (Kristof, 2020).[2] More generally, as the pandemic unfolded, the index became a source of interest and curiosity for a range of commentators: how was it possible, they asked, that the top rated country in preparedness for a future pandemic could have fared so comparatively poorly in its response to Covid-19?

In this essay, I suggest that the question of the significance of this index of national preparedness should be posed somewhat differently. Rather than asking why the United States, despite being ranked so highly in the GHSI, proved to be so ill-prepared for the coronavirus pandemic, we should ask: how did this index formulate "health security" as a measurable condition? What was the purpose of this comparative project of assessment, and how did this purpose direct the attention of the index toward measuring certain capabilities and not others as keys to calculating and comparing levels of national readiness?[3]

1 The Project of Global Health Security

The *Global Health Security Index's* effort to measure and compare national levels of pandemic preparedness resembles other comparative efforts to quantify national well-being that are associated with fields such as international development. One can point, for instance, to the World Bank's *World Development Indicators*, the United Nations' *Human Development Index*, or the "global indicator framework" of the UN Sustainable Development Goals.[4] These various analytic instruments are tools for the enactment of a form of global biopolitics (Collier & Ong,

2. The *Washington Post* similarly noted that "[w]hen a group of experts examined 195 countries last year on how well prepared they were for an outbreak of infectious disease, the United States ranked best in the world" (2020).

3. As Manjari Mahajan has argued in a perceptive critique of the assumptions underlying this system of indicators, "we need to interrogate the prevailing paradigm of global health security that informs instruments such as the GHS Index." (2021, p. 205)

4. The World Bank reports that its "World Development Indicators is a compilation of relevant, high-quality, and internationally comparable statistics about global development and the fight against poverty. The database contains 1,400 time series indicators for 217 economies and more than 40 country groups, with data for many indicators going back more than 50 years." See: https://datatopics.worldbank.org/world-development-indicators/

2003). Such comparative measurement tools generate quantitative data on domains of social and economic life, providing targets for policy interventions and enabling technocratic assessment of the efficacy of such interventions. These comparative indices are particularly useful to multilateral agencies and philanthropic foundations that seek to measure the effectiveness of donor-funded programs to improve the well-being of populations at the global scale. For its *Human Development Index*, the United Nations Development Program calculates and compares average life expectancy at birth, years of schooling, and per capita income for all countries in the world, and then ranks each country according to its overall score.[5] Similarly, the World Bank has introduced "World Development Indicators" to enable national comparison of poverty rates, population growth, agricultural yield, military expenditures, and other elements of national life.[6] The United Nations' Sustainable Development Goals framework includes 231 unique indicators for monitoring a country's path toward sustainable development, such as undernourishment, maternal mortality, and rates of infectious disease.[7]

While similar in its aspiration to enable comparison across a diverse range of national contexts, the *Global Health Security Index* is distinct from these other biopolitical devices in that it does not rely on measurements of the actual welfare of national populations — whether income levels, longevity, infant mortality, or rates of malnutrition. Instead, it seeks to measure a virtual capacity: whether a nation will be able to respond adequately to a potential future event — the emergence of a novel infectious disease. It does not assess the health and wellbeing of a given population in the present, but rather the capabilities of a national public health system in the event of a future outbreak. The broad categories of capability that are included in the GHSI measuring system include "prevention of the emergence or release of pathogens," "early detection and reporting for outbreaks of potential international concern," and "rapid response to and mitigation of the spread of an epidemic" (Center for Health Security, 2019, p. 8). By generating such anticipatory knowledge about a country's ability to detect and manage a future outbreak, the index can point to sites of present intervention that would improve its condition of "health security."

Here it is useful to step back for a moment to ask: why was it considered important, for those who formulated the GHSI and their patrons, to measure the health security of every nation in the world? As we will see, this initiative was one element in a larger effort by a group of international health specialists to improve the world's preparedness for future outbreaks of emerging infectious diseases, a project termed "global health security." As part of the project of global health security, international health and security experts sought to understand the current level of pandemic preparedness of each country. This required, first of all, the development of standard metrics that could identify the elements of national preparedness and make disparate settings comparable (Alder, 1998; Rottenberg et al., 2015). The "global health security indicator" served as such a measuring device, making it possible to quantify and compare a condition of preparedness across a variegated landscape of national public health systems. The GHSI, then, sought to assess how far each country was along the path toward health security, and to provide targets for improvement.[8] The index, then, served as the technical basis of a normative framework: as its authors put it, "over time, the GHS index will spur measurable

5. See http://hdr.undp.org/en/content/human-development-index-hdi.

6. See https://datatopics.worldbank.org/world-development-indicators/.

7. See https://unstats.un.org/sdgs/indicators/indicators-list/.

8. For critical analyses of this impulse toward measurement and targeted improvement in the context of development, see Ferguson (1994) and Li (2007).

changes in national health security and improve international capability to address" the risk of "infectious disease outbreaks that can lead to international epidemics and pandemics" (Center for Health Security, 2019, p. 31).

The project of establishing a global form of health security had been launched over a decade before the publication of GHSI, with the 2007 release of a report from the World Health Organization entitled *A Safer Future: Global Public Health Security in the 21st Century* (World Health Organization, 2007). The WHO report — and the technical and organizational initiatives that accompanied it — focused on a distinctive type of event, what it called a "public health emergency of international concern." According to the WHO framework, such an emergency could be declared in response to a "naturally-occurring" outbreak of an emerging pathogen, an intentional biological attack, or some other health-related disaster. More generally, the framework enjoined WHO member states to prepare for a disease event that would be novel, unpredictable, and potentially catastrophic. The goal of the framework was to ensure a collaborative and coherent international response to future public health emergencies. Toward this end, one of its critical elements was the requirement that national governments be able — and willing — to detect and report outbreaks of novel pathogens to international health authorities.

A Safer Future articulated the basic technical capabilities that would be required at the national level in order for the project of global health security to succeed: first, an ability to detect and report the initial onset of an event with the potential to become a global health emergency, and second, the capacity to rapidly respond to contain the event and minimize its damage. As the report stated, a condition of health security could be achieved only "if there is immediate alert and response to disease outbreaks and other incidents that could spark epidemics or spread globally and if there are national systems in place for detection and response should such events occur across international borders" (World Health Organization, 2007, p. 11). These basic functions, in turn, point to two key challenges facing the project of global health security — one of veridiction and the other of jurisdiction. The first concerns the production of knowledge about a possible future event: global health security must operate in the present on an object — a future disease outbreak — that cannot yet be grasped. It strives to put in place systems that can detect the onset of an as-yet unknown infectious disease at its early stages before it has spread to become catastrophic. The second challenge concerns jurisdiction over a vast terrain of potential disease emergence. To become "global," health security requires the active collaboration of local and national health agencies with international officials. This leads to an ongoing disjuncture between the site of responsibility for knowing about and acting on potential global health emergencies, on the one hand, and the locus of sovereignty in which such action may be authorized, on the other. Even before the coronavirus pandemic, a series of controversies over the prior two decades concerning potential and actual health emergencies — from avian influenza to H1N1 to Ebola — were characterized by difficulties in addressing these two challenges (see Lakoff, 2017).

2 The Preparedness Kit

Given the field's orientation to the future, advocates for health security must continually ask themselves the question: "are we prepared for the next emergency?" The answer, whether drawn from lessons learned after test exercises, or from post-hoc assessments of actual events, is inevitably "no." It is always possible to identify gaps in capability, one can always strive to become more prepared. The demand for measurement arises with the question: how to know

whether this striving is leading anywhere? In other words, how to gauge improvement (or the lack thereof) in a condition of national preparedness, in the absence of the anticipated event? Three basic elements make up what we can think of as a "kit" of reflexive self-transformation that makes it possible to assess and — in principle — to improve a nation's preparedness for a future disease emergency: first, a list of required governmental actions; second, a practice of imaginative enactment; and third, a process of self-assessment in relation to such enactment. I will briefly discuss the historical emergence of this preparedness kit, before turning to its current application in the field of global health security. As we will see, the preparedness kit initially arose in an altogether different context, Cold War mobilization for a nuclear attack, but has, over the last several decades, extended beyond this setting to address a range of potential emergencies, including a catastrophic disease outbreak.

Detailed lists of governmental actions to take in a future emergency were initially compiled in the 1950s within the US Office of Defense Mobilization (ODM), a little-known but influential office located in the Executive Branch, charged with resource planning for a future war.[9] During this period, the goal of mobilization policy shifted from military-industrial planning for a total war along the model of World War II, to ensuring the survival of the national population and the capacity for economic recovery in the aftermath of a future nuclear attack (Collier & Lakoff, 2021). ODM officials faced the challenge of envisioning the details of an unprecedented event: historical experience could not be used as a basis in planning for resource needs in a future nuclear war. To develop a mobilization plan for such a war, officials asked: what capacities would have to be in place in order to enable national survival and recovery in the aftermath of nuclear attack? And how could government agencies and the public be convinced of the need to invest in these capacities in advance of the event?

ODM's classified plan for a future nuclear war, *Mobilization Plan D-Minus*, was developed over several years and circulated to other federal agencies in 1957. The plan included a detailed scenario of an imagined future attack: where bombs would be dropped, the amount of damage that would be inflicted on industrial and government facilities, the number of civilian casualties that would be suffered (Office of Defense Mobilization, 1957; Collier & Lakoff, 2021). The plan also included a schema for the post-attack organization of emergency government. Upon the order of the President, a series of new government agencies would come into being whose task would be to manage the nation's resources toward the aim of population survival and economic recovery.[10] In the imagined post-attack future, a new "Office of War Resources" would coordinate the provision of resources with newly formed emergency agencies such as the War Communications Administration, the War Food Administration, and the War Transport Administration. To avoid governmental chaos, each new agency would have to be aware of its required emergency functions and be capable of performing them. ODM used two planning techniques, the list of emergency action steps and the scenario-based exercise, to generate awareness of this schema among officials and to test the government's capability to address a future wartime emergency.

9. While seemingly banal, lists occupy a privileged place in a number of contemporary security practices. As De Goede & Sullivan (2016) argue, such lists materialize the categories they purport to describe, and enact novel forms of knowledge and jurisdiction. As part of a preparedness kit, the list of emergency action steps performs this work toward a particular end: to produce knowledge about future requirements in relation to an event that may or may not occur.

10. As the plan put it: "The creation of emergency agencies and of a special organizational structure for the Executive Branch of the Federal Government in time of national emergency is required [...] to provide [the] governmental machinery best suited to meet the unusual demands of such [a] situation." (Office of Defense Mobilization, 1957)

The list of emergency action steps served as the basic scaffolding of Plan D-Minus. The completed plan was composed of dozens of pages of tables listing specific action steps, when they were to be performed, and which government agency would be responsible for performing them. These tables of action steps were organized according to a series of resource categories, including telecommunications, food, housing, raw materials, transportation, and fuels. According to a table of action steps compiled under the category of "food," for instance, the Agriculture Department was charged with developing food rationing systems and allocating limited food supplies. The list of emergency housing actions assigned to the Federal Civil Defense Administration included such tasks as determining post-attack shelter needs and creating new programs to meet these needs.

In tandem with these lists of future actions, Cold War mobilization planners developed a method for testing the capability of government agencies to perform their emergency functions: the scenario-based exercise. These simulated events made it possible to generate knowledge in the present about capabilities that would be needed in the future. Scenario-based exercises tested the adequacy of mobilization plans, and enjoined government agencies to learn about and practice their assigned tasks, identifying gaps in preparedness that could then be targets of rectification. A government memorandum explained the goals of one such exercise, Operation Alert 1957: "To improve the national readiness" to meet the demands of a future war, to "maintain the functioning of government" under emergency conditions," and — most tellingly, in terms of this recursive planning process — "to determine what aspects of our preparedness program need greatest emphasis during the next 12 months" (White House, 1957). The objective of the Cold War program of test exercises was to turn nuclear preparedness into a measurable, and thereby improvable, condition.[11] Equipped with the scenario of a future attack and the list of emergency actions, mobilization officials could assess the effectiveness of federal agencies' response to the exercise.

This kit for critical self-rectification in the service of achieving a condition of improved national preparedness gradually migrated from the specific context of planning for a nuclear attack to address the more general problem of emergency planning. An initial step was the federal government's 1964 *National Plan for Emergency Preparedness*, which applied the framework developed in mobilization planning to "any threat to the national security" (Office of Emergency Planning, 1964).[12] The 1964 Plan was organized according to sixteen resource areas — including food, energy, fuel, health, and water — in which federal agencies would have to take emergency actions. As they evolved over the next several decades, US government plans for dealing with a range of potential future emergencies — whether caused by a natural disaster, a terrorist attack, or an epidemic — typically contained detailed lists of agency responsibilities for the management of resources and the provision of relief.[13] And, in turn, agencies have used scenario-based exercises to test their capacity to meet their assigned responsibilities.

While the combination of elements found in Plan D-Minus was a contingent response to the challenges of mobilization for nuclear attack, this diagram of planning for a future emergency has extended into a range of new areas. Initially formed "as a specific response to a historical problem," as Paul Rabinow describes the consolidation of a governmental apparatus, it

11. As Innis Harris of ODM's Office of Plans and Readiness put it: "The lessons learned from these exercises are in substance the sum total of our experience in mobilization planning to cope with any emergency involving war and general war — but principal emphasis has been on situations involving a nuclear attack on the continental United States" (1958).

12. The 1964 plan was assembled by a successor organization to ODM, the Office of Emergency Planning.

13. See, for example, Department of Homeland Security (2005).

has since been "turned into a general technology of power applicable to other situations" (2003, p. 54). The preparedness kit — the list of emergency actions, the scenario-based exercise, and the practice of assessment — has proven to be a dynamic engine of critical self-rectification.

3 The Emerging Disease Threat

With the genealogy of this schema of governmental preparedness for emergency in mind, we can now return to the domain of global health security. In the late 1980s and early 1990s, a group of infectious disease specialists introduced the category of "emerging infectious diseases" to describe an apparent increase in the appearance of novel pathogens. AIDS, Ebola and West Nile virus, as well as drug resistant forms of malaria and tuberculosis, were prominent examples (King, 2002). Emerging diseases had three salient characteristics in common, according to these specialists. First, their appearance and global spread were bound up with modernization processes: urban crowding, environmental destruction, and increasing global circulation (of people and things) were the ecological conditions of possibility for novel disease emergence. Second, the appearance of such novel and deadly infectious diseases could not be prevented but could only be anticipated through the implementation of epidemiological monitoring networks at a global scale. And third, from the perspective of health authorities in advanced industrial countries, while these diseases typically emerged in poorer parts of the world, global interdependence rendered wealthy countries vulnerable to them, and only a global form of detection and response could provide security against this novel threat. But there was as yet no institutional mechanism to put in place such a system.

International health authorities conceptualized the 2002-3 SARS outbreak in these terms: human populations had been rendered vulnerable to such an outbreak by virtue of new forms of human-animal interaction, rapid international circulation, and the absence of a global network for detection and response to novel pathogens. A group of infectious disease specialists — many of whom had served in the Epidemic Intelligence Service (EIS) of the US Centers for Disease Control — had both a diagnosis of the problem and a prescription for addressing it. They argued that SARS had demonstrated a worrying incapacity to detect and collectively respond to emerging diseases in time to contain them, an incapacity that could lead to catastrophic consequences in the future. A major problem for outbreak containment — demonstrated by China's initial response to SARS — was that national governments were often hesitant to report outbreaks of novel infectious disease to international health officials, or to allow experts into the country to monitor and seek to manage such outbreaks. In a 2004 interview, epidemiologist David Heymann, an EIS veteran, articulated this problem of compliance from the perspective of countries that were concerned about the threat posed by emerging pathogens: "Inadequate surveillance and response capacity in a single country can endanger the public health security of national populations and in the rest of the world" (Heymann & Rodier, 2004). This was the rationale for building an apparatus of global health security that could "govern" public health response at the national scale.

As a means of implementing the envisioned global surveillance and response capacity, this group of specialists pushed for a revision of the venerable International Health Regulations (IHR). Originally enacted in the nineteenth century, in the context of colonial-era efforts to control the spread of infectious disease, the IHR system is designed to ensure national sovereignty over public health response to an epidemic while at the same time regulating state action to minimize global economic disruption and ensure that international authorities can monitor and minimize circulation of the disease (Fidler, 2005). The IHR system envisions a

role of organizational coordination and technical support for the World Health Organization, one that is dependent upon actions at the national level. Thus, it provides administrative and technical protocols for managing the global circulation of pathogens — as a collaboration among multilateral agencies and national authorities (Opitz, 2015).

The 2005 revision of IHR included three major changes to address the novel threat of emerging pathogens. First, it vastly expanded the set of diseases that could constitute an international health emergency from the limited nineteenth century list of yellow fever, cholera, and plague, inventing the generic category of "public health emergency of international concern." Second, it defined the actions WHO would take in order to coordinate a global response to such an emergency, as well as the responsibilities of national partner organizations. And third, it obliged all WHO member states to develop "core capacities for outbreak detection and response" within a circumscribed time frame, though without providing either a legal enforcement mechanism or an outlay of resources to achieve this. As we will see, it was this latter element of the revised IHR system that the "global health security indicator" would seek to measure and improve.

The IHR revision laid out the spatial dynamics through which "core capacities" at local and national levels would, in theory, contain the spread of an emerging disease outbreak (see Figure 1). According to this schema, a novel pathogen appears in a given country through a vehicle of global circulation such as an airplane or a ship, arriving at a "point of entry." Each country where the pathogen arrives is able to use its "national core capacities" to detect and respond to the event, and to coordinate its response with international health officials. WHO in turn provides technical expertise in disease surveillance, risk assessment and the coordination of response. For this envisioned system of coordinated global response to function — now returning to the problem of metrics of evaluation — a method was needed to ensure that each country had adequately implemented its required core capacities for detection, alert and response.

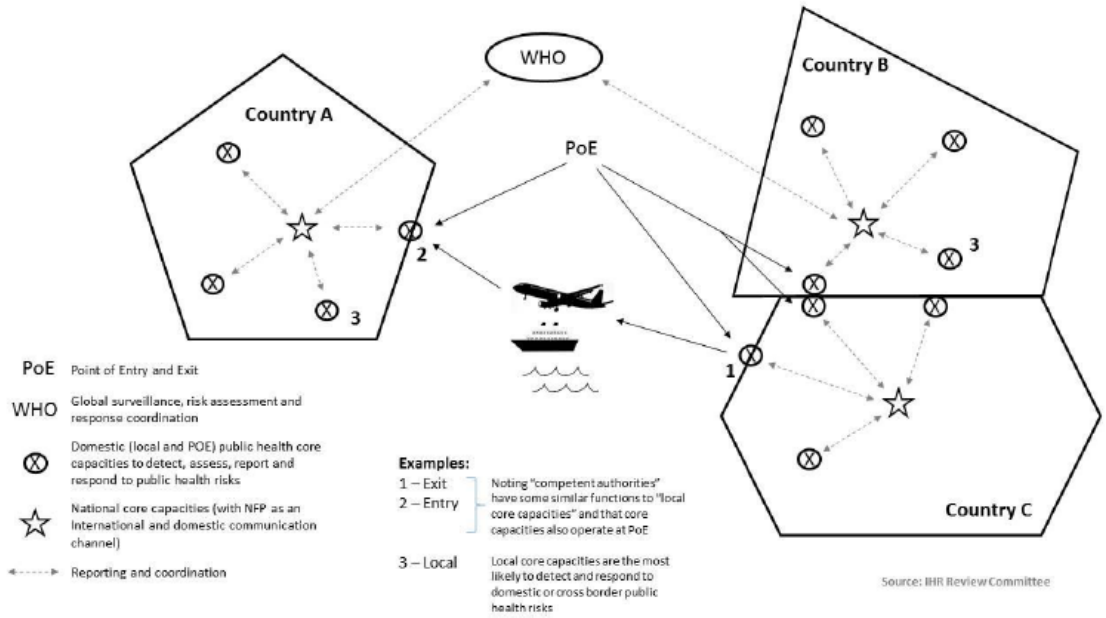

Figure 1: IHR schema depicting the role that national core capacities would play in containing the emergence of a novel infectious disease (World Health Organization, 2016a, p. 19).

The revised IHR (2005) included a list of the core technical and administrative capacities that would be necessary for each WHO member state to be able to fulfill its responsibilities. This list of core capacities included outbreak notification systems, epidemic control measures, and sites of response coordination. To implement these capacities would require that member states invest in health security at the community, intermediate, and national scales. And these capacities would have to be in place, in principle, for all 193 member states. Each WHO member state was initially given until the year 2012 to fulfill its core capacity requirements under the revised IHR. But by that year, only twenty percent of member states had actually implemented these requirements, even according to their own assessments, and WHO extended the deadline for compliance to 2016. A later WHO report argued that "weak political will," "limited awareness" of the regulations, and a lack of sufficient resources had made implementation of the IHR core capacity requirements an "insurmountable challenge" in much of the world (World Health Organization, 2016). Meanwhile, advocates of health security began to investigate whether there were ways to galvanize resources and put pressure on national governments to build these capacities, seen as crucial to effective disease detection and response at a global scale. As part of these efforts, in 2013 WHO released a "core capacity monitoring framework," including a checklist of indicators, to measure the extent to which its member states were fulfilling their obligations under the IHR. The monitoring framework defined eight core capacities "needed for detecting and responding to the specified human hazards and events" at the point of entry, including "surveillance," "response," "preparedness," and "risk communication" (World Health Organization, 2013, p. 14).[14]

The catastrophic 2014 Ebola epidemic in West Africa led to a push for WHO to move more aggressively on the implementation of the core capacity requirement. In the aftermath of what was widely seen as a massively failed response to the early stages of the epidemic, observers blamed the international community for allowing a "preventable tragedy" to unfold (United Nations, 2016). Thousands of people had died from a disease that in prior outbreaks had never caused more than a few hundred deaths. WHO came under particular criticism for its perceived failures of response. Some critics pointed to a lack of leadership within the organization, and others to the absence of adequate resources. But more specifically, a number of post-hoc assessments focused on flaws in the implementation of the 2005 revised IHR framework as a key source of the poor WHO response.

Analysts scrutinized two elements of the IHR framework in particular. First, they looked at the role of the decision instrument whose task was to rapidly galvanize international attention and resources to address an unfolding health emergency: WHO had not declared an official "public health emergency of international concern" until the epidemic was already out of control, several months after the initial identification of the outbreak. And second, analysts pointed to the long-running failure of most WHO member states to implement the IHR core capacities requirement — a failure that was now implicated in the poor responses by national public health agencies in the region affected by the Ebola epidemic. As an editorial in *Nature* put it, while "aspirations" of "strengthening health systems everywhere" as "the best defence against outbreaks of potential international concern" were correct, "the reality is that few poor countries have anything that resembles a working outbreak-response system" (2014, p. 459).

14. "The eight core capacities," explained the monitoring framework, "are the result of an interpretation, by a technical group of experts, of the IHR 2005 capacity requirements" (World Health Organization, 2013, p. 14).

4 Health Security Indicators

In discussions of post-hoc reforms to the IHR system, international health authorities understood the Ebola epidemic as a kind of "test" of the global health security framework, one that should — like an exercise — lead to a process of critical assessment, and, presumably, self-rectification. As an internal report on WHO's response to the epidemic concluded, the epidemic had been a "major test of the revised IHR." The "severity and duration" of the event had "challenged the IHR in unprecedented ways," and thus "shone a bright light on just how ill-prepared and vulnerable the global community remains" (World Health Organization, 2016). For other observers, however, it was not clear that WHO was up to the task of improving the preparedness of the global health community, given its failures in the Ebola response. At this point a different organizational actor entered the picture, the "Global Health Security Agenda," which had initially been launched by the US Centers for Disease Control (CDC) just before the Ebola epidemic. In announcing its launch in early 2014, CDC Director Thomas Frieden explained, to a domestic American audience, why it made sense for the US to lead such a "global" initiative, emphasizing interdependence and shared vulnerability: "US national health security depends on global health security, because a threat anywhere is a threat everywhere" (Frieden, 2014). The initial US$ 40 million investment was geared to help countries around the world "establish minimum capabilities" as outlined in the 2005 International Health Regulations. Two years later, after the Ebola epidemic — in response to the perception of a failed global response — the US announced a massive infusion of new resources into the Global Health Security Agenda, pledging one billion dollars to assist in implementing the IHR core capacities in poor countries. In his November 2016 executive order on "Advancing the Global Health Security Agenda to Achieve a World Safe and Secure from Infectious Disease Threats," President Barack Obama articulated the rationale for the US investment in global health security, an explanation that echoed epidemiologist David Heymann's argument from a decade before: "No single nation can be prepared if other nations remain unprepared to counter biological threats," said the President (White House, 2016). In other words, insofar as the core capacities for outbreak detection and response had not been implemented in countries at risk of emerging disease outbreaks, the US remained vulnerable to the spread of a novel and deadly pathogen via global circulatory networks. "Health security" could not be limited to a national project.

While it was cast as a "multi-country initiative," the funding and organizational impetus for the Global Health Security Agenda came from the US government — specifically, the Centers for Disease Control and the US Agency for International Development — which considered WHO, given its limited resources and constrained jurisdiction, to be ineffectual in enforcing the compliance of "at-risk" countries with their obligations under the revised International Health Regulations. In its attempt to implement the key goals of the "global health security" project — specifically, the global extension of core capabilities for detecting and rapidly responding to emerging disease — which WHO had not succeeded in over the decade since the passage of the new regulations — the Global Health Security Agenda can be seen as an attempt to bypass the bureaucratically hidebound and chronically underfunded WHO. By 2016, the initiative had received commitments from the US and other G–7 nations to support core capacity development in over 60 countries.

The goal of the Global Health Security Agenda (GHSA), according to President Obama's executive order, was "to accelerate partner countries' measurable capabilities to achieve specific targets to prevent, detect, and respond to infectious disease threats [...] whether naturally

occurring, deliberate, or accidental" (White House, 2016). We can see, in this language of measurement and targets, the centrality of practices of technical assessment to GHSA's vision for advancing a global condition of health security. A report on the program explained its collaborative process for strengthening a given country's "capability for health security" (Global Health Security Agenda, 2015). If the country participated in the assessment process and developed a plan for capacity building, it would be eligible for funding and training support from "partners" — typically the US Centers for Disease Control. The resulting "gap analysis" — that is, the assessment of the gap between the country's current and its needed health security capabilities — led to the formulation of "action package targets," which would then guide the country's work of self-rectification. In 2016, GHSA and WHO developed a "Joint External Evaluation" tool to be used in the evaluation of a country's "capacity to prevent, detect, and rapidly respond to public health threats" (World Health Organization, 2016b, p. 2). The evaluation process would take place in two stages: first, a self-assessment by the national government, and then an external assessment conducted by a Joint External Evaluation team, which consisted of experts from WHO, the World Organization for Animal Health, INTERPOL, and other organizations. After a five-day presentation covering nineteen different technical areas, the Joint External Evaluation Team would assign a score for the country's capacity in each of these areas. Countries under evaluation were also encouraged to hold simulation exercises as a means of critical assessment.

Within the Joint External Evaluation process, the key measuring device for generating knowledge about a given country's condition of health security was the "indicator." An indicator, as historian of science Ted Porter notes, is a device used to point to an abstract entity — such as the national economy — that cannot be easily grasped through direct measurement. In place of the thing of interest itself, an indicator measures "something whose movements show a consistent relation to that thing." As the entity whose condition is to be assessed by GHSA and WHO, a country's "health security" is an elusive object, not least because it is supposed to operate on an event that has not yet occurred. But in building an index to assess this entity one need not inquire too deeply into the thing being measured, Porter suggests: "Since its purpose is merely to indicate as a guide to action, ease of measurement is preferred to meaning or depth." (2015, p. 38)

In their analysis of the central role of indicators in multiple domains of contemporary global governance, anthropologists Richard Rottenberg and Sally Engle Merry observe that indicators serve as "a globally circulating knowledge technology that can be used to quantify, compare and rank virtually any complex field of human affairs." (2015, p. 3)[15] Such quantitative knowledge is of use to donors, multilateral agencies, and others who are invested in comparing and managing the conditions of collective life across countries. What distinguishes comparative evaluation in the field of "global health security" from areas such as international development is that it seeks to assess the condition of a system for responding to a potential future event. To approach this "present future", the assessment tool draws on elements of the preparedness kit described earlier, breaking down the problem of health security into lengthy tables of specific areas of government action.[16] The Joint External Evaluation (JEE) instrument is a 92-page document composed almost entirely of tables of indicators — and is the precursor to the Global Health Security Index. The nineteen technical areas covered by the

15. Rottenberg and Merry, "A World of Indicators."

16. The distinction between the "present future" and "future presents" is made in Luhmann (1998); also see the cases presented in Samimian-Darash & Rabinow (2015).

JEE instrument are arranged according to the three broad rubrics of "prevent," "detect," and "respond." Within a given indicator table, the horizontal axis provides a checklist of the capabilities that will be required in the event of the onset of a novel and dangerous pathogen. The vertical axis, meanwhile, consists of a color-coded scheme that enables the evaluator to grade a country according to its capacity level, along a spectrum ranging from "no capacity" to "sustainable capacity." One set of JEE indicators concerns the country's capacity to conduct real-time disease surveillance. Another area covers the prevention of zoonotic disease emergence: here a country requires the right surveillance systems, an adequate workforce, and so on. A third example — from the "respond" rubric — includes two indicators of a country's condition of health security: does it have in place an emergency response plan? Have risks and resources been mapped?

The conceit of the Joint External Evaluation process, as developed by the Global Health Security Agenda, was that the practice of collaborative assessment would lead to the formulation of a national plan to implement the "core capacity" requirements laid out in the 2005 IHR revision, and — with financial and technical assistance provided via GHSA and its partners — would induce countries to voluntarily comply with their IHR obligations. In many ways, GHSA resembles contemporary development-oriented approaches — the use of an index to measure progress, the role of cosmopolitan technical advisors, the lure of foreign aid tethered to the production of evidence of improvement — but the kinds of health capacities being supported by GHSA are distinct from those that a development-oriented approach would seek to measure and improve.

Here it is useful to contrast the aims and techniques of global health security with those of typical international development projects. In discussions of why West African countries had proved so vulnerable to the 2014 Ebola epidemic, a common point of discussion was the lack of "basic public health infrastructure" in these countries.[17] One might, then, imagine that the "core capacities" requirement in IHR would seek to directly address this deficiency in basic health infrastructure. Within the framework of international development efforts, one might think of policies such as training more nurses and doctors, building community health clinics, improving access to preventive care, or ensuring the availability of essential medicines. But in actuality, the "core capacities" measured by the Joint External Evaluation tool focus on a different set of functions than those of classical public health. For IHR, the key objects and techniques of public health infrastructure are redefined: the concept of "core capacities" refers not to the prevention and treatment of common maladies that are prevalent in a given national population — such as infant diarrheal disease, malaria, heart disease or alcoholism — but rather to the detection and rapid containment of possible future outbreaks of novel pathogens that threaten to spread globally, such as a mutant form of H5N1, Ebola, or a novel coronavirus. Thus, the IHR core capacities embody a distinctive form of public health, oriented to an event that might or might not happen.

In this sense, the basic function of the 2005 International Health Regulations — and the design of initiatives, such as GHSA, that seek to improve the core capacities that compliance with IHR requires from WHO member states — is not to care for the health of national populations *per se*, but rather to prevent the spread of novel disease entities across international borders while at the same time ensuring the ongoing circulation of goods through global networks. This latter aim was the objective of the health technocrats in Atlanta and Geneva who developed the vision — and technical practices — underlying global health security.

17. Writing in *The Lancet*, for instance, Lawrence O. Gostin argued: "The countries most effected by Ebola [...] rank lowest in global development, lacking essential public health infrastructure." (2014, p. e49)

5 Conclusion

We can now return to the discussion, introduced at the outset, of the significance of the findings of the 2019 Global Health Security Index (GHSI) in comparing national responses to the coronavirus pandemic. Recall that the index was generated by two Washington, DC based think tanks, the Johns Hopkins Center for Health Security and the Nuclear Threat Initiative (NTI). The index project was spearheaded by Beth Cameron, NTI's vice president for global biological policy, who had been senior director for global health security and biodefense within the Obama administration's National Security Council, where she was "instrumental in developing and launching the Global Health Security Agenda."[18] In other words, GHSI was the post-2016 continuation, now based outside of the US government in the world of Washington, DC think tanks, of the Obama administration's global health security project.

The GHSI thus grew out of the effort, described above, to develop and implement a system of indicators that would make it possible to assess and target interventions into pandemic preparedness at the level of the individual nation-state; and in turn, to generate a global space of health security by ensuring national compliance with the "core capacity" requirements of the International Health Regulations. The GHSI categories were similar to those of the Joint External Evaluation (JEE) tool, now expanded to six categories of measurement: in addition to the JEE categories of "prevention," "detection and reporting," and "rapid response," GHSI added "health system," "compliance with international norms," and "risk environment." In comparison to its predecessor, GHSI increased the total number of technical areas to be measured (from 17 to 34) and claimed to provide a more objective method of evaluation, relying less on individual countries' self-assessments and instead on a body of external experts. But its object and its method were the same.

The finding of the 2019 GHSI assessment, that the United States ranked highest in the world in national health security, was in a way unsurprising. As we have seen, US biosecurity and global health initiatives of the early 2000s were the initial source of the imperative to consider the future of disease incidence in terms of a condition of "national preparedness," as well as the source of the tools that were invented to measure this condition. What came as a surprise to many, however, was how poorly the US in fact responded when an actual pandemic occurred, given its high ranking by the GHSI. As Manjari Mahajan has noted, comparing US mortality rates in the first year of the coronavirus pandemic to those of other countries, "It is striking how little correlation there is between countries' preparedness rankings on the GHS Index and the actual experiences with Covid-19" (2021, p. 204). She points out that the key factors in a country's success in responding to the pandemic were very different than those emphasized by the index. Such characteristics as state capacity, quality of leadership, coordination among different levels of government, and public health infrastructure at the community level proved more critical than the specific technical capacities measured by GHSI. Moreover, the very assumption that is possible to come up with a standard way of measuring "health security" was belied by variation in the basis for successful response across different countries, from Germany to South Korea.

What, then, are we to make of the juxtaposition between a given country's ranking in the GHSI and its performance in responding to an actual pandemic? We can see that "health security," as measured by GHSI, involved a narrowly circumscribed set of capacities designed

18. The quotation comes from Cameron's online biography, available here: https://www.nti.org/about/leadership-and-staff/beth-cameron/. Note that Cameron was appointed Senior Director for Global Health Security and Biodefense in the Biden National Security Council in January 2021.

with a particular scenario in mind: a future situation — perhaps like SARS (2002) — in which the technical ability to detect and contain the emergence of a novel pathogen at its early stages would make it possible to manage a future outbreak. International health experts assumed that if such capacities — already present in the United States — could be implemented worldwide, a future catastrophe could be avoided. Covid-19, however, did not follow the experts' script. Once the disease had spread rapidly and could not be contained, the set of "core capacities" initially elaborated in the revised International Health Regulations proved insufficient to deal with the complex social, economic, and biomedical dimensions of an actual pandemic. Perhaps, then, GHSI did accurately measure the relative "health security" of each country in relation to its scenario of a future disease emergency — but its definition of health security failed to account for the realities of what eventually occurred.

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Preparing and Repairing. The Conservation of Heritage after the 1997 Bird Influenza Outbreak in Hong Kong

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Abstract

This article describes how pandemic preparedness has transformed relations between humans and birds in Hong Kong. If preparedness requires to imagine that a pathogen emerging from birds becomes pandemic, what is the role of memory, experience and heritage in the production of this imaginary? Preparing for future pandemics is linked to repairing vulnerable environments if it focuses on the diversity of relations and the material ecologies which are threatened by an emerging pathogen. After describing the measures implemented in Hong Kong to prepare for an influenza pandemic coming from birds, the article focuses on a specific location, Kadoorie Farm and Botanical Gardens, which recapitulates all the tensions experienced by the Hong Kong population in trying to repair the massive loss of bird life at the time of the handover of the British colony to the Chinese People's Republic. The logic of conservation and heritage is applied to the diversity of the bird population as a sentinel species for emerging pandemics.

Keywords: Hong Kong; sentinel; repair; biosecurity.

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Preparedness is a governmental technique to anticipate the future based on the imagination of a catastrophic event to mitigate its consequences. By contrast with prevention, which relies on probabilities to calculate the risk of an event based on its occurences in the past, preparedness uses scenarios and simulations to anticipate an event whose probability cannot be calculated but whose consequences are perceived as catastrophic (Lakoff, 2017). First used in the military domain, for nuclear threats or bioterrorism, techniques of preparedness have penetrated the field of disaster management and particularly framed the perception of emerging infectious diseases. A new pathogen, such as Influenza, Ebola or SARS-Coronavirus, is perceived by global health and public health authorities as potentially pandemic because it can spread rapidly across the globe to humans who have no immunity, thus interrupting the global flow of persons and commodities. A pandemic pathogen is one of the events for which governments have been prepared in the last twenty years, even if every emerging pathogens disrupts the techniques of preparedness previously implemented, as we have seen with the current Covid-19 pandemic.

In this article, I want to show how techniques of preparedness have been applied in the territory of Hong Kong to anticipate an influenza virus coming from birds in China. The territorial dimension is essential to understand how scenarios of pandemics reveal vulnerabilities in local networks of hospitals or transportation systems, but also how early warning signals of pandemics transform the perception of living beings in the environment. Hong Kong has been conceived as a sentinel post for pandemic pathogens because the diversity of species concentrated in the same environment, such as farms and markets, made it a perfect reservoir to observe the mutations of emerging viruses. The term "sentinel" defines the position of a soldier who captures signals of the presence of the enemy on the first line of the battlefront, but it also characterizes cells who capture antigenic information of pathogens at the entrance of the immune system, unvaccinated chickens in a poultry farm threatened by avian influenza and by extension a territory where citizens are particularly sensitive to environmental threats. In the multiscalar construction of sentinels as techniques of preparedness, Hong Kong has played a significant role because its inhabitants have become accustomed to imagine that an influenza virus affecting some chickens could wipe out the human species by a pandemic.

The production of a pandemic imaginary has often been analyzed in the language of science fiction, which does as if the contact with animals threatened humans of zoonotic pathogens (Wald, 2008; Lynteris, 2019). Rather, I want to argue in this article that daily practices of conservation must also be analyzed to understand how the pandemic imaginary has transformed relations between humans, animals and microbes, and how these relations must be conserved to build sustainable habitats (Lorimer, 2017). Working with virologists, poultry farmers and birdwatchers, I have realized that the infrastructures whose vulnerabilities are revealed by pandemics are sites of long-term relationships and attachments expressed through signs, images and memories. Rather than taking vulnerability and risk as quantitative frames, which is often the case in the literature on disaster management, I take them as indicators of potentialities in the relations between humans and non-human animals, whose perception varies following ecological histories and religious practices. I will describe these sites as natural and cultural heritage, where birds are preserved as well as the buildings in which they have been raised, because I argue that preparedness moves beyond the opposition between nature and culture when it perceive endangered animals as anticipating dangers for humans (Vidal & Dias, 2016).

This article thus connects preparing for future pandemics and repairing vulnerable environments. Centemeri et al. (2021) argue that a repairing perspective requires to take into account "disaster recovery through a consideration of the variety of material ecologies that

become visible as a result of their misfunctioning and the efforts to repair them". I want to join this perspective with the perspective of preparing for future pandemics, which requires from those who live and work with birds to imagine viruses crossing the frontiers between species. We will see that this connection between prepare and repair has taken two forms in Hong Kong: massive killings of birds to protect humans fro an influenza virus, and conservation of bird species to avoid their extinction on the Hong Kong territory. In the disjunction between a disaster actually affecting birds lives and a disaster that could potentially affect human life, the massive death of birds was perceived by Hong Kong citizens as signaling their own collective death, thus complicating a multispecies approach of disaster recovery (Kirksey & Helmreich, 2010). Following this approach, I will ask how the decision to kill or cure bird lives has been understood as signal of what could happen to human lives, on which grounds it has been justified, and how the fabric of memory and heritage has absorbed this traumatic event (Kirschenblatt-Gimblett, 1998).

This article relies on the ethnographic research I conducted in Hong Kong between 2007 and 2013, based on interviews with virologists, ornithologists, poultry farmers, retailers and consumers as well as scientific and administrative literature on avian influenza. After describing the measures implemented in Hong Kong to prepare for an influenza pandemic coming from birds, I will focus on a specific location, Kadoorie Farm and Botanical Gardens, which recapitulates all the tensions experienced by the Hong Kong population in trying to repair the massive loss of bird life at the time of the handover of the British colony to the Chinese People's Republic. I have returned to Kadoorie Farm every time I went to Hong Kong, as I always felt that it was a site of intense historical reflexivity and ecological sensitivity. I consider it as a good sentinel post in its attempt to conserve its bird population rather than destroy it under the threat of bird flu, and I ask how it can be a model for a democratic participation to the conservation of heritage in a world threatened by pandemics.

1 Hong Kong's New Identity as a Sentinel Post for Avian Influenza

Bird flu outbreaks have punctuated the history of Hong Kong, in its transition from a garrison entrepot and financial centre for the British Empire to a sentinel post in the global economy under threat of a pandemic coming from China, as a never-ending disaster. This history of pandemic preparedness begins in 1972, when Kennedy Shortridge creates an Influenza unit at the Department of microbiology of the University of Hong Kong — even if mythical narratives draw the genealogy of this department to 1894, when Alexandre Yersin, trained in Paris by Louis Pasteur, built a caban to study the transmission of plague in Pokfulam, the area of Hong Kong where the Department of microbiology was later created (Peckham, 2013). Shortridge had been trained in microbiology within the school of medical sciences launched by Frank Macfarlane Burnet in Australia after the Second World War, who built the first hypotheses on the mutations of influenza viruses which should lead global health organizations to adapt vaccination (Anderson, 2004). While his colleague Robert Webster had observed that these mutations occurred among wild birds, considered as the animal reservoir of influenza viruses, and were then transmitted to humans via pigs (Webster & Campbell, 1972), Shortridge observed that the last flu pandemics, in 1957 and 1968, started in the south of China. Since China was not a member of the World Health Organization at that time, the emergence of flu viruses was not detected early. Shortridge built networks of personal relations (*guanxi*) with veterinarians in Guangdong, and collected samples of flu viruses among ducks and pigs in the area. He had observed that rice paddies of south China used wild ducks as pesticides, a system known as *daotian*

yangya (Zhang et al., 2009; Fearnley, 2020) — thus bringing them in close proximity with humans and pigs. He concluded that this traditional ecology was an "influenza epicenter" for the rest of the world. "The densely populated intensively farmed area of Southern China adjacent to Hong Kong," he wrote with the renowned British influenza expert Charles Stuart-Harris, "is an ideal place for events such as interchange of viruses between host species." (Shortridge & Stuart-Harris, 1982, p. 812)

In the preface to a reference book on avian influenza, Shortridge mentioned the memory of the 1918 flu pandemic in Australia:

> My mother's compelling stories about the devastating reaches of the pandemic have stayed with me since my earliest years. What started out as a spark of interest has led me to search the hows and whys of influenza pandemics through birds and mammals (Greger, 2006, p. XI).

Surprisingly, the 1968 flu pandemic, called "Hong Kong flu", left few traces in the memory of the Hong Kong population, probably because the Hong Kong government was then much more concerned by the social troubles caused by the arrival of refugees from the Cultural Revolution and the threat of social uprisings caused by "Chinese spies" (Caroll, 2007, p. 150). But it affected strongly the health of the population: 500,000 persons were infected, which is 15% of the population, while the pandemic killed one million persons worldwide, with a lethality rate of 0.5% but severe symptoms (Knott, 2018). The colonial government of Edward Youde launched a massive policy of welfare state in the 1970's to cope with the social and sanitary needs of refugees (Caroll, 2007, p. 168). Consequently, Shortridge's work in collecting flu samples from south China aimed both at repairing and anticipating pandemics: since flu viruses are severe when they jump from animals to humans, the best way to repair the trauma of the past pandemics was to prepare for the next pandemic by monitoring animal reservoirs.

Shortridge's strategy proved successful in 1997, twenty-five years after he implemented it. The British colony was about to return under Chinese sovereignty, after a treaty was signed by Margaret Thatcher and Deng Xiaoping claiming that Hong Kong and China would be "one country, two systems" (Caroll, 2007, p. 179). Cases of a new influenza virus, called H5N1 by the experts of the World Health Organisation, were detected in February among 12 humans, 8 of whom died, and killed 5,000 chickens. Shortridge raised the alarm: there were 1,000 live poultry markets in Hong Kong at that time, and in some of them 36 percent of chickens tested positive for H5N1. He recalled,

> One moment birds happily picked their grains, the next they fell sideways in slow motion, grasping for breath with blood slowly oozing from their guts. I had never seen anything like it. I thought, 'My God. What if this virus were to get out of this market and spread elsewhere?' (Greger, 2006, p. 35)

Because the flu vaccine was made on chicken eggs, it was impossible to vaccinate chickens and humans for this new virus, which was lethal for both. In November 1997, Shortridge consequently recommended the Hong Kong government a difficult decision, that had been already used in the United States for similar outbreaks of influenza in poultry farms : kill all the live poultry on the territory to eradicate the animal reservoir of the virus. A team of civil servants from the Agriculture Department was assigned to this difficult task, which was repeated every time an influenza virus was detected in poultry farms or markets. "Most of them had never seen live poultry before. They had to learn. Now some of them have become experts in

poultry culling," the head of the Agriculture Department later declared (Kolata, 1999, p. 240). The term "culling" is used euphemistically to describe the killing of infected animals to clean the flock, but Shortridge said to me in an interview: "We didn't cull, we conducted a slaughter!"[1]. Shortridge justified this massive killing as a preemptive measure to lower the probability of a flu pandemic starting from Hong Kong:

> Poultry were killed market-by-market as signs became evident, leading to the preemptive slaughter of all poultry to prevent human infection. Early detection and reaction was the order again in 2002 and 2003. Thus, there now lay the prospect for influenza-pandemic preparedness not only at the human level but, better still, at the baseline avian level with the ideal that if a virus could be stamped out before it infected humans, an influenza incident or pandemic will not result. In 1997, the world was probably one or two mutational events away from a pandemic, while in 2002, with earlier detection, it was probably three or four events away (2005, p. 10).

The logic of pre-emption was used by Shortridge to justify a sovereign gesture anticipating the spread of a pandemic virus from poultry markets, but it betrayed a failure of the logic of preparedness which required to detect zoonotic virus before they spread to humans. The massive slaughter of poultry was a shock for the Hong Kong population, since most of them came from rural provinces of mainland China and shared a similar approach to farming based on a small household with chickens and pigs.[2] It was not uncommon before 1997 to see backyard poultry in Hong Kong, while this practice was forbidden by the government after 1997. Poultry farms were allowed under strict conditions : ducks, considered as sane carriers of the virus, could not be raised, and chickens should be sent to a central market for inspection.

The violent eradication of established practices in agriculture, which in actual fact led to the disappearance or strict control exerted on animal species, echoed the fears that Hong Kong citizens nourished about returning under Chinese control. In a way, Hong Kong citizens identified themselves with the slaughtered chickens, geese, ducks and quails. There were many fears before 1997 that the Hong Kong population would be crushed by the Chinese People's Liberation Army just as it had crushed students in the Tiananmen square in 1989 — an event mourned annually on June 4 in the parks of Hong Kong. A Chinese saying goes: "Kill chickens to warn monkeys" (*sha ji jing hou*), which indicates that the massive killing of chickens was also a sign of China's restored sovereignty over Hong Kong. The killing of more than one million poultry may also have recalled Mao Zedong's 1958 mobilization of the Chinese population against sparrows, which were considered pests (Shapiro, 2001, p. 88). It was a major trauma in the relations between the Hong Kong population, their political government and their natural environment.

The logic of preparing for pandemics by the early detection of viruses in their animal reservoirs was reinforced in 2003 with the SARS crisis (Severe Acute Respiratory Syndrome). A coronavirus circulating among bats and transmitting accidentally to humans through the civet cats consumed in Chinese traditional medicine returned to its animal reservoir when civet cats

1. K. Shortridge, interview with author, Hong Kong, 2 February 2009.

2. In an interview I made in January 2009 with farmer Wang Yichuan, who was also the head of the Hong Kong Poultry Farmers Association, he recalled that this trade union was founded in 1949 with 145 farms breeding around 1,000 chickens, while the number of poultry farmers had lowered to 30 sixty years later. He considered himself as heriting from ordinary Chinese immigrants who came to Hong Kong with poultry as a source of wealth.

were killed and their sale forbidden. Shortridge then wrote an article with his two colleagues at the Hong Kong University Department of Microbiology who had identified the SARS virus in animals and humans, Guan Yi and Malik Peiris, in which he concluded that the

> [s]tudies on influenza ecology conducted in Hong Kong since the 1970's in which Hong Kong essentially functioned as an influenza sentinel post indicated that it might be possible, for the first time, to have influenza preparedness at the baseline avian level. (Shortridge et al., 2003, p. 76S).

Shortridge and his colleagues' article was infused with the idea that live poultry markets was a tradition in Hong Kong that needed to be modernized and regulated, just as Chinese traditional medicine in mainland China or "wetmarkets" in Singapore — a term used to impose the daily cleaning of these markets where animals are sold and killed in front of the consumers. Hong Kong microbiology experts recommended these strong biosecurity measures after 2003 to control the risk of infection between humans and birds in live poultry markets, which added up to the measures of inspection implemented in 1997 (Woo et al., 2006).

Biosecurity meant not only the extraordinary *mise-en-scène* of killing poultry in the central market of Hong Kong, or organizing simulations of bird flu outbreaks in markets and hospitals, but also the more ordinary work of surveillance and control in farms and markets (Lakoff & Collier, 2008). Since the H5N1 avian influenza virus emerged in Hong Kong in 1997 and spread to the rest of the world after 2005, the measures imposed in Hong Kong were used as a model for those recommended by international administrations to countries facing the risk of transmission from birds to humans. Margaret Chan, who had managed the outbreaks of H5N1 and SARS in Hong Kong between 1997 and 2003, was elected head of the World Health Organization in 2006 and promoted the International Health Regulation, which made pandemic preparedness a priority. Being a sentinel post of influenza meant that Hong Kong was at the vanguard of measures to control zoonotic diseases with pandemic potential, and a kind of experimental site for measures that should be applied on the whole Asian continent.

2 Changing Relationships between Humans and Birdlife in Hong Kong

The measures imposed by the Hong Kong government to regulate the live poultry industry were so strong that they clearly aimed at reducing or even suppressing this traditional activity. Retailers had to kill all the live poultry at the end of the day and wash their shop every night, and the market was closed for one day every night to clean it from potential infections. Because of the liberal tradition of the Hong Kong government due to its position as a hub in the global trade between East and West (Grantham, 1965), it was impossible to forbid selling live poultry on the territory, as the Beijing authorities had done after the first cases of avian influenza in the capital city. But it was clearly a paradox to see live poultry sold in the markets of a modern city highly aware of the risks of zoonotic transmission. Hong Kong citizens were attached to the tradition of eating a "fresh" chicken, which is supposed to be more tasty and more secure than "chilled" poultry imported from mainland China. While the government encouraged the consumption of "chilled" poultry in supermarkets, the consumption of live poultry declined only gradually.[3] A fresh chicken was compared by Hong Kong consumers to a fresh fish that

3. Between 2002 and 2008, the number of live chickens consumed in Hong Kong per year declined from 30 million to 5 million, while the number of chilled chickens consumed in Hong Kong per year raised from 1 million to 35 million (Agriculture, Fisheries and Conservation Department of the Hong Kong government).

could be chosen in a pond before being eaten in a restaurant or at home. Looking at the live poultry was part of the pleasure of eating its meat, by contrast with pork or beef whose meat was sold in pieces. Consequently, poultry farming in Hong Kong remained a strong economy, with thirty farms raising around 50 000 chickens each. They were organized in a trade union to cope with the risks of avian influenza, since all the chickens in the farm had to be killed if there was one single case of infection. Biosecurity measures in the farms, such as nets to protect the poultry from wild birds or ponds to clean the boots of workers and the wheels of trucks entering the farm, were perceived as obstacles by poultry farmers and often not respected (Liu, 2008).

While vaccination was compulsory against influenza, some chickens were left unvaccinated at the entrance of cage rows, with a ratio of 60 sentinels for 4000 chickens. They were found dead more massively when an influenza virus entered the farm, which allowed the farmer to raise an alert. The use of sentinel birds is common for a range of infectious diseases, such as the Westnile virus transmitted to humans by mosquitoes, and for which chickens are put into cages to check if they seroconvert to the disease that is lethal in humans but not in birds (Doherty, 2012). The Chinese word for sentinel birds is *shaobingji*, which literally means : chickens whistling like soldiers. This means that chickens are allies of humans in their fight against a virus that circulates asymptomatically among wild birds : they die first of a virus that could ravage the human species if turned into a pandemic.

As I was thinking of Hong Kong's new identity in a changing ecology, the analogy between the position of sentinel chickens in a poultry farm and the position of Hong Kong as a sentinel post between China and the global economy struck me in two manners. On one side, it could be argued that sentinels are sacrificed when the farm or the territory are exposed to infectious threats: they die by raising alarm so that the farm or the territory can be cleaned. This interpretation is common in what anthropologists define as "pastoral societies" which rely on the sacrifice of some living beings to save the rest of the flock. But sentinel chickens don't always die, and their conservation in a space of exposure allows humans to know more about the presence of microbes in the environment. Sentinel chickens are used in a liminary space between humans and birds because they display their common vulnerability. Their function is not only to repair by cleaning the territory from its cursed parts but to prepare the population by displaying sites of exposure.

This view of sentinels as mediators of communication is commonly shared by hunting societies. It is striking to know that that the domestication of the red junglefowl (*Gallus Gallus*) occurred in south China between 10,000 and 7,000 years ago, before this species became globalized as a major source of the industrialization of the meat production, and that archeologists assume, based on bone remains, that it was domesticated for the purpose of divination (Simmons, 1991, p. 298). Preparing for pandemics through the use of sentinels birds might thus be linked to an old technique of anticipation in the transition from hunting to pastoral societies. In this perspective, repair and prepare can be contrasted as the classical anthropological operations of sacrifice and divination, which are often entangled in human societies but must be distinguished as different techniques to manage the life and death of non-human animals.

The emergence of the H5N1 virus in 1997 can be characterized as a disaster in two senses. Literally, it has destroyed all the live poultry on the territory, to which Hong Kong citizens were attached, as backyard chickens or duck farms were forbidden by the government and live poultry farms and markets were strictly regulated. Metaphorically, it has destroyed a sense of identity of Hong Kong citizens under British rule as strong producers of a global industry, and shaped a new sense of identity under their new government by Chinese sovereignty. Preparing

for future pandemics was a way to repair this lost identity, by converting a trading post into a sentinel post. Hong Kong became a sentinel post for the global spread of avian influenza like sentinel chickens at the entrance of poultry farms to raise alert on the spread of the virus. Several movies produced by Hong Kong film makers reflected this vulnerability of Hong Kong under Chinese rule, configured by the doctrine "one country, two systems", such as Johnny To's *Sparrow* which depicts a woman as a bird trapped in a cage. To understand how art can become a way to express this new relation between humans and bird, I will look at the politics of cultural heritage and natural conservation in the case of a specific farm: the Kadoorie Farm.

3 The Kadoorie Farm: A Center for Bird Conservation and Historical Heritage

The politics of heritage in Hong Kong has been described as a mix of weak initiatives from the government and strong mobilizations from citizens (Veg, 2008). As the real estate pressure leads to the destruction of historical buildings, and because Hong Kong is not famous for being a destination of cultural tourism, the heritage of the British colony has been rarely preserved, by contrast with the Portuguese colony of Macao, inscribed on the UNESCO World Heritage List in 2005. However, ten years after the handover of the British colony, civil society organisations have developed to preserve the heritage have developed, promoting cultural trails along traditional Hakka houses or defending colonial buildings against destruction. The Hong Kong Heritage Museum has been opened in 2000 in Sha Tin, east of the New Territories, with beautiful displays about Cantonese opera and fishermen's techniques. The Tai Kwun Centre for Heritage and Arts has opened in 2018 in Soho, in the busy streets of Hong Kong island, in the former Central Police Station. But none of these places deals with traditional relations between humans and birds in Hong Kong. To learn about them, you can go to one of the four aviaries opened to the public in Hong Kong parks or to the Bird Market in Mong Kok, where exotic birds are displayed or sold. However, there is only one place that keeps local birds as a cultural heritage and a testimony of a disastrous history: the Kadoorie Farm.

The Kadoorie Farm and Botanical Garden is located along the road between Nam Cheong and Tai Po, right in the middle of the New Territories. It is a series of small ironated buildings, water streams, terraces and forest trees along the slopes of Tai Mo Shan, the highest mountain in Hong Kong culminating at 1800 meters above sea level. It was created in 1956 by two bankers, the Jewish brothers Horace and Lawrence Kadoorie, who owned Hong Kong's most prestigious hotel, The Peninsula, and the main power company in China. In 1951, with the arrival of refugees from mainland China, they had set up an association to teach them agricultural techniques that would allow them to become independent. Their motto was : "helping people to help themselves". This motto had already granted the success and prestige of the Kadoorie brothers when they financially supported European immigrants in Shanghai in the 1930's (Kaufman, 2020). The Kadoorie Farm was designed as a site of demonstration where agriculture techniques were displayed on pigs and chickens. Local farmers were taught how to build cages, select breeds, hatch eggs, ventilate (as backyard poultry was replaced by closed farms), vaccinate (particularly against Newcastle disease, that killed chickens massively without being transmissible to humans). Refugees who learnt how to raise animals were given pigs and chickens if they built a farm in the valley. This philanthropic endeavor was also a way to meet the demands of the market. Because of the boycott of Chinese products by the United States, poultry raised in Hong Kong was exported and sold to the Chinese diaspora in North

America. While in 1949, there were 145 farms breeding around 1,000 chickens in Hong Kong, they expanded in a few years to more than 1,000 farms raising around 100,000 chickens each (Yeung, 1956).

This model of livestock development gradually declined and was transformed into a model of biodiversity conservation as the US market turned to chickens from mainland China and as the bird flu outbreak damaged the poultry industry in Hong Kong. In 1995, the Legislative Council passed an ordinance that established the Kadoorie Farm and Botanic Garden Corporation (KFBGC) with a mission to educate the public to nature conservation. The Kadoorie family was still on the board of the company and heavily funded it. Horace Kadoorie had introduced parrots and flamingoes in the farm who outlived him — he passed away in 1995, and a statue of him smiling and sitting on a bench welcomes the visitor entering the park. In 1994, just before his death, he supported the creation of a raptor "sanctuary" to provisionally host vulnerable wild birds. It had been proposed by his friend Jim Ades, a British officer and passionate birdwatcher who collected birds in the wild and rescued those he found sick or illegally passed through the border with China. Horace Kadoorie hired Jim Ades' son, Gary, as the head of the Fauna Conservation department. Under Gary Ades' management, this rescue activity became a major attraction, with more than one thousand birds rescued every year. Visitors come to see the flamingoes and parrots, often not knowing that they are as old as the farm itself, but also the eagles and owls who have just been rescued, with information about their biography in the centre, detailing when they were brought, what injuries they suffered, when they would be released. Raptors are released every sunday on the summit of the mountain from the Kadoorie Brothers Memorial Pavilion, two small Chinese temples overpassing the valley — a Memorial race is organized there every year. While the Kadoorie brothers were buried in the Jewish cemetery, this pavilion has been considered as an inhabited place with the souls of the birds who were rescued and released there.

One of the agents working at the rescue center of KFBGC at the time of my research, named Captain Wong, was very active in the protection of birds. He was scandalized by the birds found dead in natural parks where Buddhist practitioners released birds — a tradition called *fangsheng*, "let live". These birds were trapped from the wild and sold in the Bird Market of Mong Kok to be released in improper environments, where the stress of being encaged often led them to die. With the support of birdwatchers associations in Hong Kong and Taiwan, Captain Wong organized a conference in Taipei in 2015 to document this practice. He negotiated with the Hong Kong government and the Hong Kong Buddhist Association that the release of birds was replaced by the release of seafood — turtles, fish, frogs, shells... Captain Wong was proud to invite Buddhist practitioners to the bird release ceremony at the Kadoorie Brothers Memorial Pavilion on Sundays. It was a kind of secular ritual, where the souls of birds were traced through a GPS antenna, that allowed birdwatchers to follow their movements in the wild. Books were distributed to Buddhist practitioners indicating where to properly release wild birds. Called "scientific release handbooks" (*kexue fangsheng shoushu*), they imitated the handbooks in which Buddhist prayers were noted to accompany animal release.

Another memorial site in the Kadoorie Farm was hidden from the public gaze: a cage containing chickens, with a warning to the visitors: "The Chicken Display House will be closed under further notice to ensure the chickens at the Kadoorie Farm & Botanical Gardens are protected from any possible outside contamination while bird flu concerns still exist in Hong Kong." It was presented by the rulers of the Farm as a center for the conservation of local breeds, particularly the Wai Chow, the White Wai Chow and the Guangzhou chicken, which disappeared from mainland China during the Cultural Revolution. Shing Tam-Yip was the

head of the breeding team, taking care of the 2500 chickens and 9 pigs — the pigs were displayed to visitors as mascots of the Farm. A passionate birdwatcher and plant scientist trained at Hong Kong University, Shing Tam-Yip detailed to me the measures of protection of these chickens against avian influenza.[4] If the virus entered the farm, he said, it would be the end of these local breeds. The Kadoorie farm had its own system of alert, more severe than that imposed by the government to other poultry farms, with three levels (vigilant, serious, urgent). Indeed, in case of an outbreak of bird flu in the surroundings of the farm, the cost of culling would not measure the value of the meat, but the genetic knowledge preserved by decades of selection. All chickens were vaccinated, except for 60 of them who acted as sentinels, scattered all over the aviaries. These chicken farms had to be closed to the public in 1997 with the emergence of the H5N1 flu virus. Shing Tam-Yip told me that before 1997, the selection of the purest breed was a public ceremony, but that it became private after 1997 for safety reasons. Selection consisted in sexing the males from the females, ringing the females, preserving the males who had the highest value and destroying the rest of the males. Shing contrasted the killing of one-day chicks for selection to the massive killing of poultry as a preventive measure against bird flu

> We use CO_2. This is not torture. For ten seconds they shake a lot, but after twenty seconds it is silent. When they killed poultry at the central market of Cheung Sha Wan, the quantity of gaz was not enough. Poultry died after a very long time. It was really torture. People watching on television felt distress.

By many accounts, the Kadoorie Farm displays counter-measures to the biosecurity measures adopted against avian influenza by the Hong Kong government, and elaborates a science of conservation that remedies the politics of destruction of birds. While the Hong Kong government culls all chickens when some of them are found infected with the influenza viruses, hoping to gradually cancel the live poultry activity itself on the territory, Buddhist associations pray for the souls of the birds and release them in natural parks, thus duplicating the economy of chickens as commodities by an economy of souls. Birdwatchers are breaking with this economy of pastoral care by what can be analyzed as techniques of hunting societies (Keck, 2020). Coming from a colonial history of hunters (MacKenzie, 1988; Fan, 2004; Moss, 2004; Peckham, 2014), they have built a conservatory in the middle of the territory where "pastoral" techniques of power are reversed into "cynegetic" techniques of power. Raptors are released with GPS antenna to follow their movements, and chickens are selected with a scientific measure to reduce their suffering. Birdwatchers, following techniques of hunters, are able to take the perspective of birds on their death, and to share the vulnerability of birds in a world threatened by disasters (Viveiros de Castro, 1992). Sentinel chickens are communicating with humans about the threats that affect them in common by bearing the signs of zoonotic viruses, while the Hong Kong government relies on politics of sacrifice when it kills live poultry to eradicate the avian reservoir of these viruses.

The Kadoorie Farm can be analyzed as a "ruin" of the Hong Kong colonial past, in the sense developed by Anna Tsing (2015). With its memorials, ironated buildings and old flamingoes bearing the traces of the founding brothers, it resists the standardization of the poultry industry. Paradoxically, while the Kadoorie brothers taught Chinese immigrants in Hong Kong how to raise chickens in an intensive and industrial manner, these chicken breeds are now conserved as what cannot be scaled up to the globalization of the chicken industry (Tsing, 2005) — also

4. Shing-Yam Tip, interview with author, 15 February 2009.

called the "chickenization" of the global farms (Silbergeld, 2016). They are also conserved as challenges to the "livestock revolution", displaying the strengths of biodiversity against the exposure of standardized poultry to emerging viruses (Fearnley, 2019). After being a model of the global industry during the era of '"made in Hong Kong" commodities, the Hong Kong territory has become a model for the "endangerment sensibility" (Choy, 2011; Vidal & Dias, 2016). In the environmental movement emerging in China (Weller, 2006; Hathaway, 2013), Hong Kong citizens are attentive to the threats on their environment and careful to conserve the habitats and animals with which they live. This engagement in the reparation of an environment threatened by industrialization and its correlated diseases consists in a sense of shared vulnerability with all the living beings inhabiting the same territory (Pelluchon, 2020). Here, repair is not opposed to prepare, as in the contrast between sacrifice and divination we have seen before, because the conservation of a diversity of poultry breeds is considered as a means to mitigate the emergence of flu viruses from birds.

4 Conclusion

This article has explored the connections between preparing for future disasters and repairing vulnerable environments as two perspectives on the same event, the potential transmission of pandemic pathogens from birds to humans. I argue that preparing for pandemics brings this connection with repairing environments, precisely because it needs to imagine the consequences of an infectious event, while the logic of prevention relies on calculation to anticipate the spread of a pathogen. If principles of preemption and precaution protect the human population by destroying the animal reservoir to eradicate the pathogen, thus drawing a strong boundary between humans and animals, techniques of preparedness consider viruses as tools to build new relationships with animals by monitoring the mutations of pathogens, in a way that bypasses boundaries between nature and culture. I focused on Hong Kong as a sentinel post for pandemic preparedness and, in its very center, the Kadoorie Farm as a site of cultural heritage and natural conservation. Kadoorie Farm can be conceived as an extraordinary sentinel technology to conserve what would be lost in case of a bird flu outbreak: the diversity of bird species.

In the first part of this article, I have shown how poultry farmers have integrated pandemic preparedness in their daily practices through the use of sentinel birds. Rather than contesting biosecurity measures imposed by the government, they have defended the value of the Hong Kong breed by contrast with the Chinese breed. The diversity of bird species has become a way to repair a territory damaged by the sacrifice of infected birds and to prepare for future outbreaks. In the second part of the chapter, I have studied the confrontation between ornithologists and Buddhist practitioners in Kadoorie Farm as potentially conflicting ontological engagements. The latter see birds as carrying signs of future goods in an economy of souls, while ornithologists see them as carrying signs of threats in a vulnerable ecology. Ornithologists have found a compromise between these two opposite views by releasing wild birds with technologies of tracking. While religious practitioners in this case repair the damages of infectious outbreaks by praying for the souls of animals, conservationists have found a way to prepare for species extinction by following bird movements. This tension between conservation and compassion in managing risks of transmission at the frontiers between species is instructive in a continent where humans and non-humans share a common vulnerability. While the management of pandemic risks is often conceived as a sacrifice of animal species considered as reservoirs

of infectious diseases, the description of techniques of repair and prepare in Hong Kong reveals other ways to valorize and mitigate the diversity of human and non-human animals.

The appropriation of preparedness by poultry farmers and birdwatchers in Hong Kong has thus led them to convert their capacities of caring for the health of birds into techniques of monitoring viral mutations. Politics of heritage conservation were good tools for this conversion because they transform warning signals into an aesthetics of biodiversity. As it is increasingly proved that a diversity of animal species is lowering the risk of zoonotic transmission (Keesing et al., 2006), promoting bird diversity is also a way to protect humans against a pandemic. A pandemic pathogen is thus perceived by poultry farmers and birdwatchers as a warning signal of the vulnerabilities shared by humans and birds in an industrialized environment. Preparing for future pandemics also means repairing wildlife and farming environments damaged by industrialization, and conserving their potentialities.

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Preparedness as Governmentality. Probing the Italian Management of the Covid-19 Emergency

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Abstract

The paper deals with preparedness, a take on biological threats of growing academic and policy relevance, as a clue to ongoing changes in governmental approaches. We first address its features. Gauged against the security rationale of biopolitical governmentality, as discussed by Foucault, we argue these show "post-securitarian" traits. We then focus on the Italian management of the Covid-19 emergency, examining the main regulatory documents enforced by the Government during the pandemic, from its beginning, in January 2020, to July 2021. Results show that the response to the pandemic has been patchy; ample recourse to disciplinary measures created tensions with the securitarian logic of health apparatuses; the preventive character of many approaches and instruments, including vaccinations, contrasts with the precautionary framework of their actual implementation; and the limited role played by preparedness at a surface level is counterweighed by the post-securitarian implications of some measures and of the blurring of the very distinction between biopolitical failure and success. Relevant questions arise concerning the handling of new and emergent threats and, more broadly, the evolution of governmental powers in current societies.

Keywords: Governmentality; biopolitics; preparedness; COVID-19; post-security.

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1 Introduction

In the wake of pandemic threats such as SARS, H5N1 (avian flu), Ebola and Zika, the World Health Organization (WHO) has stressed the need to get ready for health emergencies caused by insurgent and resurgent infections, spurring countries to take a comprehensive anticipatory orientation. In this framework the concept of preparedness — in principle applicable to any sort of disruptive event, from natural disasters to nuclear attacks and bioterrorism — has taken growing hold (WHO, 1999, 2005, 2009; Sanford et al., 2016; Lakoff, 2017; David & Le Dévédec, 2018).

In spite of previous experiences with viruses seemingly capable of unpredictable and uncontrollable diffusion, leading to international guidelines and national plans (Barker, 2012; David & Le Dévédec, 2018; Rabi & Samimian-Darash, 2020), the Covid-19 pandemic, due to the Sars-CoV-2 virus, has caught by surprise governments and health systems all over the world. Nonetheless — or, better, precisely for that — the responses elicited are worthy of investigation, as a clue to the actual evolution of emergency approaches.

To this purpose the Foucauldian concept of biopolitical governmentality provides a useful backdrop. It has already been used to address the way preparedness affects traditional approaches that pivot on the notion of risk prevention (e.g. Bashford, 1999; Elbe et al., 2014; Chamlian, 2016; Sanford et al., 2016; David & Le Dévédec 2018). In the Covid-19 pandemic case, however, it seems to lead to opposed interpretations. For some we would be witnessing an acceleration in the biopolitical drift of contemporary societies by way of a normalization of the state of exception, the protection of health taking precedence over any other value, with a curtailment of individual rights of unspecified duration and an unprecedented extension of profiling of sensitive data (Becchi, 2020; Sylvia, 2020; Agamben, 2021). For others we would rather be faced with a biopolitical failure, governments all over the world showing contradictory behaviours and a fundamental inability to manage a health emergency hardly completely novel and unexpected (Amselle, 2020; Arminjon & Marion-Veyron, 2021; Pele & Riley, 2021).

Conflicting readings can be ascribed in part to different political standpoints, yet they are arguably related also with the ambiguity of today's governmental rationality. On one hand, while subscribing to the securitarian logic of the governmental apparatuses emerged in the late eighteenth century, neoliberal rule has promoted a politics of personal responsibility vis-à-vis existential risks (job, health, private life: cf. Rose, 2007; Dardot & Laval, 2017). On the other, in specific cases such as vaccines, state authority has been reaffirmed time and again, with paternalistic and disciplinary approaches engendering mixed reactions, from approval to protest and non-compliance in the name of individual autonomy (Engels, 2016; Gobo & Sena, 2019; Pellizzoni, 2021). The Covid-19 emergency seems to have deepened ambiguity about the handling of risks and uncertainties, the question being whether this should be read in terms of inconsistency of behaviour or of an emergent rationale. The evidence from which one has to start is that governments all over the world have resorted to disciplinary solutions, like quarantine and restrictions to people's mobility, while simultaneously appealing to individual and collective responsibility in following recommendations such as hand cleaning, face protections, social distancing and voluntary isolation. Likewise, existing pandemic plans have been largely disregarded, basically giving up a systematic overseeing of the progress of the infection, yet the idea of vigilance has been reiterated all along the emergency (case monitoring, contact tracing, data interpretation, etc.) (WHO, 2020d).

Against this backdrop, the present work reflects on whether, in the Italian handling of the Covid-19 crisis, the securitarian framework of threat responses based on prevention (or pre-

caution) has been confirmed or altered, and in which way. To this purpose, we first review Foucault's insights into biopolitical governmentality and its evolution from the liberal to the neoliberal era, focusing subsequently on preparedness and its peculiarities. As we shall argue, preparedness entertains an oblique relationship with the security logic, intensifying the latter's non-deterministic reasoning up to providing it with a new meaning, which makes it possible to talk of a "post-securitarian" take on threats. We then turn to the Italian Government's management of the pandemic from January 2020 to July 2021, addressing the main regulatory provisions issued in this time span to understand their rationale. Results show that the response to the pandemic in Italy has been inconsistent; ample recourse to disciplinary measures created tensions with the security logic of health apparatuses, especially in the framework of a growing stress on individual autonomy and responsibilization; the preventive character of many approaches and instruments, including vaccinations, contrasts with the precautionary rationale of their actual implementation; and the limited role played by preparedness at surface level is counterweighed by the post-securitarian implications of measures, such as the zoning system, designed to chase rather than precede the virus. Likewise post-securitarian can be considered the blurring of the very distinction between biopolitical failure and success faced with a take on the threat that engenders a strengthening of trial and error, resilience and adaptation to ever-changing yet simultaneously unmodifiable existential conditions, the governmental goal becoming not the resolution of the crisis but its — potentially endless — modulation.

This paper has been written with the crisis still underway and responses evolving. Analysis and discussion are, therefore, necessarily tentative. The meaning of observed phenomena may be distorted by the closeness of outlook, regarding especially whether or not apparent inconsistencies should be read as signs of an emergent logic. Taking legislation as the focus of inquiry offers at least an objective basis for reasoning, preventing possible biases due to feelings and personal experiences. That said, we restrict in the following our analysis to the national level. The complex, often boisterous relationship between national government and regional administrations — not determined but certainly exacerbated by the emergency conditions — deserves a study of its own.

Within these limits, we believe the paper highlights relevant questions concerning the handling of new and emergent biological threats and, more broadly, the evolution of governmental powers in current societies, a better understanding of which is of paramount importance.

2 Governmentality and Biopolitics

Foucault (2008) provides the notion of governmentality with two meanings. In an analytical sense, governmentality refers to the identifiability of different government rationalities. In a historical sense, it refers to the rise of the problem of government as management of things, administration of the living conditions and health of a population for the sake of protecting and improving the state's productive forces. Since the end of the eighteenth century, the governmental imperative becomes the public health, as instrumental to economic and social development. On this view, governmentality coincides with the rise of biopolitics. Foucault contrasts it with traditional "sovereign" power. While the latter consists in the capacity to "make die or let live", biopower is the capacity to "make live or let die" (Foucault, 2003, p. 241); the power "to foster life or disallow it to the point of death" (1990, p. 138).

Biopolitics does not rely only on law, but on complex management procedures of administrative, organizational and institutional nature, based on expert knowledge and scientific claims (Foucault, 2007a; Oksala, 2013). Individual freedom and responsibility are no longer seen as

threats to the social order but instrumental to governmental operations (Rose & Miller, 1992; Sena, 2014). Coercion becomes an option among others, such as, in the case of disease prevention, information and education campaigns or financial incentives (Foucault, 2003).

Foucault addressed biopolitical governmentality as it arose in the liberal age, subsequently turning to its transformation under neoliberal rule. A transformation, pivoting on an extension of the *homo oeconomicus* model to all spheres of life and a rethinking of market regulation as a purposeful construct (Foucault, 2008; Dardot & Laval, 2017), which by any evidence is still underway, with an intensification of its inherent tensions. Namely, the reduction in public spending, especially in the health sector and for non-hospital medical services, occurred in many countries in recent years in view of replacing it with privatized and customized solutions, has entailed a shrinking in the access to medication, contradicting the basic biopolitical aim of keeping healthy the productive forces, and, if not necessarily a limitation of biopower (Amselle, 2020), at least an increasing turn to indirect forms of governance. The neoliberalization of public health tends to reformulate the logic of making live or letting die in terms of freedom to cure oneself (under market conditions) or otherwise. Hence a growing stress on citizens' self-entrepreneurship in pedagogical (education to autonomy), economic (private efficiency as a prerequisite for public efficiency), political (autonomy from state power) and technical (personalized medicine and tailor made solutions in general) terms (Rose, 2007; Dardot & Laval 2014). Such seemingly unrestricted freedom that the subject is asked to manage is however produced, organised and consumed through "an actual relation between governors and governed" (Foucault, 2008, p. 63), according to the specific historical, political and social context (Lorenzini, 2018). The logic of governing the ungovernable implies therefore a tension between enactment and steering of unrestricted subjectivities, responsibilization and freedom of choice, which may surface in sudden eruptions of protest, as with mobilizations against vaccination campaigns (Blume, 2006; Ward, 2016; Gobo & Sena, 2019; Pellizzoni, 2021).

It is against this backdrop, where the use of indirect ways of governing conducts at once assumes and triggers an unordered, if not plainly chaotic, social landscape, that the rise of preparedness and the response to the Covid-19 pandemic have to be gauged.

3 Security as Anticipation: Prevention and Precaution

Before this, however, it should be reminded that a core aspect of governmentality is anticipation (Ewald, 2002). This is hardly surprising, given that the governmental rationality emerged in the late eighteenth century conceives the dynamics of environment and population, and future in general, as eminently open (Luhmann, 1976). As a result, probabilistic and statistical anticipation of events becomes increasingly central. The dominant governmental logic turns from disciplinary to securitarian (Foucault, 2003; Lakoff, 2017). Individuals are seen not only as political subjects, "but also as living beings who, collectively, form a global mass — a 'population' — with a natality rate, a mortality rate, a morbidity rate, an average life expectancy, and so on" (Lorenzini, 2020, p. 41). As part of security mechanisms, preventive risk management uses statistical and probabilistic devices, based on historical incidence models of an already known disease, to calculate its future probability. Tools increasingly characterizing Western governments' health policies, such as clinical or electronic health records, compulsory vaccination and preventive diagnosis of diseases, exemplify the application of a security approach to citizens' health. A significant example is the first case of mass inoculation, at the end of the eighteenth century, against smallpox. As Foucault (2007a) notes, vaccination established itself in terms of risk calculation rather than medical evidence or agreed-upon accounts of its efficacy. This

changed the approach to epidemics. While disciplinary mechanisms try to restrict the circulation of the disease isolating the sick from the healthy, for example through quarantine, security mechanisms allow the disease to circulate, minimizing its damage by way of action at the level of population, based on statistical estimates.

Western Europe had traditionally dealt with epidemics according to a disciplinary approach. Measures of public hygiene and preventive medicine, including vaccinations, which epitomize the biopolitical idea of immunization (Esposito, 2010) have entailed a shift to a security rationale. The idea of risk prevention based on probabilistic calculations, on which such rationale has long built, has in turn been challenged since the 1980s by the notion of precaution, largely as a result of growing public discomfort with the "side effects" of technology and awareness of ecological hazards. Precaution builds on the impossibility of actual risk estimates due to inconclusive evidence of looming threats, deemed however sufficient to foster action before it is too late to avoid major consequences. The key securitarian element of precaution is "proportionality" between threat and action (European Commission, 2000; Pellizzoni, 2009). This notion entails a shift in the biopolitical account of the dynamics between population and its biophysical milieu, towards the acknowledgment of greater cognitive limits to government. Yet, precaution still subscribes to a security logic, retaining a non-deterministic connection between action and outcome and a conception of the outcome itself as bringing a process to a desired level, though by way of something less than actual calculative rationality.

Indeed, proportionality sits halfway between calculation and arbitrariness, both as regards the threat — the construction of worst case scenarios typically replacing proper data analysis — and, as a result, the countermeasure — hence numberless quarrels about the application of precaution (Pellizzoni, 2009). This determines a peculiar paradox: the more the precautionary action works, warding off the threat, the more it will appear excessive, its own success undermining rather than strengthening its legitimacy. In the case of the 2009 H1N1 flu WHO took a precautionary route, raising quickly the alert to the highest level (6 = pandemic underway). Yet, by the time a vaccine was made available the emergency was already waning — arguably thanks also to such strategy. As a result, the vaccination campaign, whose risk/benefit ratio was contested on this basis (Alfani & Melegaro, 2010; Ward, 2016), enjoyed limited success and WHO was charged with complicity with Big Pharma in leading governments to buy useless stockpiles of vaccines. WHO defended itself noting that, as long as the risk of an epidemic cannot be calculated in a strict sense, there cannot be a precise correspondence between level of alert and actual outbreak (Bourrier et al., 2014). This episode is possibly related with WHO's delay in declaring the pandemic emergency in the Covid-19 case, in a sort of reverse application of precaution. As we shall see, the problem of proportionality became especially salient, in the Italian handling of the emergency, in the application of a zoning system for graduating restrictions.

4 Preparedness as a New Biopolitics

Preparedness stands in contrast with both prevention and precaution. As said, these differ in how they connect threat and action but assume the former to be known enough and the latter to aim at its neutralization. Preparedness differs as regard the understanding of both the threat and the response. The former is conceived as "emergent", in the sense of a concealed growth before a sudden and potentially uncontrollable eruption, which makes it vital to detect it as early as possible (Lakoff, 2017). It is not just a matter of acting faced with limits to calculation

but to catch signs of something the existence of which is not acknowledged yet (Pellizzoni, 2020a). This, in turn, is a means to a different goal, compared with preventive or precautionary action: not neutralizing the threat but modulating or "negotiating" with it. We shall come back in a moment to this point.

Before, it is important to distinguish between the overall approach to emergency and its qualifying element. As an encompassing approach, found in WHO guidelines and national plans, preparedness includes security measures (Elbe et al., 2014), such as stocks of drugs, protective tools, vaccines and other health equipment, which Lakoff (2017) and Keck (2020) regard as preventive, or evolutionary scenarios, which they consider precautionary. They however disagree on whether preventive and precautionary measures belong to a same family. Such disagreement reflects the ambiguity of measures like stockpiling, which can be regarded as preventive or precautionary according to how proportionality to the threat is assessed (with proper calculation or otherwise). More generally, the contested nature of precaution depends on the fact that, as noted, it follows the securitarian logic of prevention while parting company with the latter's probabilistic grounds, strengthening the non-deterministic character of interventions.

Yet, the qualifying element of preparedness is "vigilance", centred on sentinel devices. These are meant to provide early warnings of an imminent danger as a requisite for "readiness", understood as the ability to respond promptly and effectively, hence as the operational side of preparedness (Italian Ministry of Health, 2021). This happens, for example, with the monitoring of changes in an animal population, such as a decrease in bee colonies as a sign of increasing pollution or the death of domestic animals like poultry and pigs as a sign of new pathogens. A statistical device is conceived for a world where threats can be prevented through careful actuarial and epidemiological research, as happens today with Big Data, which increasingly support choices in many health fields (Pastorino et al., 2019). A precautionary device tackles reality likewise, though in a cognitively weakened form, due to computability limits. A sentinel device, instead, is designed to elicit action when decision is necessary and urgent but knowledge is incomplete, in a deeper sense than in the case of precaution. It is not a matter of known unknowns, but of unknown unknowns (Wynne, 1992; Nielsen & Sørensen, 2017), to which neither calculation nor proportionality can be applied.

In health systems, sentinel devices are increasingly used to detect the emergence of unexpected or previously unknown pathogens. Significant for our analysis is, for example, the case of syndromic disease surveillance systems. These seek to detect signals of a new disease before a formal diagnosis, for example by looking for anomalies in the number of visits to emergency rooms for some types of illness, or in the use of certain drugs (Fearnley, 2008; Katz et al., 2011). The application of these surveillance systems in China or other countries at the beginning of the Covid-19 epidemic might have enabled the detection of an abnormal increase in hospitalizations for antibiotic-resistant pneumonias characterizing the first spread of the virus. Obviously, to contribute to preparedness, surveillance systems must be linked to guidelines and protocols indicating actions to be immediately taken by authorities. Thus, sentinel devices do not operate alone, but within a broader alert and response system, which includes decision protocols for acting before an event turns into an emergency (Lakoff, 2015).

Yet, it is not just a matter of detection devices or decision procedures. Keck (2020) points out that preparedness parts company with the "pastoral" logic of modern power, based on a control of the territory and the erection of defensive and containment structures (for example by killing millions of birds, pigs or minks to eradicate an epidemic outbreak). This logic is replaced with the "cynegetic" one of hunter-gatherer communities, where action builds on a

mimetic relationship with animals and plants, trying to see the world from their perspective in a framework of negotiation and coexistence rather than domination and annihilation. This indicates that preparedness differs from prevention and precaution also regarding the eventual goal of the response to the threat. More than its neutralization, deemed impossible or even undesirable as even a threat may be turned to advantage, for example by extracting valuable elements or using it to strengthen resilience and adaptation,[1] preparedness aims at its modulation in order to make it manageable. Any security device (not only in the health field) has "administrative" purposes. For example, vaccination aims to reduce the spread of viral agents to a level sufficient to neutralize its effects on a population scale. Smallpox is the only case of virus elimination, and the goal of an eradication of infectious diseases has waned since the 1980s with the rise of new ones like Ebola and AIDS (Garrett, 1994). Yet, preparedness deploys administration, so to say, as a tactic rather than a strategy, or — not unlike what financial derivatives do with the risk of underlying assets that in turn represent risks — intensifies it, "letting loose" the threat to adjust to or negotiate with its vitality, rather than leading it to a safety threshold, whether probabilistically or otherwise. Said differently, the biopolitical logic of managing indirectly the dynamics of population and its milieu undergoes an intensification that qualitatively alters its character. More than manageable in the traditional sense of the word, these dynamics are deemed rideable or surfable by way of promptness of response, trial and error, resilience, adaptation (Pellizzoni, 2020b), with resulting relativization of the positions of acting subject and acted upon object. This weakening of ontological distinctions foundational of prevention and precaution dovetails with, and expands on, neoliberal governmentality, which, joining and drawing on outlooks on complexity developing since the 1970s, assumes that social and ecological processes are inherently turbulent and unplannable (Cooper, 2008), making a case — grown ever-stronger over time — for intuition, gambling, "vision", adaptive flexibility, acceptance of insecurity and danger as increasing world actionability (Pellizzoni, 2016).[2]

In short, the governmental logic of preparedness builds on but goes "beyond security" in that it acknowledges and addresses much deeper conditions of indeterminacy than those to which security has historically responded. On the other hand, as with any anticipatory approach, applying preparedness entails selecting among a surplus of possibilities concerning the future (Luhmann, 1976). Choice is never just technical but first of all political. To make the future viable "some lives may have to be abandoned, damaged or destroyed in order to protect, save or heal other lives" (Anderson, 2010, p. 780), deemed of greater value. The biopolitical principle of "making live and letting die" thus remains in force, yet it arguably becomes increasingly unfathomable, as the process gets ever-more indirect and agency, and related responsibilities, blurred.

1. This is the goal of so-called "gain of function" research, where infectious agents are modified to explore their potential lethality and transmissibility (Lakoff, 2017) — with obvious military but also commercial implications. As a growing number of experts are inclined to believe, Sars-CoV-2 might be the result of this sort of experiments, actually conducted in the Wuhan lab.

2. Preparedness bears a close affinity with another securitarian approach emerged in recent years in the military field, namely pre-emption. For a discussion of the latter's features and similarities with preparedness see Pellizzoni (2020a). Note, moreover, that the weakening of ontological distinctions such as subject and object makes the discussion about the "natural" or "technical" origin of Sars-CoV-2 pretty much pointless. Biotech companies are long claiming they just do what nature already does, only more precisely and purposefully (cf. Thacker, 2007), any distinction between nature and technology being therefore relative (Pellizzoni, 2020b).

5 The Italian Approach to the Covid-19 Pandemic

5.1 Goals and Method

From the previous discussion various questions arise about the management of the Covid-19 emergency, which, as said, we sought to explore in the Italian case. Namely, one may ask whether a traditional security approach has been followed, and with which mixture of preventive and precautionary measures, or whether and to what extent has the disciplinary logic taken hold again; or else, whether it is the rationale of preparedness that has gained prominence, and whether and in what sense can one talk of a "post-securitarian" drift.

A qualitative analysis has been carried out of the Italian Government's regulatory documents from the beginning of the emergency, in January 2020 until July 2021. Analysis concerned only acts tackling the epidemic. Other ones, such as economic measures, go beyond the scope of this study. As anticipated, regional and municipal legislation is also not included in this analysis.[3] Specifically, we considered different regulatory acts of the Ministry of Health and the Department of Civil Protection, executive orders from the Prime Minister, called Decrees of the President of the Council of Ministers (DPCM), and Decree-Laws (DL), which again are executive orders, yet subject to subsequent approval from the Parliament.

From a preliminary content analysis of such legislation texts deemed most relevant for identifying the rationale of the Italian approach were selected. We subsequently examined them, following a chronological criterion and focusing on the measures they contained for tackling the spread of the infection. This made it possible to distinguish five groups of texts, each identifying a phase in the management of the pandemic. A list of the documents and their grouping is provided in Table 1.[4]

Table 1 – List in chronological order of the regulatory documents of the Italian Government divided by pandemic management phases

Italian Government legislation consulted	Phase of pandemic management
1. Memo of the Ministry of Health - 22 January 2020 2. Memo of the Ministry of Health - 27 January 2020 3. Order of the Ministry of Health - 30 January 2020 4. Resolution of the Council of Ministers - 31 January 2020 5. Order of the Civil Protection Department - 3 February 2020 6. DPCM - 5 February 2020	Phase 1: Health surveillance and anticipatory measures

3. Regional and municipal administrations have often issued ordinances aimed at adjusting national regulations to local needs and conditions. Yet, beginning with the Decree-Law of 25 March 2020, it was reiterated that measures should be taken primarily at national level, and only in the presence of particular conditions of necessity and urgency could regional and/or municipal ordinances be issued, adding to, without contradicting, national provisions. This did not prevent political tensions and regulatory controversies, which, as said, would require a separate discussion. When appropriate, however, hints will be made to local administrations' interventions and conflicts with the Government.

4. The complete legislation was collected from the websites: https://www.governo.it/it/coronavirus-normativa and https://www.gazzettaufficiale.it/dettaglioArea/12. These include all regulatory documents published on COVID-19 by the Italian Government.

Italian Government legislation consulted	Phase of pandemic management
7. DL - 23 February 2020, n.6 8. DPCM - 23 February 2020 9. DPCM - 1 March 2020 10. DPCM - 4 March 2020 11. DPCM - 8 March 2020 12. DPCM - 9 March 2020 13. DPCM - 11 March 2020 14. DL - 17 March 2020 15. DPCM - 22 March 2020 16. DL - 25 March 2020, n.19 17. DPCM - 10 April 2020	Phase 2: Regulatory restrictions and individual responsibility: Stay home!
18. DPCM - 26 April 2020 19. Decree of the Ministry of health - 30 April 2020 20. DL - 16 May 2020 21. DPCM - 17 May 2020 22. Memo of the Ministry of Health - 29 May 2020 23. DPCM - 11 June 2020 24. DPCM - 14 July 2020 25. DPCM - 7 August 2020 26. Memo of the Ministry of Health - 11 August 2020 27. DPCM - 7 September 2020 28. Memo of the Ministry of Health - 12 October 2020	Phase 3: The end of lockdown between "freedom for all" and virus monitoring
29. DPCM - 13 October 2020 30. DPCM - 18 October 2020 31. DPCM - 24 October 2020 32. DPCM - 3 November 2020 33. DPCM - 3 December 2020 34. Decree of the Ministry of Health - 2 January 2021 35. DPCM - 14 January 2021 36. DPCM - 2 March 2021 37. DL - 1 April 2021, n. 44	Phase 4: Second lockdown
38. DPCM - 21 April 2021 39. DL - 22 April 2021, n. 52 40. DL - 18 May 2021, n. 65 41. DPCM - 17 June 2021 42. Order of the Ministry of Health - 22 June 2021 43. DL - 23 July 2021, n. 105	Phase 5: Second reopening: monitoring, vaccination campaign and application of Covid Certificate

5.2 Phase 1: Health Surveillance and Anticipatory Measures

As known, the first harbinger of a risk of health emergency comes on 31 December 2019, when the Municipal Health Commission of Wuhan (China, province of Hubei) reports to the WHO a cluster of pneumonia cases of unknown aetiology. International organizations and governments all over the world do not seem to put themselves on the alert with preventive or surveillance measures, probably considering the risk of spread as limited to the Chinese territory. On 9 January 2020, the Chinese health authorities communicate that these cases of pneumonia are attributable to a new coronavirus (2019-nCoV), also publishing its genomic sequence. The virus is closely related to the Severe Acute Respiratory Syndrome (SARS), well known for having caused a global health emergency in the early 2000s. However, several days pass before the first surveillance procedures take place. On 21 January the Chinese Govern-

ment announces that cases of the new coronavirus have been detected in other areas of China and in neighbouring countries such as Thailand, Japan and South Korea. Only at this point does WHO begin to monitor the situation, reassuring however Western countries about the low threat of a pandemic.

The Italian Government is the first in Europe to react, actually way beyond WHO's indications. Before the latter declares Covid-19 an international health emergency (30 January 2020) and a pandemic (11 March 2020), it begins to apply the protocols in force: namely, the 2006 National Pandemic Influenza Preparedness and Response Plan, which includes guidelines for Regional Plans,[5] and the 2014–2018 National Prevention Plan, the leading framework for strategic public health planning and financing.[6] With two Memos (22 and 27 January 2020), the Ministry of Health (MH) asks all subjects overseeing health (from ministries to municipal departments, to professional associations) the application of the 2006 Plan and requires control of all passengers on flights from Wuhan who present suspicious symptoms, associated with those caused by the new virus, providing for their transfer in bio-containment to the Spallanzani National Institute of Infectious Diseases, in Rome. In addition, it requires the activation of a series of measures for the identification, isolation and reporting of any suspect cases from China and the tracing of all their contacts. A few days later, the Government bans all air traffic from China, to guarantee "an adequate level of health protection" (MH Order, 30 January 2020). At this stage, Italy is the first country in Europe to adopt such restrictive measure, which WHO had actually discouraged due to its negative impacts on international traffic and trade.

On 30 January, WHO Director-General declares Covid-19 as a Public Health Emergency of International Concern (PHEIC). Italy immediately responds by declaring the "national state of emergency", which the legal system allows for "an immediate undertaking of extraordinary and urgent initiatives, to adequately deal with possible situations of prejudice for the community present on the national territory" (Resolution of the Council of Ministers, 31 January 2020, p. 1). In a state of emergency the Prime Minister can assume exceptional powers and adopt executive orders based on all-of-government approach. This measure will be reiterated throughout 2020 and 2021. At the same time, the Head of the Civil Protection Department (CPD), which belongs to the Presidency of the Council of Ministers, is indicated as the authority to whom the Government delegates the task of managing the health risk. It is decided to set up a Technical-Scientific Advisory Committee, composed of managers from MH and Regional administrations, the Scientific Director and the President of the National Health Institute (CPD Order, 3 February 2020). This committee will be subsequently integrated with other members (DPCM, 5 February 2020), assuming an increasingly central role in orienting Government choices.

It should be noted that when Italy declares the state of emergency no indigenous cases of Covid-19 are recorded yet; only a Chinese tourist couple. In Europe, only 10 cases in total are recorded, all of which coming from China. It can therefore be said that, with respect to the level of alert internationally reported, the Italian Government's initial response to the threat of a health emergency is more precautionary than preventive in character.

5. Though in Italy a National Health System is in force, its actual handling belongs to Regions. This entails a significant variety in the invested resources and the organizational layout, including the hospital and non-hospital preventive and primary care services at community level (so-called "territorial medicine").

6. It has to be said that these plans had remained mostly on paper as they had not been translated into adequate equipment and organizational investments (WHO, 2020a).

5.3 Phase 2: Regulatory Restrictions and Individual Responsibility: Stay Home!

Two weeks after the declaration of the state of emergency the pandemic risk suddenly materializes. On February 21, the first case of Covid-19 is ascertained in a 38-year-old man hospitalized in Codogno (Lombardy). Italians and their Government realize that the virus was circulating for some time in the country. On the same day other 15 cases are ascertained, again in Lombardy. Another outbreak is identified in Vo' Euganeo (Veneto) and a Covid-19-related death is declared, again in Veneto, the first in a long series that will lead to 3,405 deaths in just one month, more than those recorded up to then in China, and 33,000 positives for the virus.

After the discovery of the first outbreaks the Government issues a Decree-Law (DL, 23 February 2020, n. 6) and, on the same day, the first of a long series of Decrees of the Presidency of the Council of Ministers (DPCM, 23 February 2020) which will mark the different phases of the response to the pandemic. It prescribes the first restrictions and containment measures in municipalities where even a single positive for Covid-19 is recorded. Measures are essentially isolation and suspension of all activities entailing contacts, as enforced already in China. More precisely:

- isolation of municipalities with cases of Covid-19 (so-called "red zones");
- suspension of schools, educational services of any kind, events or initiatives of any nature, any form of meeting in public or private places, including those of cultural, recreational, sports and religious nature;
- closure of public and cultural places;
- quarantine with active surveillance of individuals who had close contact with cases of Covid-19;
- closure of commercial and industrial activities and public offices, bar those providing essential services and goods or shifting to remote working;
- limitation or suspension of transport services of goods and people in the national and local networks.

This is the beginning of a set of actions shortly leading from "mini" lockdowns, concerning areas, such as the whole Lombardy and some municipalities in Veneto and Emilia Romagna (DPCMs 1 and 8 March 2020), affected by the first outbreaks of the virus and addressed to vulnerable people (elderly, immunocompromised etc.), to containment measures applied all over the country (DPCM, 8 March 2020). These measures involve the closure of schools, museums, recreational places, pubs and discos and the suspension of public events of any type. It is also proscribed visitors' access to hospitalization areas and nursing homes for non-self-sufficient patients.

A few days later, the lockdown is generalized to everybody and everything (bar essential services), as summarised in the slogan "stay home" (DPCMs, 9 and 11 March 2020).

More and more restrictions and recommendations of precautionary character are progressively added. For example, in the 1 March DPCM hygiene measures (e.g., washing hands often, avoiding close contact with people suffering from respiratory infections, covering mouth and nose when sneezing or coughing, cleaning with chlorine or alcohol-based disinfectants) are indicated for the first time, upon advice from the Technical-Scientific Committee. These recommendations will soon be supplemented by further indications (DPCM, 3 March 2020) leading

to so-called "social distancing", such as avoid hugs and handshakes, maintain an interpersonal distance of at least one metre, avoid shared use of bottles and glasses.

The DPCMs of early March 2020 include therefore a mix of strict prohibitions and recommendations relying on individual responsibility. For example, it is recommended to avoid any movement, bar proven reasons of work, need or health. Instead, an absolute ban on leaving one's house is imposed to those quarantined or positive for the virus. In addition, the territorially competent Prefect is no longer assigned only the task of monitoring the application of the various measures by local administrations, but also the power to ensure their actual implementation, also making use of the police. Furthermore, for the first time failure to comply with obligations is criminally prosecuted.

The DPCM of 11 March 2020 closes pubs and restaurants. Likewise, the DPCM of 22 March 2020 closes non-essential industrial and commercial activities. The DL of 25 March 2020, n.19, and the DPCMs of 1 and 10 April 2020 confirm all restrictions, allowing Regions to adopt additional ones if needed for virus containment. For example, the DPCM of 10 April (Art. 1) entrusts Regions with the planning of reductions and limitations of local public transport, as well as all necessary interventions to avoid its overcrowding in the time slots of the day where the greatest presence of users is registered.

In the DL of 17 March 2020 (Art. 122), the Government also appoints a "Special Commissioner for the implementation and coordination of measures to contain and combat the epidemiological emergency Covid-19". This figure will become central in the management of all emergency measures, coordinating with the Head of Civil Protection and with the Technical-Scientific Committee. A Committee of external experts with multidisciplinary skills in various sectors is also appointed with the aim of indicating the measures necessary for the recovery of the country (DPCM, 10 April 2020).

5.4 Phase 3: The End of Lockdown between "Freedom for All" and Virus Monitoring

With the DPCM of 26 April 2020, faced with a comforting trend in the diffusion of the contagion, the Government begins to loosen some restrictions. For example, travel is allowed for meeting relatives within a same Region, until then prohibited. This is coupled with the launch of a new phase in the management and monitoring of the progress of the pandemic. This phase is also characterized by the search for tools "to strengthen the preparedness and tightness of the health system and to ensure the identification and management of contacts, the monitoring of quarantines and an adequate and timely execution of swabs for the diagnostic assessment of cases" (MH Decree, 30 April 2020).[7] For this purpose, some indicators are constructed with threshold and alert values, to be monitored through surveillance systems coordinated at national level, in order to promptly classify the level of risk (from very low to very high) and evaluate the necessary responses. To do this, MH sets up a "Control Room", which involves Regions and the National Health Institute, for a weekly assessment of the risk level in each Region (MH Decree, 30 April 2020).

In the DL of 16 May 2020 and the DPCM of 17 May 2020, the Government basically declares the end of the lockdown. The reopening of some outdoor and production activities and services is authorized, with the application of strict protocols and guidelines, aimed at containing the spread of the virus (social distancing, sanitation of rooms, body temperature control, use of masks, contact tracing, etc.). Contact tracing is delegated to Regions, with the aim of quickly identifying and isolating secondary cases, in order to break the transmission chain. To

7. Swabs will in most cases be paid by people, rather than being provided by the National Health System.

this purpose, the Government introduces the app "Immuni", which citizens can download and activate on a voluntary basis (MH Memo, 29 May 2020).

The subsequent DPCM of 11 June 2020 further extends the reopening of activities and authorizes movements outside the national territory. The DPCM of 7 August 2020 confirms and extends the reopening, yet for the first time masks become mandatory for everyone over 6 years when a one-metre distancing is impossible. MH also starts to develop a preparedness plan against Covid-19 in view of the next autumn and winter. In the plan, preparedness is mentioned and defined as "activities aimed at minimizing the risks posed by infectious diseases and mitigating their impact during a public health emergency, regardless of the magnitude of the event" (MH Memo, 11 August 2020). The strategies developed in the plan mirror the indications contained in the DPCMs of April and appear to be precautionary in character, consisting in a reinforcement of the hospital and non-hospital health network, an increase in trained personnel and a strengthening of the monitoring system at national and regional level, based on 4 different infection spread scenarios. In a subsequent document (MH Memo, 12 October 2020), measures are updated according to the guidelines issued by WHO (2020b, 2020c). Specifically, the Memo identifies eight strategic pillars in responding to the Covid-19 pandemic:

- Pillar 1: National coordination, planning, and monitoring
- Pillar 2: Risk communication and population involvement
- Pillar 3: Surveillance, fast response team, case investigation
- Pillar 4: Cross-border entry points / healthcare
- Pillar 5: National labs
- Pillar 6: Infection prevention and control
- Pillar 7: Clinical case management
- Pillar 8: Operational and logistic support.

Meanwhile, the Government tries to provide for the reopening of schools, with "systems measures" such as phasing and extension of opening hours for shops, offices and schools, incentives for sustainable mobility, enhancement of public transport services and regulation of access to public and commercial places (DPCM, 7 September 2020).

5.5 Phase 4 and 5: From the Second Lockdown to the Second Reopening

The period of freedom and of the alleged control of the virus, enjoyed during summer, ends in mid-October. After increasingly worrisome indications of a new escalation of the infection, a new DPCM rules the mandatory use of masks outdoors as well as in all indoor places, and recommends its use also at home when non-cohabiting people are present. The first curfews are imposed for all restaurant services and restrictions on international travel (DPCM, 13 October 2020). The contagion curve rises quickly. As a result, the Government begins to issue periodic provisions, containing progressively restrictive measures: closure of all sports, recreational and cultural activities; curfew starting at 10PM; reintroduction of distance learning; prohibition of moving outside one's own region or municipality of residence (DPCMs, 18 and 24 October

2020, 3 November 2020, 14 January 2021). A different level of restrictive measures is also established at regional level, according to a zoning classification (red = very high risk, orange = high risk, yellow = medium risk, white = low risk) based on the trend of Covid-19 cases registered weekly by the MH Control Room (DPCM, 3 November 2020, Art. 2). This solution will lead to continuous contestations from business, citizens, politicians (also belonging to the Government coalition) and Regional administrations, regarding the difficulties it raises for planning activities, the reliability of its evidential bases, the way the latter are connected with restrictions, and its debatable effectiveness. Finally, short lockdowns are imposed all over the national territory during Christmas holidays (DPCM, 3 December 2020).

At the beginning of January 2021, the Government launches the Covid-19 vaccination campaign, with first shots reserved for health personnel and staff and for residents in nursing homes (MH Decree, 2 January 2021).

On 29 January, the new 2021-2023 Influenza Pandemic Plan is approved, updating the previous one and including a series of preparedness actions to be carried out in the three-year period 2021-2023 (Italian Ministry of Health, 2021).

From this moment on, the management of the pandemic basically remains unchanged, though the new Prime Minister Mario Draghi (helped by a much broader government coalition, encompassing almost all political forces) takes a markedly more decisionist style than the former, Giuseppe Conte, with consequent *de facto* downsizing of the role of the Technical-Scientific committee. Weekly monitoring of cases leads Regions to shift up and down in the risk classification, with consequent changes in restrictions and closures, and reiterations of complaints. In the meantime, efforts are made to accelerate the vaccination campaign. In the DL of 1 April 2021, vaccination becomes mandatory for all operators and professionals carrying out activities in health facilities (Art. 4) and adverse reactions (damage and death) to the vaccine are decriminalized (Art. 3).

In the DL of 22 April 2021 n. 52, Draghi takes what he calls a "calculated risk" vis-à-vis the decreasing trend of infections. Disregarding calls for more prudence coming from many experts, a tight schedule for the reopening of activities based on the zoning system is adopted. The Government also introduces the so-called "Covid-19 green certification" (or "Green Pass") (Art. 9), better specified in the DPCM of 17 June 2021,[8] and further reiterates the state of emergency, until 31 July 2021 (DPCM, 21 April 2021). In the DL of 18 May 2021, n. 65, in addition to redefining the reopening of some services, criteria and parameters for assessing the incidence of infections at regional level and the related risk classification (red, orange, yellow and white) are modified in a "looser" direction.

Finally, the increase in vaccinations and the decrease in the cases of contagion lead the Government to declare the white zone (low level of risk) throughout the national territory, starting from 28 June, and to revoke most of the restrictive measures, including the compulsory use of masks outdoors (MH Order, 22 June 2021). At the same time, the Government promotes the sequential tracking of infections and the Green Pass to access collective gatherings and travel abroad. It also reiterates again the national state of emergency, to 31 December 2021 (DL 23 July 2021, n. 105). In the same Decree the zoning criteria are revised once more and the Green Pass is made mandatory from the age of 12 to access some services, such as indoor dining, in-

8. The Green Pass will be lent to people who have completed the vaccination course or recovered from the infection. A negative swab carried out within 48 or 72 hours (according to type) may replace it — and will be used by people unwilling to vaccinate. In late November 2021 these were about 8,500,000 (including those who could not vaccinate for any reason), corresponding to around 15% of the population over 12 (the vaccinable one, according to the rules in force). See: https://www.governo.it/it/cscovid19/report-vaccini/.

door and outdoor events, cinemas, theatres, gyms, swimming pools, flights and long-distance trains, with ensuing unrest from small but vociferous groups.

Though our in-depth analysis stops here, it may be worth considering briefly how the governance of the pandemic has evolved since July. As we write (late November 2021), the "fourth wave" of the infection is spreading all over Europe and elsewhere, the "Delta" variant of the virus has taken predominance and a new one ("Omicron") is emerging. The Friuli-Venezia Giulia Region has entered again the yellow zone, possibly followed soon by others. Evidence about the amount and the period of effectiveness of the anti-Covid vaccines is inconclusive. In the last DLs, the Green Pass has been progressively made mandatory for school and university staff, for some public transports such as high-speed trains and airplanes (DL, 6 August 2021, n. 111) and for public administration and private sector employees (DL, 21 September 2021, n. 127). A new Decree-Law (DL, 26 November 2021, n. 172) has reduced the duration of the Green Pass from twelve to nine months and made it mandatory for all public transports. A "Super" version of it (only for people vaccinated or recovered from Covid) has been introduced with a ban of non-vaccinated people from access to public spaces (gyms, restaurants, cinemas etc.), and the compulsory vaccination (included a third booster shot) has been extended from health workers and the school and law enforcement staff. Meanwhile, the vaccination campaign proceeds with polemics concerning the risk/benefit ratio of its extension to children and its compulsory application to other categories of workers. In addition, the possibility of new lockdowns, restrictions and a generalized compulsory vaccination is under discussion.

6 Discussion and Conclusions

From the reconstruction above we can draw various indications. For a start, the response to the pandemic in Italy has been inconsistent. The inadequate implementation and updating of the national and regional pandemic plans may have played a role in this (Maffeo et al., 2021). A properly implemented pandemic plan — one that not only ensured a better coordination of emergency services but also avoided a dismantling of "territorial medicine", occurred especially in Regions such as Lombardy as a result of many years of right-wing administrations — might have reduced the number of cases (and casualties) registered in the first phase of the infection, and hence to some extent the pace of its escalation. It goes without saying, moreover, that failure in enacting a prompt response to the eruption of the infection has entailed precise, if unacknowledged, choices about which lives could be abandoned and which had to be protected.[9] That said, even countries, like the US and UK, provided with highly rated planning for pandemic preparedness (GSH Index, 2019) have performed poorly. This raises the question about the actual ability of emergency systems to tackle the threats against which they have been set up, and about the validity and reliability of the performance indicators against which they are assessed.

9. Elaborating on this point goes beyond the scope of the paper, yet it may be worth mentioning that the high number of infections and casualties in the first wave of the pandemic has put especially Lombardy under the spotlight. Rumours have been circulating about pressures from the industrial sector against restrictions which might have caused crucial delays in the latter's enforcement (cf. e.g. Marzocchi, 2020). Furthermore, on 8 March 2020 the Regional administration issued a resolution asking nursing homes to host Covid-19 patients released from intensive care in order to free hospital beds, with consequent possible spread of the infection to vulnerable subjects (cf. e.g. Ammendola, 2020). A complaint has been filed by a citizen committee to shed light on these and other incidents.

Second, recourse to measures, such as movement restrictions or compulsory mask wearing, the disciplinary character of which has been highlighted by forms of actual surveillance like the patrolling of streets and other public spaces, has been made whenever the threat seemed to be going out of control, as an immediate response. Such an approach, however, has remained in constant tension with the non-deterministic (probabilistic or otherwise) logic of security, and especially with its neoliberal declension in terms of autonomy and responsibilization. This clearly emerges from the plethora of recommendations about hygiene, self-protection and distancing, as well as from the handling on a voluntary basis of the contact tracing app and the vaccination (the exception of health personnel raising a harsh controversy). The tension emerges also from the combination of a (mostly) non-compulsory vaccination (which relies on the individual sense of responsibility and freedom of choice) and a Green Pass basically mandatory (and actually such with the "Super" version) for all vaccinable categories in order to perform a variety of activities and access a host of places and services. The requirement of paid swabs for escaping quarantine after ascertained or potential contacts with positives shows as well the hold taken by the neoliberal version (freedom to cure oneself) of the biopolitical maxim of making live and letting die.

Third, also measures like the quota system to access public transport, which should in principle be classified as preventive being based on an estimate of the transmissibility of the infection, have taken a precautionary meaning given the *de facto* replacement of probability with proportionality assessments aimed at balancing individual protection and limitation of contagion with social acceptability and the need to maintain basic social functionings and fostering economic recovery. This emerges most notably in the zoning system, not by chance at the centre of an endless dispute and of readjustments of its criteria based on accommodations of epidemiological and socio-economic considerations. That the progressive decrease in the rate of infections and hospitalizations coincident with its application has not lowered contestations sounds like a confirmation of the paradox of precaution hinted above. The use of scenarios has been extensive and controversial (and disconfirmed both when overly worrisome and when overly optimistic). Overall, one should therefore say, precaution has trumped prevention — with unclear results. This claim seems contradicted by the turn to vaccination, a most classic preventive instrument, as the main, if not the only, possibility for an exit from the emergency. However, the piecemeal increase in the knowledge of the virus, the experimental character of the vaccines at the moment of their introduction and the controversies over their implementation strategy (which one for which, herd effect as an achievable and desirable goal, need of new shots against new variants of the virus, etc.) indicate that its governmental rationale has been more precautionary than preventive.

To sum up, looking at the Italian Government's behaviour, we are confronted with measures that not only, over time, move back and forth between a disciplinary and a security rationale, but the formal character of which is often contradicted or blurred by their actual working.

Fourth, what about preparedness in this context? Though heralded at documental level, it seems to have played a modest role, not only in recognizing early indications of a threat on the verge of erupting but also in the subsequent management of the emergency, as shown by the very limited success of the contact tracing app and by the fact that the new pandemic plan sets preparedness as a condition postponed to the future. This may be regarded as, and in part undoubtedly is, a specific inadequacy of the Italian health emergency system. And yet, very few are the examples all over the world of an effective contact tracing, both in itself and for an actual containment of the infection, all of which benefitting from previous comparable experiences and — according to many commentators — from social (before than written) norms facilitat-

ing its acceptance and support. Said differently, the Covid-19 story should be classified, in Italy as elsewhere, as a resounding case of unpreparedness (Lakoff, 2017), rather than otherwise.

Beneath the surface, however, the story seems to go somewhat opposite. The zoning system is a telling example. Not only was it precautionary rather than preventive in its concrete deployment, due to the little-known character of the infection and to its being designed to accommodate contrasting health, social and economic needs, but it was by design *chasing*, rather than *preceding*, the dynamic of the virus, pretty much in accordance with the agential blurring and the modulated or "negotiated" character of action which we have argued to be distinctive features of preparedness as "post-securitarian" governmentality.

Beside and beyond this example, it is the overall logic of the response to the emergency that looks "beyond security" in the sense specified above. Not only has the Italian Government, as basically any other, subscribed to the narrative of inevitability of similar crises, hence of a future bound to endless adjustments to "terrestrial forces" (Latour, 2018) or forms of "geopower" (Grosz, 2011; Povinelli, 2016) of which no neutralization is possible, whether in preventive or precautionary terms (to say nothing of deterministic ones). It is the very meaning of biopolitical failure or success that gets relative or plainly confused, as the modulation of the threat ensures *in any case* the strengthening of a governmentality based on trial and error, resilience, response on the spot and endless adaptation to existential conditions deemed at once ever-changing, hence unpredictable, and unmodifiable, as a reconsideration of ruling growth models and technological approaches is off the political agenda. That the state of emergency has been prolonged time and again, in Italy as elsewhere, cannot but strengthen the impression of a new socio-ecological order in the making, post-securitarian in that it builds on a security rationale yet parts company with the latter's original ontological assumptions, acknowledges and embraces deep indeterminacy and stretches its administrative goals to an enduring, potentially limitless, modulation of the crisis.[10]

In this framework, the question of preparedness takes a much broader meaning than whether, to what extent and with what degree of success are emergency systems, at global and national level, reorganizing themselves to tackle insurgent and resurgent biological threats, pointing rather to the spirit of time, or what Foucault (2000, 2001) calls the "problematization" that characterizes a certain historical period — how and which problems are identified as relevant and which types of responses become conceivable. On this view, even the harsh debate between supporters and critics of the idea of a normalization of the state of exception in the traditional sense of a suspension of law for biopolitical purposes (Agamben, 2005) seems to miss the actual character of what is going on. The point is not so much that normalization changes the very character of the exception, which from a decisive political moment (as in Schmitt's formulation) becomes a matter of everyday administration, as this feature may be claimed to be already present in the Nazi and the Fascist state. The point is rather that the current "economy" of the emergency does not follow an established pattern, being constantly

10. On crisis as an endless condition rather than, as conceived in modernity, a decisive moment see Gentili (2018). Existing rules in Italy (Decree-Law 2 January 2018, n. 1, Art. 24) limited the state of emergency to one year, extendable once. In our case this meant a maximum extension to 31 January 2022. Yet, rules established by ordinary law can be modified by ordinary law. This is what has happened. With a Decree-Law issued on 14 December 2021 the Government has decided to extend the state of emergency until 31 March 2022. As noted above, a Decree-Law needs subsequent approval from the Parliament, yet in this case this is a mere formality, given the broad party support to the Government. Whatever the opinion about its contingent justification, a dangerous precedent has thus been set — amid the general silence — for temporally unlimited compressions of constitutional rights. We felt the need to add this note after the paper's acceptance, before licensing it for publication.

readjusted to the fluctuations it itself contributes to engender in the socio-material collective comprised of humans and the virus.[11]

It is the task of critique — again in the Foucauldian immanent sense of raising the question of "how not to be governed like that, by that, in the name of those principles, with such and such an objective in mind and by means of such procedures, not like that, not for that, not by them" (Foucault 2007b, p. 44) — to shed light on power operations that are changing under our eyes while engendering ever-more devastating social and ecological consequences.

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11. "Pre-emptive" and "humanitarian" wars and more in general emergent forms of security and surveillance also show this character, which expands to previously unimagined extents the scope of the exception (see Massumi, 2007; Pellizzoni, 2020b).

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Preventing the Unpreparable. Catastrophe Thresholds from Covid to Climate

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Abstract

This article analyses thresholds of catastrophe guiding measures to fight the Covid-19 pandemic and climate change. It argues that in both cases thresholds express the proposed interaction between the security technologies of prevention and preparedness. Preventive measures are supposed to slow down the infection dynamic and the rise of global temperatures, so that strategies of preparedness are able to cope with the remaining adversities: effectively treating patients and successfully adapting to climate change. The transgression of the catastrophe threshold thus marks the point when crisis dynamics become uncontrollable. The goal is to prevent the unpreparable and to prepare for the unavoidable. A moral economy of life underpins this rationality by providing a backstop against an excess of biopolitical elasticity in setting the threshold. The paper contributes to debates in security studies and the sociology of risk by showing how prevention and preparedness, which are often assumed to be opposing rationalities, come to operate in the same security assemblages. In addition, the paper criticizes the ways in which the focus on the catastrophe threshold silences death and suffering below the threshold and fails to provide guidance for situations when the threshold is already breeched. Considering the advanced state and the peculiar temporality of the climate crisis, the paper analyzes a shift from "pre" (*pre*paredeness, *pre*vention) to "re" (carbon *re*moval, ecological *re*mediation and *re*paration) in the contemporary politics of environmental security.

Keywords: Social theory; sociology of risk; critical security studies; resilience; environmental security.

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In recent years, debates on security in the social sciences have focused on various forms to act on future threats in the present (Amoore & de Goede, 2008; Aradau & Munster, 2011; Opitz & Tellmann, 2015). Preventive techniques like precaution and preemption seek to avoid these risks altogether (Ewald, 2002; Massumi, 2007). Other strategies seek to prepare for unavoidable high-impact events by making socio-technical infrastructures more resilient and improve the readiness of emergency responses (Lakoff, 2007; Collier, 2008; Folkers, 2019; Keck, 2017). Scholars have pointed out the different rationalities and practical options that inform techniques of prevention on the one hand and preparedness on the other (Bröckling, 2012). They have tracked back the genealogies of these techniques (Collier & Lakoff, 2015; Leanza, 2017), have illuminated their main fields of application and their concrete procedures (for an overview see Anderson, 2010). However, there is considerably less scholarly work on the way these two technologies of security work together in more or less coordinated ways (see however Fearnley, 2008).

This article addresses this issue by drawing attention to two cases in which prevention and preparedness techniques are inherently entangled: the governance of the Covid-19 pandemic and the politics of climate change. To do so, the paper focuses on the role of thresholds of catastrophe to illuminate the systematic way prevention and preparedness interact in these cases. The notion of the catastrophe threshold is briefly mentioned in Niklas Luhmann's (2003, pp. 11, 159) sociology of risk. However, Luhmann does not elaborate the concept further. Accordingly, it has gained little resonance in sociological debates on risk. In this article, I come back to this notion to show how it mediates between prevention and preparedness techniques and is in turn defined through the interaction of these rationalities. To avoid a harmful event or process from becoming catastrophic, preventive measures should mitigate the harm below a certain point — the catastrophe threshold — for preparedness and adaptive strategies to successfully cope with the remaining adversities.

Social scientists studying catastrophe have always maintained that no (natural) event is a catastrophe in and of itself (Felgentreff & Dombrowsky, 2008). The cases analyzed in this paper seem to be particularly good examples of the social co-production of catastrophes. Neither the climate crisis nor the Covid pandemic are singular events that suddenly manifest as a disaster. Rather they are more (climate) or less (Covid) "slow emergencies" (Anderson et al., 2020) that may be relatively harmless until they suddenly escalate if no protective measures are taken. Once they have gained enough momentum, it becomes very hard, if not impossible, to effectively curtail their effects. Accordingly, the question of the catastrophe threshold frequently becomes a public "matter of concern" (Latour, 2004) in climate and pandemic politics. During the Covid crisis we witnessed an increase in the number of public debates negotiating the degree of catastrophe societies are able and willing to endure as well as about the thresholds where the effects of the pandemic become intolerable. Similarly, since the beginning of global climate politics, experts and politicians have explicitly debated how much global warming is tolerable and how much climate change mitigation is necessary.

As I will show, the setting of catastrophe thresholds involves both moral and managerial reasoning. On the one hand, the threshold provides a sense of "biopolitical elasticity"[1] in the face of adversities. On the other hand, the threshold works as a normative backstop against too much elasticity. As such it is informed by a moral economy of life for which it is imperative to care for individual lives in peril and to protect the existence of the human species as a whole. Catastrophe thresholds thus express both ethical limits and the limits of control. They define

1. I owe this formulation to an insightful remark by one of the anonymous reviewers for this paper.

the manageable as well as the morally bearable.

This paper will look at the negotiations of thresholds from a second order perspective. It is thus not my intention to evaluate the catastrophe thresholds but to analyze their social constitution and effects. However, by making explicit the rationality behind operative catastrophe thresholds, it becomes possible to criticize contemporary ways of apprehending and managing catastrophic situations: to illuminate their limits, gaps and blind spots. In this way, the paper contributes to recent calls to critically engage with the social uses and abuses of "disaster" (Hagen & Elliott, 2021). I will show how the current definitions of catastrophe provide a selective social framing that abstracts from situations below and above the threshold. It silences death and suffering below the threshold ranging from the ordinary Covid victim to the ecological stress that acceptable global heating induces. In addition, it fails to provide guidance in situations when the threshold is already breeched. According to some climate scientists, the amount of carbon stored in the atmosphere is already enough to exceed the threshold of the climate catastrophe. Accordingly, the combination of prevention (mitigation) and preparedness (adaptation) needs to be supplemented by techniques like carbon removal, ecological remediation and reparation. This implies a shift from the pre- to the re- in the contemporary politics of environmental security.

I will now first systematically introduce and distinguish between prevention and preparedness technologies by showing their historical emergence and the security dispositives they are embedded in (1). I will then show how prevention and preparedness interact in the governance of the Covid pandemic by drawing attention to the catastrophe threshold indicated by the now famous "flattening the curve" diagram (2). In the last section, I will argue that the 1.5°C or resp. 2°C climate goal constitute a catastrophe threshold below which societies can prepare for the new normal of a hotter and more turbulent climate. In addition, I will discuss an alternative climate catastrophe threshold that suggests that we might have already crossed the threshold.

1 Prevention and Preparedness as Technologies of Security

While some forms of preventive and preparative practices may be found throughout history, the emergence of preparedness and prevention as reflected security technologies is a rather recent phenomenon. Michel Serres (1995, p. 45) once remarked that the contemporaneity of discrete elements is an effect of the assemblage they belong to. In this way, preparedness and prevention are contemporary security technologies because they are part of a larger security dispositive: population biopolitics on the one hand and the biopolitics of "vital systems" (Collier & Lakoff, 2015) resp. the security dispositive of resilience (Folkers, 2018) on the other hand.

Population biopolitics slowly emerged out of the modern arts of government since the 17th century (Foucault, 2004). With the advent of the biological understanding of life (Foucault, 1966) and the figure of the population as the subject/object of governmentality (2004, pp. 77–79), biopolitics came into being. Through a series of crisis events life became a political problem. The cholera epidemic in the 19th century, for example, revealed the systematic patterns of how an infectious disease affects the population (Rabinow, 1995). Such insights depended on population statistics and the "avalanche of printed numbers" (Hacking, 1990, p. vii) — birth and death statistics, numbers on employment and diseases — during the 19th century. Through the application of the calculus of probability, these numbers not only provided information about past events and the current state of the population, but also about its future. Actuaries started to use statistics in estimating the frequency and probability of risks and ways

to insure these risks (Ewald, 2020).[2]

Statistical knowledge constitutes the cognitive framework for biopolitical interventions aiming to ameliorate social hardship and improve public health. Many of these interventions were explicitly designed to work preventively. As Mathias Leanza (2017, pp. 95–214) has pointed out, the three main areas of biopolitical prevention in the 19th century were, *firstly*, modern regimes of welfare enacted by the providential state (Ewald, 2020) through the technology of social insurance. *Secondly*, various forms of eugenics tried to prevent what they believed to be degenerative tendencies within the population (Weingart et al., 1988). And, *thirdly*, public health measures ranging from vaccination campaigns to hygiene measures like the establishment and improvement of sanitary infrastructures started to systematically fight infectious diseases (Latour, 1984; Gandy, 2004; Sarasin et al., 2007).

The biopolitics of vital systems emerged at the beginning of the 20th century. The First and Second World Wars were defining crisis events that revealed emerging risks in complex technological societies. Military and economic experts started to recognize that both warfare and civilian life depend on a series of global resource and commodity flows (Folkers, 2019) as well as on what Stephen Collier and Andrew Lakoff (2015) call "vital systems" like traffic, water and electricity supply, government, and industrial production. The breakdown of these systems could severely harm the population whose life increasingly depended on infrastructural services for their survival (Folkers, 2017b). However, the systems are not only critical for the life of the population but also for the "life" of other systems. It turned out that these systems are so interdependent that weak points, disruptions, or bottlenecks in one place could quickly spread among the network of systems to create major damages.

With vital systems as new objects of security concern, new forms of knowledge emerged. Statistical knowledge is still important to assess the criticality of infrastructure, bottlenecks in logistical networks and the supply of vital materials. However, this knowledge is increasingly embedded in new forms of systems thinking that emerged since the end of the Second World War (Collier & Lakoff, 2015). The analysis of systemic vulnerabilities, is supposed to identify the impact of certain catastrophic events (from a nuclear missile strike to a flood) on interconnected systems by either geographically mapping a certain area (Collier & Lakoff, 2008) or by assessing how a disruption affects the temporal operations of vital business or government processes (Folkers, 2017a). The susceptibility of a system, and not just the probability of risks that might affect it, became the focus.

By abstracting from the source and focusing on the impact of a "generic" threat on the system, it became possible to plan for a variety of different disaster events like natural catastrophes, terrorist attacks or infrastructural breakdown with the same security techniques. Accordingly, the interventions of vital systems security focus less on preventing relatively rare but nevertheless severe and (seemingly) unavoidable events. Instead, the objective is to properly prepare for these events. This involves, on the one hand, structural provisions to increase the resilience of systems: reducing interdependencies and avoiding bottlenecks — a strategy that Collier and Lakoff (2008) call "distributed preparedness" — as well as establishing redundancies and stockpiles of critical materials (Folkers, 2019; Keck, 2017). On the other hand, preparedness encompasses organizational measures, like devising emergency response protocols and conducting regular emergency exercises (Ellebrecht et al., 2013).

2. Vital population statistics are of course still important for contemporary security dispositives as evidenced by the role of statistical numbers during the current Covid pandemic, though statistical knowledge is now increasingly supplemented by computer generated simulations (Opitz, 2017).

There is no historical succession between the two security dispositives. Vital systems security has not simply superseded the biopolitics of the population. Rather, both can often simply operate in parallel since they focus on different kinds of events (statistically normal, regular vs. rare and catastrophic events) and have different objects of protection (population vs. vital systems). However, there are also cases where both preventive as well as preparedness technologies work together to govern complex emergencies. This is especially obvious in public health emergencies like a pandemic because it affects the population but — as biosecurity experts now frequently argue — can only be managed effectively by preparing the public health infrastructure for these events (Lakoff, 2008). In the next section I will turn to the Covid-19 pandemic to show how prevention and preparedness come to interact and how this produces a distinct threshold of catastrophe.

2 Flattening the Curve, Prepping the System

With the beginning of the pandemic, the "flattening the curve" diagram became an almost ubiquitous tool to make sense of the challenges ahead.[3] The diagram shows two statistical curves, one bell shaped curve that stretches above, and another one that remains below a straight, sometimes dashed line. I will treat this diagram as a "diagram" in a Foucauldian sense: an "ideal form" (Foucault, 1995, p. 205) for the functioning of governmental technologies that allows a description of the complex and often contradictory efforts to manage the pandemic in a coherent way. Although the "flattening the curve" diagram is just an abstract sketch, and of course not the only rationale during the pandemic, it still displays a crucial tendency that informed the governing of the pandemic: Namely that the countries in the North-Atlantic world have only tried to flatten the pandemic curve below a certain threshold and never pursued a "zero-covid" strategy.[4]

2.1 How Prevention and Preparedness Interact

What makes the diagram so particularly revealing for the purpose of this paper is that it allows the interaction between prevention and preparedness, and between population biopolitics and the biopolitics of vital systems to be illuminated. This interaction is partly hidden by the fact that the slogan "flattening the curve" focuses attention on the infection rates within the population and thus on the many preventive measures to mitigate the spread of the disease we all know all too well: social distancing and quarantine for the infected, masks and hygiene, lockdowns of public life and remote work etc. However, the straight line in the diagram representing the health care capacity, and thus the state of preparedness of vital systems, is no less relevant for understanding the "flattening the curve" logic. The health care capacity functions as a yard stick or a limbo bar for the belly of the population. It thus allows for an indication of a threshold of catastrophe. The threshold is reached when the infection dynamic exceeds the health care

3. The wording "flattening the curve" was introduced in an article of *The Economist* (2020) that picked up and slightly modified a graphic published in a report by the US Centers for Disease Control and Prevention (CDC, 2007, p. 18).

4. Since the article focuses on the conceptual implication of the "flattening the curve" rationality, and considering that all readers of the paper will have been exposed to endless reports on the pandemic in recent years, I will restrict reference to empirical evidence to the footnotes. I will focus on the developments in Germany. However, I assume that, because of the prominence of the "flattening the curve" rationality, similar patterns can be found in other countries, too.

capacities. This in fact means that the protection of the health care system becomes a priority in the government of the pandemic.[5] The diagram thus represents both population biopolitics and the biopolitics of vital systems in a single frame.

But what are the interdependencies between preventive techniques of population biopolitics and the relative (un)preparedness of vital systems the diagram indicates? What happens when the curve exceeds the line? And why is this catastrophic? A first set of interactions concerns the ability of public health authorities to surveil, track and control the infections dynamic within the population. For example, the test capacities often reached their limit with rising infections making it difficult to identify and to isolate infected people as well as to get a clear picture of the general situation (Hackenbach, 2020; Ärzteblatt, 2020). Similarly, scientists, public health officials and politicians argued that infection rates need to be kept below the point where the public health authorities can trace the contacts of infected persons to disrupt the chains of infection and thus prevent the further spread of the pandemic. Without the surveillance infrastructure of public health authorities there is a risk of losing control of the pandemic which could result — as simulations suggest (Scarselli et al., 2021) — in a steep growth in infections.[6] The capacities of vital systems become a parameter in the modelling of infection dynamics within the population and for implementing restrictions to curb infections. These two examples show that population control directly depends on vital systems. Without the knowledge infrastructures of public health there could not even be population numbers: there is no curve without the line.

The central reason why the intersection between the line and the curve marks the threshold of catastrophe is because it signals the point when the capacity to effectively treat patients that severely suffer from Covid-19 runs critically short.[7] Patients' lives directly depend on health infrastructure, on the availability of intensive care units, ventilators, and of course trained personal. The health system has to cope with a problem quite common to public infrastructures. It has to deal with an unexpectedly high "load". However, in contrast to, say, a traffic system, congestion in the health system does not just mean that a few people get to work late, but that they, in the worst case, die because they have to wait for a ventilator to become available again. This means that beyond the catastrophe threshold health care systems become overloaded, which will eventually also lead to higher mortality rates at the level of the population.

The many bottlenecks in the public health system that contributed to extreme stress on health care system capacity thus revealed the relative levels of unpreparedness for the pandemic in many countries (for the German case see Mezes, & Opitz, 2020). Hospitals did not have

5. At the beginning of the pandemic, the German Chancellor Angela Merkel stressed this when she said: "Our approach must be based on the consideration that we do not overload our health system [...]. The advice and the recommendations on how to proceed are always based on the question of how we ensure that our health system is not overloaded during the time we have to deal with the virus." (2020b, author's translation)

6. In October 2020, with infection rates surging in Germany, Angela Merkel referred to the limits of contract tracing as a central rationale for implementing lockdown measures. "The most important tool — I talked about this many times — to contain a pandemic is to track the contacts of every infected person. But precisely this most important instrument is no longer available in many places because the health authorities have reached the limit of what they can track. This means [...] that the chains of infection can no longer be broken and that we have lost the control over the spread of the virus. This needs to change. [...] And this means that the curve needs to be flattened to restore traceability [...]. As you know, the threshold we have set for this is at around 50 new infections per 100,000 in seven days" (2020a, author's translation). It, however, took several months until Germany reached the proposed traceability threshold again.

7. Merkel stressed that this is precisely the situation to be avoided during the pandemic: "The standard remains that the infection dynamics must remain so moderate that our healthcare system can provide the best possible treatment for every infected person" (2020c, author's translation).

enough equipment to treat Covid patients effectively. More importantly, professional health care workers, especially nurses trained in intensive care, proved to be the central bottleneck within the health care system. In many countries it turned out that the health care system was not robust enough to withstand the shock of the Covid pandemic because decades of austerity politics and commercial accounting procedures had increased the "efficiency" of the health care sector at the expense of its resilience. The public health crisis thus aggravated a latent care crisis. Big governmental biosecurity preparedness strategies could not compensate for the structural brittleness of the health care sector because, while they sometimes did prepare for a pandemic they were not prepared for this particular pandemic as Andrew Lakoff (2020) has shown with regard to the US Strategic National Stockpile.

2.2 The Moral Constitution of the Threshold

A threshold of catastrophe does, however, involve more than a quantitative measure resulting from the interaction of two security rationalities. It also has a moral dimension. Luhmann (2003, pp. 11, 159) even suggests that in situations near the catastrophe threshold, quantitative risk assessments lose their persuasiveness. But what is the moral problem here? People dying is always a social tragedy. However, after more than 200 years of population statistics societies have learned to regard mortality as a normal and normalized phenomenon of a population. Emile Durkheim (2014, pp. 85–107) famously argued that within a certain range high statistical rates of adversity have an immunizing effect on society because they help to cool down moral sentiments and prevent overly strict normative regimes that are detrimental to the "normalcy" of society or, respectively, the "health" of the social organism. During the pandemic a similar pattern became visible. Covid-related deaths came to be seen as a regretful but utterly expectable outcome of rising infections that in themselves hardly caused much moral outrage on a politically significant level.[8] Soon after the first lockdown, calls for a "return to normalcy" became louder and more frequent, even though such a return to normalcy implied a normalization of high infection and death rates rather than a simple return to the *status quo ante*. Experts from all walks of social life started to problematize the "risks" of pandemic risk prevention: risks of economic losses, risks for civil liberties, risking the education of the youth etc.[9] In this view, the comprehensive "immunization" of the *population* against the pandemic would have auto-immune effects on *society*. However, the catastrophe threshold also works as a normative backstop against the functionalism of social systems and their spokespersons. Informed by a certain moral economy of life, it defines limits to the biopolitical elasticity of pandemic management.

A hitherto little-known medical procedure became the scenery for this moral economy to crystalize. In some of the most tragic moments during the pandemic, health care system overload made explicit medical decisions necessary about which patients to treat at all. The name for the medical technique supporting such decisions is triage. Triage is a cognitive strategy to deal with a moral dilemma: too many patients for too few health care workers. Triage emerged in the context of military medicine in the 19th century and is a common practice in catastrophe medicine (Ellebrecht, 2009; Redfield, 2008). Here, triage mostly seeks to identify the patients that — for example after a major traffic incident — need priority treatment to counteract the

8. In the runup to the 2021 German federal election, no relevant political party tried to elevate the Covid-related deaths to a central election campaign issue.

9. Mezes & Opitz (2020) discuss joint scenarios by public health experts and economists that sought to identify strategies to limit the pandemic as well as the economic repercussion of lockdowns.

intuitive tendency of first responders to focus their attention on people who just happen to scream the loudest. In the course of the pandemic, triage should thus help to identify patients with the highest probability to benefit from treatment and to distinguish them from those that were likely to die anyway. However, most public debates did not perceive and discuss triage as a necessary response to a moral dilemma but as a moral catastrophe in and of itself. This problematizations manifest a latent moral economy of life where the problem is not that people die *per se*, but that death could be directly attributed to conscious decisions. This attribution establishes a nexus between life and decision that forecloses the possibility to normalize death as a merely regrettable casualty of the pandemic. This explains why the overload of health care capacity also indicates a moral catastrophe threshold. It marks the point where normal death increasingly becomes decisioned dying.[10]

The widespread moral sentiment according to which it can never be justified to choose who will have to die stems from a normative order that Didier Fassin (2012, p. 249) describes as "biolegitimacy". According to this order, human life is the highest moral good. As such, life is incommensurable. Not even other lives can outweigh a human life. Biolegitimacy thus focuses on individual life and not so much on the general well-being of the population like traditional population biopolitics at least until the first half of the 20th century. Hannah Arendt (1958) associates this idea of life as the highest moral good with Christianity. However, for centuries, and in fact until this day, people in Christian dominated countries saw no moral problem in sacrificing life for the greater good. Only after the Second World War did the idea of life as the highest value gain traction and so became associated with concrete humanitarian practices (Fassin, 2012) even though it is of course, like many other values in contemporary societies, frequently violated.

Fassin and others have illuminated the importance of this moral order for humanitarian practices and international organizations like Doctors Without Borders (Redfield, 2013). However, they have also emphasized the "normative paradoxes" (Honneth & Sutterlüty, 2011) that go along with it. Fassin identifies an ideological function of "humanitarian reason" when he argues that the idea that all human lives are of highest moral value suggests a state of equality that conceals the actual inequalities in highly stratified capitalist societies:

> Humanitarian reason, by instituting the equivalence of lives [...] allows us to continue believing — contrary to the daily evidence of the realities that we encounter — in this concept of humanity which presupposes that all human beings are of equal value [...]. Thus, humanitarian government has a salutary power for us because by saving lives, it saves something of our idea of ourselves (2012, p. 252)

Arguably, the popularity of government restrictions, especially in the beginning of the pandemic,[11] stems from their live-saving, humanitarian appeal that provided a sense of social belonging and equality absent in normal times. Of course, it quickly turned out that the poor and people of color were disproportionally affected by the pandemic.[12] The specific catastrophe threshold suggested by the "flattening the curve" rationality — the intersection of prevention, preparedness and biolegitimacy — does not take into account the way social inequality

10. With the availability of vaccines for the populations in rich countries, the relation between life and death becomes more individualized, since — apart from a few regrettable cases — dying from Covid comes to be regarded as an individual decision.

11. For the popularity of the measures in Germany see Juhl et al., 2020.

12. For the relation between social inequality and vulnerability to the pandemic in Germany see Butterwegge, 2021.

translates into different chances of survival. In addition, it normalizes deaths and severe illness caused by rising infections below the threshold. From this perspective it seems that the management of the pandemic was less about avoiding preventable deaths than it was about avoiding unpreparedness for illnesses, not just about protecting the population against the disease but about protecting the health care system against too many patients. Even though they were always at the center of attention, the preventive measures against the spread of the disease actually functioned as a supplement for vital systems security. The role of prevention became to make events preparable.

3 Temperature Thresholds, Tipping Points, and the Capacity of the Earth System

In the international climate regime prevention and preparedness go under the rubrics of climate change mitigation and adaption. Mitigation is about curbing greenhouse gas (GHG) emissions to stop global heating. Adaptation should prepare society for the threats that accompany global heating like rising temperatures and sea-levels as well as to extreme weather events, wildfires and draughts etc. As in the Covid-pandemic public attention still focuses on prevention, or, resp. on climate mitigation. Prevention has a slightly different connotation in climate politics because it does not respond to risks inherent in the dynamics of human populations but to environmental risks. Climate change is not a normal risk but an exceptional process in the conjoint history of human populations and the planet. Thus, preventive climate action follows a different historical variant of prevention: the precautionary principle.

The precautionary principle first emerged in German environmental law (Boehmer-Christiansen, 1994), namely in the *Bundesimmissionsschutzgesetz* or "clean air act" from 1974. The German name for the principle, "Vorsorgeprinzip", resonates with other forms of "Vorsorge" (provision or precaution) in German welfare politics (Folkers, 2020). However, its target was no longer "the population", "the economy" or socio-technical infrastructures, but "the environment" (Bond, 2018; Warde et al., 2018) as it emerged as an object of government in the 1970s. Precaution demands the avoidance of irreversible damages to the environment even when scientific certainty concerning potential threats is lacking. From German environmental law it quickly spread to global environmental politics (Folkers, 2018, pp. 263–272). In the 1980s it entered into international treaties for the protection of the North Sea and the ozone layer (UBA, 2001, p. 15). In the 1990s it became an important rationality in the framework convention on climate change (UNFCC).[13]

As it became clear that climate change was already happening, adaptation became an ever more important part of the international climate regime. Although climate change adaptation was already mentioned in the UNFCC agreement of 1992, it took quite some time until adaptation and climate risk preparedness were established as significant pillars in national and international climate politics. Only after the IPCC report of 2007 included a chapter on climate risks and adaptive strategies, climate adaptation gained more prominence (IPCC, 2007). The fact that it took 15 years since the ratification of the UNFCC to widely acknowledge the need for increased adaptation measures is certainly due to widespread concern that stressing

13. However, in the UNFCC, precaution should go along with cost-benefit assessments (Gupta, 2014, p. 66). This undermines the intention of the principle to avert catastrophic risks at all cost. As I will show below, economic cost-benefit calculations as well as precautionary reasoning still play a major role in setting climate thresholds.

adaptation diverts attention from the pressing need to curb emissions. The promotion of adaptation efforts usually comes with the assurance that climate risk preparedness is no substitute but only a necessary supplement to climate change mitigation (German Federal Government, 2008). Earth system scientist Hans-Joachim Schellnhuber describes the division of labor between mitigation and adaption as being about "avoiding the uncontrollable and controlling the unavoidable" (quoted in UBA, 2008, p. 13, author's translation). This implies that at a certain point climate change becomes too catastrophic to adapt to, or rather becomes catastrophic precisely because societies can no longer properly adapt to it. Again, it seems that preparedness and prevention both enact and are mediated by a threshold of catastrophe. But what is this threshold, how is it identified and accounted for?

3.1 Setting the Temperature Threshold

Already during the first waves of the Covid pandemic, climate scientists and activists started to circulate a diagram that applied the "flatten the curve" imaginary to climate change. The "flatten the climate curve" diagram also depicts two curves, a steep business as usual curve of GHG emissions and a flattened curve as a result of climate protective measures. And it also depicts a dashed line indicating the need to flatten the curve. There is no consistent designation for the dashed line. Sometimes it is called earth system capacity, in close parallel to the original "flattening the curve" diagram, while sometimes it just stands for a concrete climate target like 2°C or simply "Paris Agreement". Defining the climate catastrophe through a temperature threshold usually set around 2°C warming is certainly the most prominent and common expression of climate goals. The 2°C goal figures prominently in international climate agreements since the 2009 Conference of the Parties (COP) in Copenhagen and is reinforced by the 2015 Paris Agreement that promised to keep temperatures "well below" this threshold.[14]

The history of the 2° target goes back to the earliest climate sensitivity studies. Climate scientists estimated that a doubling of CO_2 concentrations in the atmosphere since industrialization would result in 2°C warming of global mean temperatures (Randalls, 2010, pp. 598 *ff.*). In the 1970s, US economist William Nordhaus picked this up as the baseline for one of his famous economic climate scenarios. However, Nordhaus dismissed the 2°C as an objective for climate politics arguing that the costs of achieving it cannot outweigh its benefits (Randalls, 2010, p. 599). Nordhaus is one of the most famous representatives of the breed of climate economists trying to identify the most cost-efficient climate politics. These economists don't restrict themselves to estimating the most efficient means to a given political end. By assessing the ratio between the economic cost of climate mitigation and the costs for climate change damages they want to figure the best ends, the most desirable climate goals. Cost-benefit calculations are still immensely important in climate change politics — even among advocates for ambitious climate goals. As Randalls points out, "defining the threshold in the damage function when costs rise rapidly could be a useful proxy for excessive anthropogenic interference" (2010, p. 601). Within the cost-benefit analysis tradition the disaster threshold becomes the point where climate risk preparedness measures and the cost of climate damages become too costly to be tolerable (Weitzman, 2009). Additional costs must therefore be accepted as an insurance premium against catastrophic climate change (Edenhofer et al., 2011).

14. Article 2 of the Agreement states the commitment to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels and to peruse efforts to limit the temperature increase to 1.5°C above pre industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change." (United Nations, 2015, p. 22).

However, as we have seen with regard to the Covid pandemic, a threshold of catastrophe is never just the outcome of economic calculations and utilitarian considerations. The climate threshold does not just provide wiggle room for economically desirable pollution but also seeks to establish a biopolitical backstop to avoid both the unpreparable and the morally unbearable. In fact, the prominence of the 2°C goal increased with the growing awareness of the existential risks for life on this planet due to climate change. Through a series of studies and expert reports in the 2000s, it became more tangible what "dangerous climate change" that the UNFCC declared it wanted to avoid since the 1990s actually means: rising sea levels that could devour whole cities, droughts that threaten food and water security, wildfires, extreme weather ranging from heatwaves to extreme rainfalls and tropical storms, the accelerated extinction of species. The third official IPCC report in 2001, first presented the so-called "burning embers" diagram that showed that the risks of catastrophic climate change grow rapidly with global warming above 2°C (IPCC, 2001). At the same time, new paleoclimatic data suggesting that "recent" geological history never witnessed a warming of more than 1.3°C provided additional support for the 2°C as an unnegotiable catastrophe threshold. Scientists argued that even if one assumed that technologically advanced societies can prepare for slightly more warming, this would still render 2°C the upper limit for adaptable global heating (Tol, 2007, p. 426). Warming above 2°C would not only accelerate costs, it would threaten the very survival of mankind as we know it. Climate change politics could thus be framed as a biopolitics of survival which cannot solely rely on cost-benefit calculations but needs to resort to moral reasoning to avoid morally intolerable outcomes.

During the last decade, a third rationality which introduces a new biopolitical entity (planetary life-support systems) as well as a redefinition of the catastrophe threshold as a planetary tipping point (Lenton et al., 2008; Horn, 2021) gained more and more attention in climate politics. The notion of the tipping point emerged in the context of the reconceptualization of climate science through the Earth System paradigm (Schellnhuber, 1999). Earth System scientists no longer regard climate change just as a linear relation between rising atmospheric GHG concentrations and increased radiative forcing but as a complex ensemble of highly interdependent ecosystems and biogeochemical cycles (Dahan, 2010). Usually, the interactions between earth system elements have a self-regulating effect. However, like in every complex system, if these fine-tuned regularities get disturbed too much the self-regulating features can flip and negative (absorbing) becomes positive (amplifying) feedback (Clark, 2010). This flip happens at tipping points which scientists unsurprisingly assume to be at around 2°C warming (Knopf et al., 2012, p. 134). Tipping points are associated with so-called tipping elements like the ice sheet in polar regions, boreal and rainforests, and permafrost soils (Lenton et al., 2008). These elements usually dampen the effect of climate change by reflecting solar radiation and working as a carbon sink. But when they are damaged by climate change too much their regulating effect starts to reinforce global heating. The ice sheets can reflect less and less solar radiation which results in higher temperatures that again lets the ice sheets disappear. When forests lose their ecological integrity, especially through wildfires, they no longer act as sinks but become sources of CO_2 emissions. And the thawing of permafrost soils releases methane stored there for centuries. Beyond these tipping points, climate change will not just be cumulative, linear and slow but become abrupt, non-linear and fast.

There are several reasons why these dynamics are catastrophic. First, climate change would become self-sustaining. So even if societies would stop emitting any greenhouse gases, they couldn't stop temperatures from rising. Secondly, the changes would occur too swiftly to adapt. Climate risk preparedness measures demand fundamental changes to the human-built

world (climate resilient infrastructures and cities for example) which usually takes decades. The pace of climate change could thus overburden adaptive capacities. And, finally, in the worst case, global changes might become so severe that the planetary "safe operating space for humanity" (Rockström et al., 2009) shrinks further putting human life in tremendous peril. Similar to the Covid pandemic, the catastrophe threshold is defined in relation to the capacity of vital systems, in this case the planetary "life-support systems" (Young & Steffen, 2009) that make human life on earth possible. Humanity as a whole appears to be as dependent on external systems for survival (balanced temperatures, breathable air etc.) as Covid patients in intensive care units connected to ventilators. The decisive difference is of course that planetary life support systems, though influenced and disturbed by social action, are never fully under social control. The limits to adaptability that define the catastrophe threshold turn out to be the limits of the resilience of ecological and not just social systems.

3.2 Above the Threshold

The question whether 2°C is an appropriate indication of catastrophic climate change (exploding costs, unpreparable and life-threatening climate risks, crumbling life-support systems) is of course still contested. Some climate economists still regard the 2°C goals as too costly, empirically unfounded and overly normative (Tol, 2007). For other climate scientists, activists, and affected parties it is not ambitious enough. Accordingly, during the negotiation for the Paris Agreement there was much disagreement concerning the appropriate climate target. Whereas the old industrialized countries prefer the 2°C goal, the Alliance of Small Island States (ASIOS) insisted to include the 1.5°C as a more ambitious goal in the treaty (Ourbak & Magnan, 2018). For them, the difference between 1.5 and 2°C is the difference between survival and their islands drowning in the ocean. And even a warming below 1.5° threatens the existence of myriad animal and plant species, and causes enormous human suffering as evidenced by the devastations climate change has already caused at a warming level of about 1°C. Just like during the Covid pandemic, the focus on a particular catastrophe threshold often loses sight of vulnerable humans and non-humans dying below the threshold, from the victims of tropical storms in the Caribbean to the symbiotic life complex of the Great Barrier Reef.

A different and even more ambitious catastrophe threshold currently discussed is 350ppm of CO_2 concentration in the atmosphere. The 350ppm threshold was introduced by climate scientist James Hansen (2008) and is currently promoted by climate activists like Bill McKibben's NGO 350.org. The 350 ppm advocates argue that above this threshold climate change will trigger critical tipping points especially if long-term effects are taken into account. What makes this threshold so particularly ambitious, and indeed threatening, is the fact that atmospheric CO_2 concentrations are already above 400ppm (450ppm is currently deemed to be the threshold for 2°C warming). Even as the 350ppm threshold was first introduced in 2008, there was a significant CO_2 overshoot. The only reason why catastrophic global heating has not yet manifested is the relatively slow "climate response time" (Hansen et al., 2008, p. 16). Oceans and ice sheets work as a buffer against rising temperatures. They delay global heating effects from rising atmospheric CO_2 concentrations for centuries. These gigantic earth spheres work as shock absorbers and stockpiles of the earth system. This suggests that we are already using up the emergency supplies of "spaceship earth". Soon these buffer capacities will be exhausted so that irreversible, rapid, and extremely dangerous climate change is no longer avoidable. That is why Hansen and other advocates of the 350ppm threshold urge taking immediate action to not only stop further emissions but to remove CO_2 already locked into the atmosphere through

reforestation and other Negative Emissions Technologies (NET).

In this scenario contemporary societies have already breeched the threshold of the climate catastrophe. We are no longer just facing and anticipating potential catastrophes. We are already navigating within "unsafe operating space" (Wakefield, 2020). The climate catastrophe is already here — both manifestly and latently. The effects we are currently witnessing — rising temperatures, more frequent extreme weather events — are only the tip of the melting iceberg, only a foretaste of the climate turbulences already caused by the carbon in the atmosphere. In these scenarios, the present comes to be experienced as an incubation time until the climate catastrophe becomes devastating. In this situation, the combination between prevention and preparedness no longer seems to be enough to avoid the worst. With the growing importance of NETs in climate politics (Field & Mach, 2017; Carton et al., 2020) a third strategy emerges to complement mitigation and adaptation: carbon drawdown, the removal of carbon from the atmosphere. This is no longer prevention nor preparedness but involves novel security technologies that might be called reversiveness. Like prevention, it seeks to avoid the worst, though — paradoxically — like preparedness it deals with unavoidable catastrophe situations. Yet unlike both prevention and preparedness it encompasses a new temporal orientation that not just looks ahead to the future, but also comes back to the residuals of the industrial past. It is not just a politics of the future. It is a way of coming to terms with a past that will continue to haunt the present for centuries to come (Folkers, 2021).

But what happens when the attempts to reverse the already committed climate change fail? What kind of political rationalities and imaginaries can guide a politics beyond the threshold of catastrophe? Since the 1970s, resilience thinking was established as a socio-ecological paradigm that promised to be able to provide guidance in situations of turmoil (Cooper & Walker, 2011). In contrast to management approaches premised on stability, resilience embraces the inherent fluctuations of social and ecological systems (Holling, 1973). Often, resilience designates strategies to enable the system to quickly bounce back after a shock. In this sense, resilience amounts to little more than preparedness. It is about taking precautions so that disturbances don't escalate into catastrophe. However, resilience thinking involves more than bounciness and preparedness. According to certain understandings of resilience, a crossing of the catastrophe threshold triggers a comprehensive reorganization of the system. In the famous "adaptive cycle" (Holling, 2001), such a transformative event kicks off the "release" and "reorganization" phase of adaption where the fallout from an ecological shock — for example a wildfire — becomes the nourishing ground for new ecological relations to unfold. While this "back loop" of the adaptive cycle is often neglected in contemporary approaches to resilience (Wakefield, 2020), it still provides one of the few governmental scripts to inform responses to situations beyond the catastrophe threshold. It becomes ever more likely that environmental security will have to include this facet of resilience which would imply that climate adaption cannot only be about system protection. It also needs to encompass systemic transformation without being certain what this transformation might entail and if and how it can be successful.

4 Conclusion: Catastrophe Beyond the Threshold

If you throw a frog in boiling water, it instantly jumps out. But if you put it in tepid water and just very slowly increase the temperature it will remain there even if the water starts boiling. Climate scientists frequently invoke the story of the boiling frog as a cautionary tale for humanity. Just like the frog, they suggest, societies have difficulties recognizing dangers that

are continuous, enfold slowly and can often only be felt after it is already too late. Societies therefore have to establish clear thresholds for triggering action before it is too late.

There are of course many differences between the Covid pandemic and climate change. Covid is a very recent phenomenon. Since its first outbreak in the Wuhan region at the end of 2019, it hit the entire world with multiple infection waves. This triggered rapid and, in many ways, hitherto unimaginable emergency responses like prolonged lockdowns and the closing of borders. In contrast, the climate crisis has its roots in the fossil industrialization of the 19th century and has been a political issue at least since the 1980s. However, there is no emergency response to the climate crisis that is comparable in scale and intensity to the Covid pandemic response (like, for example, shutting down coal power stations immediately, restricting air traffic, car-free Sundays etc.), arguably because the dominant public perception deems it to be quite far away. And while there is still hope that the pandemic will be over one day in the not-too-distant future, climate change is very likely to become a chronic condition for centuries to come.

Nevertheless, the Covid pandemic and the climate crisis are — in their own ways and according to their own pace — relatively slow emergencies. They don't come in the form of a single disruptive event that becomes immediately visible to the general public. Rather, they only become detectable by meticulously tracing invisible viruses and carbon molecules, by compiling infection statistics and historical weather data etc. They continuously aggravate until they become utterly uncontrollable and catastrophic. That is why in these cases the definition of thresholds seems so crucial — yet also why it is so necessarily intricate to identify them. Because a threshold is a matter of degree, it always comes with a whiff of arbitrariness.

I have argued that the thresholds of catastrophe in the Covid pandemic and in climate governance emerge out of the interaction between the security rationalities of prevention and preparedness. They are defined as the point when preparatory measures can no longer cope with the escalating crisis dynamic. The mission is thus to avoid catastrophe by preventing the unpreparable and preparing for the unpreventable. Beyond the threshold the quantitative increase — more infections, more CO_2 molecules in the atmosphere — qualitatively changes the crisis dynamic for the worse because it triggers systemic breakdown. In the Covid pandemic an overburdening of the public health system leads to more infections because public health authorities are no longer able to track down and disrupt the chains of infection which again causes more infections which in turn overburdens the hospital capacities and drastically increases the death toll. Similarly, climate scientists are afraid that at certain tipping points climate change will accelerate, become self-sustaining and utterly uncontrollable.

The threshold of catastrophe always has a moral dimension. It signals a point where adversities not only become uncontrollable but also morally unbearable. In the Covid crisis, the overburdening of the health care system and the need to decide who receives treatment and who is left to die untreated is widely perceived as a moral catastrophe that needs to be averted whatever it takes because human life is the highest, and therefore incommensurable moral good. In the climate crisis moral urgency is often associated with the fear that the survival of the human species as a whole is at stake. Thus, in both cases a moral economy of life provides a normative backstop against the biopolitical elasticity that modern societies allow themselves to secure the smooth operation of social life. It is worth pointing out that these moral economies of life are fairly recent phenomena. In their current form they emerged after the end of the Second World War with the rise of humanitarianism on the one hand and the threat of annihilation of the human species becoming thinkable with the prospect of thermonuclear war (Anders, 1980) on the other.

The designation of catastrophe thresholds seems to be inevitable. Contemporary societies need some kind of demarcation to immunize themselves both against external threats and their own cognitive and normative inertia in responding to creeping but nevertheless life-threatening situations. However, in their current form these thresholds also go along with at least two problems. They make it more difficult to properly attend to disastrous conditions *below* as well as situations *above* the threshold. The focus on vital system failure tends to lose sight of everything that is not deemed of systemic importance (from the death of old people to the disappearance of ecosystems that are not considered to be critical "tipping elements" in the Earth System). The concentration on thresholds cannot take into account the unequal exposures and vulnerabilities towards risks so that certain regions, social strata or communities may be catastrophically affected even though the general threshold is not breeched. Like other thresholds — for example for toxic substances in the environment — they tend to legalize, justify, or at least normalize the dangers below the threshold. Death and suffering *below the threshold* tend to be silenced: people dying from Covid after weeks in isolation despite receiving proper treatment, Long-Covid patients, small island states drowning in the ocean, species and whole ecosystems disappearing, but also the normalcy of social injustice even in the absence of pandemics and climate shocks. The moral economy of humanitarian biolegitimacy in the Covid pandemic as well as the moral commitment to secure the survival of mankind as a whole in the face of climate change — as legitimate as they may be in themselves — also have the tendency to prevent society from recognizing how its own structures contribute to everyday suffering.

Still, the planetary catastrophic processes are already too advanced to dismiss the politics of catastrophe and the security rationalities of prevention, preparedness and resilience. It is very likely that new emerging infectious diseases will haunt societies maybe sooner than later and it is beyond doubt that even below 1.5° or 2° C warming, climate risks will increase further. Considering the 350ppm theory, we may even be well *above the climate catastrophe threshold* already. From this perspective we are in the midst of a catastrophe that is very real but still mostly latent. This experience of the present as a prolonged delay, as an incubation time or a climate limbo transcends the "emergency imaginary" (Calhoun, 2004) societies have developed over the last decades. We are not just facing a potentially disastrous future but are caught in the meantime between past causes and future effects. This certainly makes new forms of security necessary beyond the phalanx of future oriented technologies like prevention, preemption, precaution, and preparedness. Rather than "pre", an appropriate prefix for the new era is "re": removal of atmospheric carbon to reverse the worst climate impacts, repair and reparations for those most affected by ecological catastrophes, remediation of devastated ecosystems and certainly also resilience. However, the meaning of resilience will have to change in this transition from pre to re. Resilience can no longer just be a form of preparation for adversities that enables the system to quickly bounce back and return to the *status quo ante*. Rather, resilience will have to become a form of transformative adaption to an ever changing and ever more threatening planetary environment. Situations above the threshold of catastrophe thus make necessary new security strategies beyond preparedness and prevention. However, these strategies will have to operate in a terrain utterly transformed by the events that lead to the crossing of the threshold and thus cannot promise a return to the pre-catastrophic condition but can only help navigate the calamities to come.

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Prepared to Care?
Knowledge and Welfare in a Time of Emergency

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Abstract

The article aims at developing a dialogue between the sociology of disasters and the sociology of public action, with particular regards to the role of knowledge in welfare policy. In particular, we argue that — in an era increasingly characterised by the importance of quantitative knowledge, categorization and standardization — the studies on the "informational bases of public action" has greatly contributed to the understanding of the social dimension of the processes through which such numbers and categories are produced, incorporating extant inequalities and power relations. Through the reference to the social crises that followed Covid-19 outbreak in 2020, we show how this focus on the processes of knowledge-making can be enriched by a specific approach to disaster prevention and management such as "preparedness", especially in its cynegetic and transformative form purposes. We conclude by outlining avenues for future research on welfare policies in a time of structural uncertainty and emergency.

Keywords: Preparedness; welfare knowledge; publicness; public action; care; pandemic.

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> The tradition of the oppressed teaches us that the "state of emergency" in which we live is not the exception but the rule. We must attain a conception of history that is in keeping with this insight. Then we shall clearly realize that it is our task to bring about a real state of emergency, and this will improve our position in the struggle against Fascism. One reason why Fascism has a chance is that in the name of progress its opponents treat it as a historical norm. The current amazement that the things we are experiencing are "still" possible in the twentieth century is not philosophical. This amazement is not the beginning of knowledge — unless it is the knowledge that the view of history which gives rise to it is untenable. (Benjamin, 2006, p. 392)

1. March 2020. Several neighborhoods across the city of Milan saw the spontaneous emergence of mutual aid groups — some of them named *Brigate Volontarie per l'Emergenza* (hereafter Brigades) — aimed at collecting food and basic necessities and distributing them to poor households and individuals who had been hard hit by the lockdown measures enforced suddenly following the Covid-19 outbreak. The Brigades were self-organized, sometimes working with existing local squats, associations or political collectives. They attracted a large number of activists and volunteers with no previous experience of political and social engagement. They quickly mobilized about 1,400 young volunteers and handled about 12,000 requests for assistance, supporting thousands of families and individuals during the initial public health emergency (Brigate Volontarie per l'Emergenza, 2020). Over time, they also set up a Central Coordination Unit, whose functions were to facilitate communications, harmonize practices, and propose new projects, including cooperation with international NGOs and local government. The Brigades are still in operation; they have produced a series of reports with data and analysis concerning their activity and the social conditions they have encountered and helped to address.

2. March 2020. In late 2019, the municipal social welfare office in Carpi — a small city in Central Italy — created a database mapping the over-75s population, by integrating data held by the town's social services with information provided by its elderly care services and network of general practitioners. When the pandemic struck in Spring 2020, all members of the over-75s demographic were contacted by city social workers, with the help of educators employed at local schools and temporarily without duties given that the schools were closed, to check their health status and potential need for economic, social, and logistic support, and accordingly to define appropriate responses to be implemented by the City Council and the community (ANCI, 2021). The integrated database remains as a resource for future projects such as mutual-aid groups, support schemes for caregivers, and various types of support for disabled elderly.

3. April 2020. The dramatic impact of the global public health emergency on Italian society, with the related lockdown and curtailing/suspension of many economic activities, confronted both national and local government with unprecedented social and economic demands from citizens without access to food, basic necessities, or any form of income. These were mainly working poor who had lost their insecure, low-paid jobs, unemployed individuals, or black-market workers. Such working conditions have become increasingly widespread in Italy since the late 1990s, with major consequences in terms of social insecurity. Yet, despite the long-term nature of the phenomenon and the availability of data on categories of workers and occupational status, no comprehensive national databases or programmes have been developed in preparation for social and economic emergencies. Thus, to date, responses to crises have been highly uneven with respect to different conditions of work and work trajectories. While

at the outset of the Covid-19 emergency, the central government activated and extended existing tools for income support (temporary lay-off scheme [*cassa integrazione*], basic income), as the crisis continued to cause serious economic and social fallout, extraordinary income support schemes — such as once-off payments for the self-employed, shopping vouchers, emergency income, etc. — were designed and implemented for categories that had not been covered by the previously existing instruments.

1 Introduction

These three vignettes are set in Italy during the current Covid-19 pandemic, a scenario in which — due to the confinement measures enforced — the health emergency has also become a social emergency. During the lockdown and in the following period, the economic and social impact of the crisis has been threatening to push Italy into another recession, while an important share of the population — whose conditions of employment were previously insecure and/or informal — lost their job without any protection against the risk of poverty (Caritas, 2020; Neri & Zanichelli, 2020). Rooted in this situation, the vignettes are fit for introducing the main aim of our article, namely to reflect and set a program for future research on the interactions between welfare and emergencies, as observed from the perspective of welfare state and social policy scholars. As we will clarify, our point is that a pivotal — although not exclusive — role in allowing a welfare system to be able to recognize vulnerability and to be prepared to respond to it is played by knowledge.

Welfare is indeed a complex field where social rights are recognized and practiced, but a precondition for this to happen is that the people experimenting conditions of vulnerability and precarity are enabled to voice their situation and to be heard by the institutional context. This is because welfare systems define the targets of public social protection policies on the bases of the public and administrative recognition of specific social groups. In this process, the classifications that organize data and information (e.g., statistical information on the different professional and social categories) play a major role, defining a *regime of visibility* that makes some actors and issues visible while leaving others in the shadows. This tension does not yield simple and automatic equivalence between social visibility, recognition and power but the analysis of how these three elements interact can contribute to the critical discussion on disaster management and disaster risk reduction.

As we have sought to exemplify through the three vignettes, the existing regimes of visibility have been challenged by the emergency following the Covid-19 pandemic: its exceptional impact resulted in a process of visibilization of diverse forms of precarity and of social injustice that are structurally inscribed in the Italian social fabric and that are not actually tackled by our current welfare system. Each of the three vignettes highlights a specific aspect of the issue of visibility/invisibility or — more precisely — of the process of visibilization/invisibilization. The *first* concerns the emergence of "invisible" categories and their recognition by self-organized groups. Such recognition is at present an opportunity whose outcome is uncertain: will the visibilization of marginalized groups, which has challenged the conventional system of categorization, be transformed into institutional recognition and inclusion in the system of protection, fostering their exit from the marginalized system of care? Or will it slowly be turned into a new form of invisibility? In the *second* vignette, we observe a novel use of existing data and knowledge to identify, make visible, and support a specific social group, whose care is ordinarily parcelled out among different social and healthcare practitioners, with the added benefit of creating a more comprehensive and potentially more useful body of data on which to base fu-

ture action. In contrast, the *third* vignette illustrates the failure to visibilize a large social group made up of unemployed, working poor, and unreported, undocumented, or "simply" temporary workers. This lack of recognition is simultaneously both the outcome and the driver of these groups' uncertain working conditions, suggesting that, far from being a simple matter of effective and accurate accounting, the process of visibilization is entangled with moral and political issues and is one of the key places where knowledge and power intersect. This is where what Benjamin in the opening quote of the article termed the "tradition of the oppressed", those for whom a state of emergency "is not the exception but the rule" speaks to our present (2006, p. 392).

The cases presented above bring to light how previously existing tensions at the intersection between knowledge and power in the welfare domain have been fuelled by the Covid-19, leading the visibilization of certain forms of vulnerability and precariousness. This points to several issues about how to make welfare systems more prepared to disastrous situations and how to respond to social emergencies such as those that have followed the Covid-19 outbreak.

In this contribution, we attempt to address these issues by exploring the connections between welfare, knowledge and the visibilization process of social inequalities that emergencies produce. We will try to develop a dialogue between the sociology of disasters — where welfare policies are considered in terms of prevention, as they reduce the vulnerability of people facing disasters, and in terms of repairing, as they contribute to post-disaster recovery (Veichselgartner, 2001; Tselios & Tompkins, 2019; Centemeri et al., 2021) — and the sociology of public action — especially its strands looking at welfare from the perspective of its informational bases (IB). In Sen's words, informational bases are "the information on which the judgment is directly dependent [that] determines the factual territory to which justice considerations are directly applied" (1990, p. 111): they comprise those items of information and knowledge that are viewed as salient to the policy-making process and which have to do with the value judgments inherent to the public action.

Starting from this perspective on the role of knowledge in the processes of visibilization/invisibilization of social groups in need for social protection, the article is structured as follows. In paragraph 2 we will discuss the main features that the relation between knowledge and public action has acquired in the field of welfare during the long era of neoliberal hegemony (Mirowski & Plehwe 2009; Brenner et al., 2010; Moini, 2016). We devote particular attention to how certain economic categories and values have become dominant and naturalized, obscuring violent social and cultural processes, and thereby contributing to reproduce extant inequalities rather than to remove them. In paragraph 3 we will return to the social emergency resulting from the Covid-19 pandemic and we will discuss the welfare unpreparedness as a problem about informational basis of welfare policies construction and recognition. We will tackle the issue against some indications emerging from the debate developed in the field of sociology of disasters, referring especially to the debate on *preparedness* (Lakoff, 2015, 2017; Keck, 2020; Pellizzoni, 2020) and to the notion of slow emergency (Anderson et al., 2020). In doing so, we will highlight the deep social roots of vulnerability and the necessity of a solid knowledge infrastructure for observing and recognizing the information arising from the territory. In this respect the analysis will point out some similarities between the informational basis approach and the cynegetic approach of preparedness (Keck, 2020), based on the possibility to question existing assumptions and the taken-for-granted knowledge and causal relations in the analysis of complex phenomena.

In conclusion, we will try to highlight few research perspectives which can emerge from the dialogue between sociology of disasters and sociology of public action and welfare. In par-

ticular, we will focus on the risks, the opportunities and the threats of thinking about the role of welfare in front of emergency situations. In this respect, a certain take on preparedness can reinvigorate the democratic and inclusive nature of welfare, helping it to abandon the current neoliberal hegemony based on separating individuals from their socio-economic and ecological context, in favor of a perspective based on care ethics (Tronto, 2015).

2 Informational Bases and Public Action: Welfare and the Neoliberal Turn

In this section we will develop an argument about the role of knowledge in the welfare domain by illustrating how and in what forms the various processes of neoliberalism impacted on knowledge production in support of welfare policies.

Beginning in the 1970s, the neoliberal hegemonic ideological project (Mirowski & Plehwe, 2009; Brenner et al., 2010; Moini, 2016) has profoundly altered the material and cultural bases of public action, introducing market-driven values, styles of reasoning, vocabularies and tools into virtually all the spheres of social life. These have come to provide the main justificative frame for intervention in collective issues by public authorities: in the sphere of public administration, the adoption of the New Public Management model (NPM) (Pollit & Bouckaert, 2002) has contributed to the spread of an audit and management culture (Power, 1997; Clarke & Newman, 1997). As state form, the neoliberal turn, especially during its "roll-out" phase (Ward & England, 2007; Brenner et al., 2010) has promoted different forms of devolution, privatization and deregulation in the name of a general reform of state action.

Welfare policies have not remained unaffected by this long season of transformation, under the sign of hyper-individualization and over-responsibilization of citizens, especially of welfare recipients (D'Albergo & Moini, 2016). Social services and benefits went through a drastic reduction in public spending especially in some sectors (as social assistance), a reduction that pushed decision-makers to introduce or reinforce a system of constraints and conditions to be applied to welfare benefits. This pushed towards a reconfiguration of social rights as needs and means of satisfying them (Doyal & Gough, 1991), via a process of moralization of the recipients' deservingness, with the goal of balancing public expenditure taking precedence over that of ensuring basic social rights, processes exacerbated by the 2008 socio-economic crisis.

Crucial to this transformation has been the emergence of two specific paradigms in the welfare domain: on the one hand that of activation and on the other that of social investment. "Activation" is a paradigm that combines the access to social rights with certain conditions, first and foremost that of timely re-entry into the labour market. It implies a shift in the discourse of social inclusion: from inclusion through the provision of a decent income to inclusion through work. It is based on a representation of the individual as an autonomous and desocialized person, unique responsible for his/her own socio-economic conditions. Activation can be declined in a neoliberal perspective, where individuals need to be brought back to work as soon as possible, making their access to social rights increasingly conditional upon acceptance of a job offer of any kind. This policy orientation relies on market values and vocabularies that further individualize risks and responsibilities in the name of self-organization and social entrepreneurship. But activation also has a universalistic version, where recipients are considered as citizens with rights and capacities and policies have a promotional and enabling conception of public intervention, aimed at favouring a greater responsibility of all the actors involved in the process (Barbier, 2005; Lødemel & Moreira, 2014). Within this same framework, Social Investment perspective has emerged (Morel et al., 2012): based on the call for a new "pact among generations", it is an umbrella-term that embraces different concepts and traditions, in which

empowerment for the market and activation are differently combined with social protection, redistribution and compensatory tools. There is a social democratic version of it (Morel et al., 2012), in which the relationship between protection and activation plays a crucial role through the shift towards "preparing rather than repairing" because social policy should be considered as a "trampoline" instead of a "safety net" (Cantillon & Van Lancker, 2013), and also a more neoliberal version of social investment, that shares the Third Way's concerns about going beyond old paradigms in the welfare domain, through an investment on young and adults human capital that subordinates social policies to the economic system objectives (Busso, 2017).

Activation and social investment paradigms emphasize individual responsibility and develop interventions and tools mainly based on prevention: conditionality for access to social benefits and measures and the strong investment on youth and children in social policies and interventions make the objective of these policies not being a compensation of the damage caused by the market, but the equipment of citizens with skills that allow everyone to adapt to the labor market (Laruffa, 2016; Bifulco, 2019), generating forms of individual prevention in the face of vulnerability.

In this transformation of the socio-political balance of power between capital and labor, neoliberalization has also operated an important shift in the informational bases of public action. These reforms and changes in policy direction, have indeed been justified on grounds of 'evidence' (Bonvin & Rosenstein, 2009) and the "evidence-based" approaches to public policies have consequently gained increasing importance. If the formats of knowledge used for sustaining and developing forms of public action are historically and socially differentiated, numbers are nowadays the dominant format even in the welfare realm (Giullari & De Angelis, 2019; Mozzana, 2019), legitimized by their apparently non-problematic capacity to translate quality into quantity (Desrosières, 1993; Porter, 1996) and to simplify complex social realities into standardized and formalized systems of relations (Desrosières, 2011). These bases (regarding occupational status, employability, willingness to enter the job market, etc.) are therefore used to identify "at risk" social and behavioural attitudes among the population and act upon them to prevent anti-economic behaviours (Rottenburg et al., 2015). Here, the use of knowledge in public action is no longer aimed at building a more just and inclusive community, but rather at building up and implementing forms of discipline, with the ultimate objective of maintaining a form of control over the population's behaviors and the state financial capacity (Mozzana, 2019).

Critical research has nonetheless shown a number of problems of quantified and evidence-based approaches to the use of knowledge for public action (Espeland & Sauder, 2007; Espeland & Stevens, 2008; Rottenburg et al., 2015). First, by emphasizing the role of evidence and results, they tend to conceal the processes through which the categories and numbers upon which these are based are produced. All public choices incorporate norms and ideals — implying, in a word, that they are value judgments — which in turn are linked to the type of information viewed as salient to formulating them (Sen, 1990): it is the knowledge in which the problems addressed by public choices and the potential beneficiaries of welfare measures are grounded (based on the identification of given causes and effects). This has important implications with the broader theme of democracy in the ideational process that precedes decision-making on public issues. On the one hand, the tensions inherent in the relationship between mechanisms of categorization as a vehicle for social recognition and inclusiveness in public space play a fundamental role: "who is counted"; who is able to claim "statistical recognition" and how; how social groups are transformed into subjects/objects of classification. In actual fact, the beneficiaries of policies do not exist prior to classifying action by a public institu-

tion which legitimizes them: they are created through this action (Hacking, 1985; Desrosières, 1993). On the other hand, also of critical importance are key issues concerning processes of "rising in generality" whereby aspects of the concrete life experience of individuals — and their personal spheres — are transformed into matters of public responsibility (Boltanski & Thévenot, 1991). This is linked to a further question: whether and how the representations/definitions of a social group may emerge from collective dimensions of different life experiences, generating processes of recognition in the public space that are inaccessible at the individual level. Second, categories and numbers not only describe reality, but they also prescribe a specific way of thinking about it and acting upon it (Timmermans & Epstein, 2010, p. 71); in the welfare domain, this works by reinforcing the neoliberal imperatives of efficiency and effectiveness, and major critiques concern the looping effect of informational infrastructures/quantified forms of description/measurement (Hacking, 1985; Rottenburg et al., 2015). Third, they tend to reduce the construction and management of information systems to a mere performance management tool (Salais, 2013), based on a reductionist, desocialized and depoliticized understanding of knowledge. On the contrary, in the welfare realm they have to deal with the transformation of data and information about social problems into collective knowledge, a process that takes place when people believe that specific knowledge, legitimized by a given institution, correctly describes a situation, identify with this description and adopt it as a framework of reference for social coordination (Salais, 2014). The "artificial" nature of the construction of knowledge in support of public action decision-making thus concerns its own publicness. An emergent condition rather than an intrinsic property of processes, publicness stems from the dynamics of institutionalization of the social that play out in the various policy domains (Salais, 2010). At stake here is the representations of social reality considered legitimate, representations that are based on how populations are classified, and which affect both the recognition of differential conditions and the material consequences of this recognition — e.g., the allocation of resources, etc. (Dubois, 2009, p. 323).

To conclude, knowledge is nowadays mobilized for public action (and in welfare policies specifically) as a function of different and mixed governmental logics in response to vulnerability and social risks. First, the logic of discipline, that is reflected in the implementation of probabilistic models aimed at prediction and control, calculating the likelihood of certain behaviors: examples include the case profiling and data mining used to discriminate between deserving and undeserving welfare recipients (O'Neil, 2016; Masiero & Das, 2019). Second, the logic of prevention, that is predicated upon a reductionist economic approach, as for example in the case of activation paradigm: it is reflected in profiling and targeting practices aimed at identifying the "more employable" — and therefore potentially more productive — fractions of the population in need. Both these logics raise many questions about the de-powering of the democratic character of public knowledge construction and how conditions of risk and vulnerability are, in these perspectives, obscured. The risk here is that of reproducing the inequalities that the Covid-19 pandemic brought out in all their severity, along with the equally serious unpreparedness of social protection infrastructures.

Nonetheless, beside this hegemonic approach, a third and different perspective has developed. In the same years in which political, social, and juridical institutions from the Keynesian era have been dismantled by neoliberal policies, de-centralized, bottom-up participation has become a key discursive and institutional dimension of local welfare. Looking at Italy in particular, the reform of social welfare introduced by Law 328/00 was based on a pluralistic and open model of governance, in which public and private actors as well as community networks and organizations could all contribute to the design and implementation of public policy, relying

on democratic participation in the construction of informational bases of local welfare policies (Andreotti et al., 2012; Bifulco, 2017).

Notwithstanding its ambiguities and links to the neoliberal governance (Moini, 2013), we think that a different logic — alternative to the abstract and disciplining neoliberal one — can be recognized in this case. It is a territorial logic in which reference to the specific contexts is the key to recalibrating policies in the direction of making services and intervention to fit the specific needs and resources of a collective, recognizing the active role of the recipients and citizens in these policies, and making use of the potential of local collective actors, such as co-operatives (Bifulco, 2017). Here, the ability to rethink in more inclusive terms, starting from the involvement of actors in the construction of knowledge, plays a leading role. While in the last two decades, the above-mentioned pattern of increasing individualization, privatization and outsourcing has undermined these democratic spaces at their very base, we think that this bottom-up approach to the production of knowledge for public action maintains an important potential to be developed.

3 Enduring, Cynegetic, and Networked Sentinels: Which Actors of Knowledge Production in Emergencies?

Let us go back to the initial vignettes. We are in a situation of emergency, where uncertainty is dominant and several social groups claim for the access to food, basic necessities and some forms of income. Standard welfare policies being in place, national and local governments were faced with unprecedented social and economic demands from citizens due to the fact that the government of the extraordinary emergency (Covid-19 pandemic) did not consider the daily, ordinary, emergencies caused by and rooted in the precarious economic and social conditions of a large part of population. Despite the long-term nature of job insecurity and precariousness and the availability of tools to build knowledge about the employment conditions of the different professional categories and social groups, these latter (among which we can find working poor and unreported, undocumented, or casual workers) remained invisible for several months: a visibilization failure that is entangled with moral and political considerations about who deserves to be protected. The governance of the pandemic, combined with the extant, structured precariousness and inequalities, thus worsened the life conditions of the population that was living just above the poverty line thanks to precarious and undocumented jobs that were rapidly lost after the pandemic outbreak (Neri & Zanichelli, 2020).

But even if Covid-19 pandemic arose abruptly, its consequences and actions did not culminate only in a major and speedy event. Time factor is here key to highlight the relationship between knowledge and power and how these two dimensions interact the one with the other in the governance of the emergency and its consequences (Pellizzoni, 2020). In particular, the concept of slow emergency (Anderson et al., 2020) is here central. Developed in the field of disaster studies, it points to the fact that while Emergencies (with capital E) are once-off happenings inducing an immediate response, slow emergencies also encompass the different landscapes of exposure associated with the event (Mitman et al., 2004) and the potential different time-frames. Specifically, Anderson and colleagues use this term to highlight the ordinariness of the physical and psychic deterioration that can be linked to a spectacular event, such as an Emergency, but endures beyond the event itself. When considered from a time perspective, emergencies can be seen to have lasting consequences and to interact with people's existing, unequal conditions, sometimes coming to define their overall life conditions. More radically, the

authors suggest that all Emergencies evolve into emergencies and the two cannot be separated also because the government and management of the former have a strong impact on the latter, either because they ignore them and leave them ungoverned or because they actively intervene in them.

In the case of the social emergency following the Covid-19 outbreak, despite the long-term nature of the phenomenon such as the increasing number of *working poor* and of the precarity of working conditions, no information systems (e.g., grounded on statistical data on categories of workers and their occupational status) had been set up to support the preparation to social and economic emergencies. The lack of recognition of the precarious lives by the welfare system ended up reproducing the existing inequalities during the emergency, in this way delimiting "what lives can and should be exposed to banal forms of exceptional violence" and what lives deserve to be secured (Anderson et al., 2020, p. 625). In this respect, what emerged was the lack of a proper infrastructure able to promptly recognize the vulnerable conditions already present in the population and consequently defining some measures for sustaining them during the lockdown.

But if statistic knowledge about some categories of workers was available, even though not considered, another issue is at stake here: what other kind of knowledge is suited to pointing up the slow dimension of the emergency, its long-term consequences, to highlight the prior conditions that interact with the emergency, but also with the government techniques and strategies being deployed? Is statistical knowledge sufficient in order to develop a proper response?

In this respect, the case of the Brigades proves the importance of the type of knowledge in dealing with emergencies: on one side of the emergency there is the local authority, who is unable to find out who is suffering precarious circumstance unless they have been taken into the care of the social services; on the other side, there are local, self-organized groups who are able to care for the marginalized and insecure, thanks to specific understanding about people and territories. Brigades knowledge and presence allowed the Municipality to identify peripheral neighborhoods and social housing estates characterized by greater fragility and marginality, as well as the local resources that could be mobilized, and to act upon these data and information in order to sustain them during the lockdown. However, visibilization of these situations is not enough if it remains only an emergency issue. The question here is how to harness this knowledge and make it a recognized informational basis for defining new welfare boundaries and publicly legitimized tools of inclusion (Giullari & De Angelis, 2019; Caselli, 2020).

A second concept coming from disaster studies can be usefully recalled here, namely that of "sentinel" as developed in the literature on preparedness and its techniques (Lakoff, 2015; Keck, 2020). As a matter of fact, sentinels are a tool for vigilance, a modality for governing infectious disease acting in a precautionary mode and interrupting the onset of a potential catastrophic event rather than pointing towards a cost-benefit calculus to guide decisions on intervention (Lakoff, 2015). Their aim is to provide early warning of an encroaching danger and their peculiarity is that they do not rely on the power of big numbers (as in statistics) but on the collection of pieces of information in conditions of uncertainty (and not against them), via dialogue and collaboration with a plurality of actors and combining a plurality of registers. Sentinels are part of a logic of vigilance, which means being able to detect the early signs of potential catastrophic transformations directly on the territory and in the interconnections that are established among local actors. This specificity is particularly consonant with the discourse about informational bases: the involvement of a plurality of actors as knowledge producers at the local level, and particularly of the people that are in vulnerable conditions, is central in welfare issues. In this respect, the chance and the right for every one of them to voice their concerns and expectations

and make them count (de Leonardis et al., 2012; Giullari & De Angelis, 2019) is particularly relevant in order to tackle the determinants of vulnerability, since it is where the conditions of oppression take place that it is possible to understand how dynamics and mechanisms of exclusion and inequality shape people's daily life.

Moreover, the relevance of vigilance approaches is that sentinels do not operate on their own but are integrated into a broader system of alert-and-response. In this respect, Keck develops an understanding of preparedness as a specific way of considering the co-existence of humans and non-humans, and the constant quest for a socio-ecological balance through an extraordinary capacity to build relationships and alliances between them. This capacity has been identified by Keck in "cynegetic practices of virus hunters to anticipate an unpredictable future by communicating with birds through databases in which their signs become meaningful" (2020, p. 178) and "[...] rather than calculating risks through statistics and culling potentially sick animals, virus hunters and bird-watchers, imagine the movements of birds through artefacts such as viral samples, computer software, databanks, tags, dummies, decoys" (2020, p. 173). In welfare policies this is a solid point, even if the field is strongly crowded by humans: institutional assets and their capacity to developing mechanisms of learning and "rising in generality" (Boltanski & Thévenot, 1991) through which information about the concrete life experience of individuals are made visible and feed public action, is fundamental. In this respect what was missing during Covid-19 pandemic was an ecological approach to vulnerabilities, aimed at integrating and collecting information and voices where they are produced, i.e., at the local level, and make them count through institutional mechanisms. This was something that partially happened in the second vignette: making novel use of existing data and knowledge and revisiting the professional roles of practitioners involved in emergency governance at the local level, made it possible to support one of the most fragile groups during the pandemic, namely elderly and disabled people.

The potential for critical thinking and knowledge based on the causal relationships among phenomena are an integral part of Keck's preparedness perspective, as reflected in a "shift in the reflection on preparedness from the short temporality of emergencies to the long temporality of ecologies" (2020, p. 177). This socio-ecological take on preparedness enriches its dominant understanding. Considered as an approach to disaster management mainly based on technical tools and strategies as simulations (designed to identify existing vulnerabilities), stockpiling and the use of sentinels. It aims at preserving the status quo without questioning the fact that defending the existing system as something that needs to be protected is not neutral, because it means reproducing the extant conditions that provoked the emergency (Collier, 2008; Lakoff, 2017). On the contrary, a cynegetic and vigilant approach to risk and disaster management, rooted in a "slow emergency" perspective, seems to have a strong transformative potential and might contribute to a democratic renovation of welfare systems, as we will articulate in next section.

4 What Kind of Preparedness Is Needed for Welfare?

We have until now attempted to bring together literatures and research traditions from different backgrounds to explore what knowledge is needed to support welfare policies in emergency situations. In this respect, the vignettes at the beginning of the paper laid the ground for our inquiry through the exemplification of the connections between welfare, knowledge and the visibilisation of social inequalities and vulnerabilities that emergencies usually produce and that, more specifically, Covid-19 emergency produced in Italy.

We highlighted that the knowledge infrastructure that supports welfare policies is less and less functional in recognizing, describing and making the phenomena at the origin of the social vulnerability of large groups of the population visible; this contributes to reproducing extant inequalities rather than eliminating them, due to a vicious circle between, on the one hand, the weakening of knowledge-building processes to support a preventive logic and the transformation of the determinants that lead to situations of social vulnerability; on the other hand the use of standardized informational bases, which provide abstract social actors, considered as individuals separated from their socio-economic and ecological contexts of life, that legitimize residual, sectorial and reparative social policies. The major consequences of this informational short-circuit strongly emerged during the Covid-19 pandemic in the form of the unpreparedness of the welfare system, and large portions of the population found themselves at risk of survival not only because of the health risk, but also for the lack of welfare supports.

We reckon that the social emergency provided a strong point for developing a general rethinking of the welfare logics of action, and that we can consider it not for what it destroyed but rather for what it made visible and the form of social recomposition it can bring about (Revet & Langumier, 2015). With this in mind, we addressed some concepts developed in the sociology of disasters, that represent a fertile ground for addressing the link between knowledge and welfare system preparedness for emergencies and that can constitute some indications for future analysis and research about these issues.

First of all, the notion of "slow emergencies" is helpful in the attempt to overcome the short-term emergency logic that is encouraged by informative techno-structures oriented to fight uncertainty and complexity through standardization and managerial efficiency. In other words, we argue that it is necessary to go beyond the "humanitarian relief" approach (Fassin, 2010) according to which Emergency (with capital E) must be faced mainly through the availability and distribution of "emergency kits" (even in the form of extraordinary targeted policies). As Hudson puts it, this approach is paradoxical since "the values of the unsafe society displace those of the unequal society" (Hudson, 2003, p. 43). On the contrary, a slow emergency approach is aimed at building safe and secure context for social life, focusing its effort on the contrast to the structural and long-term factors that produce social inequalities and whose extreme consequences became visible only in extraordinary terms during the disasters.

Secondly, the dialogue on welfare between sociology of public action and sociology of disaster raises the issue of the potential for critically rethinking the causal relationships among phenomena. As far as knowledge is concerned, this will also mean changing the informational basis our knowledge is grounded on. It will imply going beyond the understanding we are used to but also relating it in a different way, considering cause-and-effect relationships and links from a different point of view. It means overcoming the reductionist and simplified models of reality which, precisely because of the epistemological foundations on which they rest, can only reproduce the problems, relationships, inequalities and fractures that capitalism has contributed to creating and reproducing as the only possible horizon (Fisher, 2009). A paradigm shift is thus needed to develop a new way of conceiving fragility and, at the same time, social protection. This shift will involve complicating the picture, rather than simplifying it, by adding voices, grammars, and vocabularies that can open up knowledge to unpredictable possibilities and images (de Leonardis, 1998), composing the unimaginable to build rights and wellbeing beyond the horizon of the predictable. In this perspective, the concept of preparedness suggests a movement in the direction of unhinging the logic of sectorialisation and towards a transversal logic of action, whereby multiple points of view and experience perspectives contribute to defining problems and responses, while remaining sensitive to socio-ecological interdependencies and

the values of eco-social justice (Gough, 2017). A knowledge that, although centered on people, transcends the interaction between human and non-human actors, bearers of "different visions and interests, who have interpersonal and intergroup relations within specific power and authority structures" (Lanzara, 2005, p. 54). An understanding of reality able to connect various sources, voices and formats of knowledge, with the capacity to assess their salience and systematize them within an informational infrastructure that can coordinate and hybridize heterogeneity as an element of strength rather than dissonance.

With regard to the issues at stake here, this raises the question of how to include people's — especially the most vulnerable — life experiences and lay knowledge in the decision-making processes; but also how to recognize and make visible social groups that are invisible to public institutions characterized by a tendency to categorize people and reduce their identity (as citizens who are bearers of rights) to single symptoms of disease (being ill, unemployed, poor, homeless and so on) based on their institutional competence (Barrault-Stella & Weill, 2018), and failing to recognize them as social persons.

A third element of interest has to do with the reconfiguration of vulnerability in the direction of care. In this respect, being ready and prepared for risks arising from catastrophic events does not exclusively stem from the quality and richness of the data and information collected, but from the links and cause/effect relationships that this information makes visible. From this perspective, welfare may be re-conceptualized by going beyond logics of cause-effect to explain the origin of social emergencies in terms of distinctions between autonomy/dependence, winners/losers, rights-holders/needy and so on, to instead assume the awareness that vulnerability and interdependency are part of everyone's life and connect people with the environment. Just as awareness of fragility is a shared condition that must go hand in hand with awareness of the inequalities it conceals.

And it is perhaps here that the perspective of preparedness could help us move a step further. Preparedness in this perspective may be channeled towards a logic of care, understood as a specific configuration of a social relationship, in which both carer and cared-for play an essential role in establishing and maintaining the care relationship (Noddings, 2015) and which is characterized by co-responsibility. A perspective that shifts the focus from the individual (an economic actor) to the interdependency relationship (Tronto, 2015), and towards a reconfiguration of the environment and who/what is part of it, meaning both humans and non-human as well as technology and devices that shape their relationships (Mol, 2008; Mol et al., 2010). This particular configuration of social relationships is economically, politically (and historically) conditioned and it conflicts with logics of measurement, profitability, time constraints, cost reduction, standardization, and economies of scale in multiple ways (Dowling, 2020, p. 38). "Substantively, care theorists change our perspective when they ask: what happens when we put care, rather than production, distribution, and the maintenance of its systems of power, at the center of social life?" (Tronto, 2015, p. 23). This does not mean that care should be the guiding principle informing all our behavior, or that we are positing caring as the solution to all woes. But it does mean assigning care a prominent place as a structural condition of our lives (Dowling, 2020, p. 206). Acknowledgement of the reciprocal dependence between the need for care and the integrity of the world we live in means revisiting the concept of collective responsibility by which welfare is ideally informed and which has become progressively weaker over time (Castel, 2009), starting from the neoliberal welfare turn. More generally, this speaks to the importance of reconnecting the logic of the economy with the need to care for society and the environment and not vice versa, a task that requires political action that acknowledges both old and new rights, and is adequately resourced through the availability

of basic goods and services (Collettivo per l'Economia Fondamentale, 2019).

Last, the fourth direction for research concerns the current confrontation of the welfare state with a multiplication of crisis or emergency situations that it cannot prevent, because they are connected to global processes (i.e., the climate change), although it has to face and manage their consequences. Even in countries with a strong tradition of welfare state, this is thus leading to the emergence of the above-mentioned 'humanitarian' logic (Fassin, 2010), different from the welfare one as it uses a language of suffering and compassion, instead of that of social justice and rights. It is an intervention only devoted to the population most affected by the disaster, and since it does not aim at modifying the status quo and the injustices that it produces (Fassin, 2010), it develops a policy of inequality. Moreover, it is characterized by a limited and ephemeral action that develops in the emergency, but it disappears right after it, leaving the previous condition completely unaffected. Investigating how these different logics of action will combine is then of great relevance, since we envisage the risk that the mechanism of institutional delegation to solidarity action shields government actors from the urge to rethink and radically reorganize the way in which social protection is constructed, essentially leaving part of the population with minimal or no access to social rights. However, drawing on collective social property to offer greater security via public and collective policies (Castel, 2004), i.e., on a strong and wide welfare state, is the only possibility to stand ready and adequately prepared for the next catastrophe or even for the current one. In this respect, a prepared welfare is the one that takes shape in terms of access to social rights and the construction of public action tools that work with knowledge deriving from the interdependences that are defined by the peoples' daily lives, and that recognizes the dignity and the rights of all persons, starting from everyone's right to give and receive care.

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