GENERATION C

Rhode Island School of Design

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ABOUT GENERATION C

CRISIS & CAPACITY
– How does society deal with crises—particularly concurrent crises—without ignoring them, or becoming indifferent to their impact and significance?
– What do the recent killings of Ahmaud Arbery, Breonna Taylor, George Floyd and others amidst an ongoing pandemic reveal about society's capacity for dealing with colliding crises?
– What's the intersection between the capacity of humans and systems to deal with these crises?

CULTURE & CONSTRUCTS
– Which societal mental models need revision and new habits of thought?

COLLAPSE & (RE)CONSTRUCT
– How do we structurally reorganize our human institutions under the pressures of concurrent crises? Redesign or revolution? If institutions are assemblages of relations and networks between people, what does survival mean under these conditions (stay as is, repurpose, adapt, clone, ...)?

CONTACT & CONSTRAINTS
– What is the human right to square footage? From amphitheaters to asylums, from playgrounds to prisons, humans have built a world to bring people closer together. But when proximity can be deadly, what changes? What does it mean to be human when systems around you are broken or breaking?

COMMONS & CAPITAL
– How do we manage population and provide equitable distribution of food, natural resources, and basics for all?
– Is the Green Revolution still relevant?

CHAOS & CONTROL
– How could conditions for emergence balance tensions between what was and what could be? Crisis enables emergence. What can be controlled to serve better outcomes? Is the idea of control relevant or obsolete? If control is a fallacy, how do we proceed?

COMPASSES & CALIBRATIONS
– Maps that offer 1:1 certainty are no longer reliable. What are the gauges and guides for individuals and societies that will enable trustworthy navigation? What other new tools will point us to true north?

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In 2020 RISD's Center for Complexity (CfC) hosted a virtual symposium the week of June 15. Open to everyone, the five-day event centered on a series of thought pieces responding to **seven themes or compasses** we called:

Culture & Constructs
Collapse & (re)Construct
Chaos & Control
Contact & Constraints
Crisis & Capacity
Commons & Capital
Compasses & Calibrations

Three months prior to the symposium—on March 11, 2020—the World Health Organization declared COVID-19 a global pandemic. In his incisive reporting of the crisis, science journalist Ed Yong refers to Generation C as those born into a world that will be "profoundly altered" by the impact of the coronavirus pandemic. We chose *Generation C* as the title of our symposium to suggest the generational changes that will be needed to address ongoing and emergent challenges in structures such as capitalism, climate, and community.

Through the symposium format, CfC assembled a group of thinkers and makers to offer their initial insights about this extraordinary moment in history. That work is now presented in this timely, thought-provoking and insightful compilation, which is full of collective wisdom.

Since the pandemic precluded holding an in-person event on RISD's campus in Providence, Rhode Island, CfC joined the rest of the world in shifting to an exclusively online experience. To evoke the immediacy of a live event, we posted new content segments on a daily basis, incorporating live and unscripted conversations between and among participants. Taking a hybrid approach, we punctuated these free-flowing conversations with guest essays we sent live throughout the week, which allowed for extended and uninterrupted time to write, reflect, and revise before publication. We invited public participation through live Zoom

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dialogues and open invitations to submit art inspired by our *Generation C* framing.

In mid June 2020, COVID-19 was one of many converging crises in the United States. Cities across the country had erupted in protest as people confronted the racist legacies and ongoing inequities that shape our complex systems. The protests began as a result of rampant police brutality but were also undoubtedly connected to the inequitable impact of COVID on people of color and the broader and persistent inequities in American healthcare, education, and policing.

While the first few months of 2020 felt fraught with uncertainty, our CfC symposium offered a platform for sharing ideas about how to chart meaningful pathways forward. We wondered then and continue to question now where we will land post-pandemic and whether our best or worst selves will prevail.

Dictionaries define a generation as a period of 20 to 30 years, so the story of Generation C is still evolving. As this publication goes to print, the development and distribution of safe, effective vaccines offers real hope for us all, helping to lower death rates and keep the pandemic in check around the world. But politics, widespread suspicion of institutions, significant vaccine hesitancy, debilitating inequities, and the ongoing evolution of dangerous coronavirus variants leave it unclear to what extent COVID will continue to define our future.

WELCOME TO *GENERATION C*
JUSTIN W. COOK

Justin W. Cook
Executive Director, RISD Center for Complexity

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Now is a time for grief and anger.

For three months, parts of our lives have stopped, parts of our lives have accelerated, and virtually everything has been disrupted. Pandemic and protests have set in motion cascading transformations in society that scarcely could have seemed believable when 2020 began.

As Zak Cheney-Rice declared on June 6 in *New York Magazine*,[1] we have spent "two weeks in George Floyd's America." How a reckoning with his killing—and the killing of countless other Black Americans—will reshape America is unclear. But the grief and anger that is ripping through communities remains a potent force equal to (if not greater than) the violence the state has meted out against it. As Cheney-Rice said, "the challenge today is to try something whose failure isn't already assured."

1. Zak Cheney-Rice, "This Will Not Be Contained Two weeks in George Floyd's America", *NY Magazine*, June 6, 2020. https://nymag.com/intelligencer/2020/06/george-floyd-protests-america.html

With **global deaths accelerating**[2] toward half a million, the coronavirus pandemic feels as though it is just getting going. Absent federal leadership, Americans appear to be **giving up**[3] on many of the measures necessary to slow the spread. Unfortunately (although not unexpectedly), in the face of another crisis that requires large-scale cooperation, politics has prevailed over science, complicating decisions of both personal and community protection.

2. *John Hopkins Coronavirus Resource Center*, https://coronavirus.jhu.edu

3. Alexis C. Madrigal and Robinson Meyer, "America Is Giving Up on the Pandemic", *The Atlantic*, June 7, 2020, https://www.theatlantic.com/science/archive/2020/06/america-giving-up-on-pandemic/612796/

In terms of the disruptive impact of COVID-19, we are only at the end of the beginning. As a new school year looms in K–12 and higher education classrooms around

4. Scott Galloway, "When Optimism Becomes a Form of Self-Delusion", *Medium*, June 2, 2020, https://marker.medium.com/when-optimism-becomes-a-form-of-self-delusion-9db-da4ce4807

the world, the near future is comprised almost entirely of uncertain and **frightening scenarios**,[4] including here at RISD. Students are paying attention: yesterday, Rhode Island youth **held a die in**[5] as part of a protest organized by the newly formed **Gen Z: We Want to Live**.[6]

5. Uprise RI, "Gen Z We Want to Live - Die In", *Youtube*, June 14, 2020, https://www.youtube.com/watch?v=RbZya6T1ACQ

6. Steve Ahlquist, "Youth led group Gen Z: We Want to Live plans protest for Sunday in Providence", *Uprise RI*, June 12, 2020, https://upriseri.com/2020-06-12-gen-z-we-want-to-live/

So, now must also be a time to reimagine.

When **the team**[7] at the Center for Complexity set out to design the 2020 symposium originally scheduled to take place on RISD's campus at the end of April, our idea was to borrow from high-energy physics by taking two things and smashing them together to better understand how they work. Drawing from our project portfolio, we were going to examine K–12 education and the opioid crisis together to understand how oppositional ideas about who has access to the future shape each system. From that analysis, we could then draw interventional design principles to be deployed by us and others in similar problem spaces.

7. "About the CfC team", *RISD Center for Complexity*, https://complexity.risd.edu/about/the-cfc-team/

Events intervened so that by mid March RISD's campus was closed and students sent home. On March 25, *The Atlantic*'s staff science reporter Ed Yong wrote in a **benchmark article**[8] that babies being born now are part of what he calls Generation C. At the time—**what feels to be years ago**[9]—and in the abstract, we chose to focus on the environmental differences in which these children were to be raised and how it would surely shape them as a generation. But as the disruptions mounted

8. Ed Yong, "How the Pandemic Will End", *The Atlantic*, March 25, 2020, https://www.theatlantic.com/health/archive/2020/03/how-will-coronavirus-end/608719/

9. Arielle Pardes, "There Are No Hours or Days in Coronatime", *Wired*, May 8, 2020, https://www.wired.com/story/coronavirus-time-warp-what-day-is-it/

this spring, we realized belatedly that we all would be profoundly reshaped by the pandemic. For us, Generation C took on a second meaning: the events of 2020 will matter less than the entire Generation of Change that must follow.

As we launched our calls for participation, our idea for the symposium was no longer about collision but about what could be discovered inside a pause. In some unknowable amount of time, **survivors**[10] would emerge from physical, emotional and psychological bunkers of isolation (though **some may not**[11]). The world would look very different. The pressures and new realities of recovery would undoubtedly push thinking into familiar categories and well-established patterns.

The symposium was to be an opportunity to think and reflect through this moment—to imagine futures less constrained by the past while our shared assumptions about what is fixed and what is flexible are temporarily thawed.

On May 25, when George Floyd was handcuffed and asphyxiated by a police officer for 8 minutes and 46 seconds, everything was the same—and everything changed. For communities of color, George Floyd's killing was familiar, just more evidence of oppression, violence and racism. For some, the response made a new future seem **possible**,[12] one that is just, inclusive and equitable, but only if the hard work of stamping out systemic racism was **undertaken by everyone**.[13]

10. Matt Thompson, "Surviving This Pandemic Isn't Enough", *The Atlantic*, May 10, 2020, https://www.theatlantic.com/family/archive/2020/05/how-be-hopeful-even-pandemic/611350/

11. Christine Vestal, "Fear, Isolation, Depression: The Mental Health Fallout of a Worldwide Pandemic", *Pew Trusts*, May 12, 2020, https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2020/05/12/fear-isolation-depression-the-mental-health-fallout-of-a-worldwide-pandemic

12. Amy Harmon, Apoorva Mandavilli, Sapna Maheshwari and Jodi Kantor, "From Cosmetics to NASCAR, Calls for Racial Justice Are Spreading", *The New York Times*, June 13, 2020, https://www.nytimes.com/2020/06/13/us/george-floyd-racism-america.html

13. Ibram X. Kendi, *Stamped from the Beginning: The Definitive History of Racist Ideas in America*,(Bold Type Books, 2017).

So here we are. It is June 15, 2020 and we are launching our second complexity symposium. *Generation C* is an invitation to the critical work of charting (and generating) a path forward.

Our hope is that together we can glimpse what should be known now about the futures that could be.

We offer seven compasses as tools to think about what is to come. They don't describe the landscape as much as suggest several ways to orient ourselves within it and possibly get our bearings. Our hope is that together we can glimpse what should be known now about the futures that could be.

Culture & Constructs
Collapse & (re)Construct
Chaos & Control
Contact & Constraints
Crisis & Capacity
Commons & Capital
Compasses & Calibrations

In addition to the compasses above, we also turn attention to the future of emergency medicine and structures of care as seen through the eyes of medical practitioners, as well as the future of civics and education as seen through the eyes of high school students from across the country.

Generation C is a starting point. We hope it will help us all navigate the next year and the years to come. In 2021 we will return to the material and ideas generated in this symposium and see how we did. In the meantime, let's take this week to think, reflect and imagine what should be.

GENERATION C
SYMPOSIUM SCHEDULE

MONDAY, JUNE 15
Morning EDT
Symposium Welcome

21st-century Structures of Care

Afternoon EDT
Culture & Constructs

3–4:30pm EDT
Pathways Towards Systems Change in Emergency Medicine

TUESDAY, JUNE 16
Morning EDT
Collapse & (re)Construct

Afternoon EDT
Chaos & Control

WEDNESDAY, JUNE 17
Morning EDT
Contact & Constraints

Afternoon EDT
Crisis & Capacity

5–6:30pm EDT
Collaborative Conversations

THURSDAY, JUNE 18
Morning EDT
Commons & Capital

Afternoon EDT
Compasses and Calibrations

1:30–3pm EDT
Open Dialogue with Indy Johar and Douglass Carmichael

Generation C & The Future of Education

5pm–6:30pm EDT
Collaborative Conversations

FRIDAY, JUNE 19
Observing Juneteenth

MONDAY, JUNE 22
Morning EDT
Closing Remarks

TEXTURES STRUCTURES ARCHITECTURE

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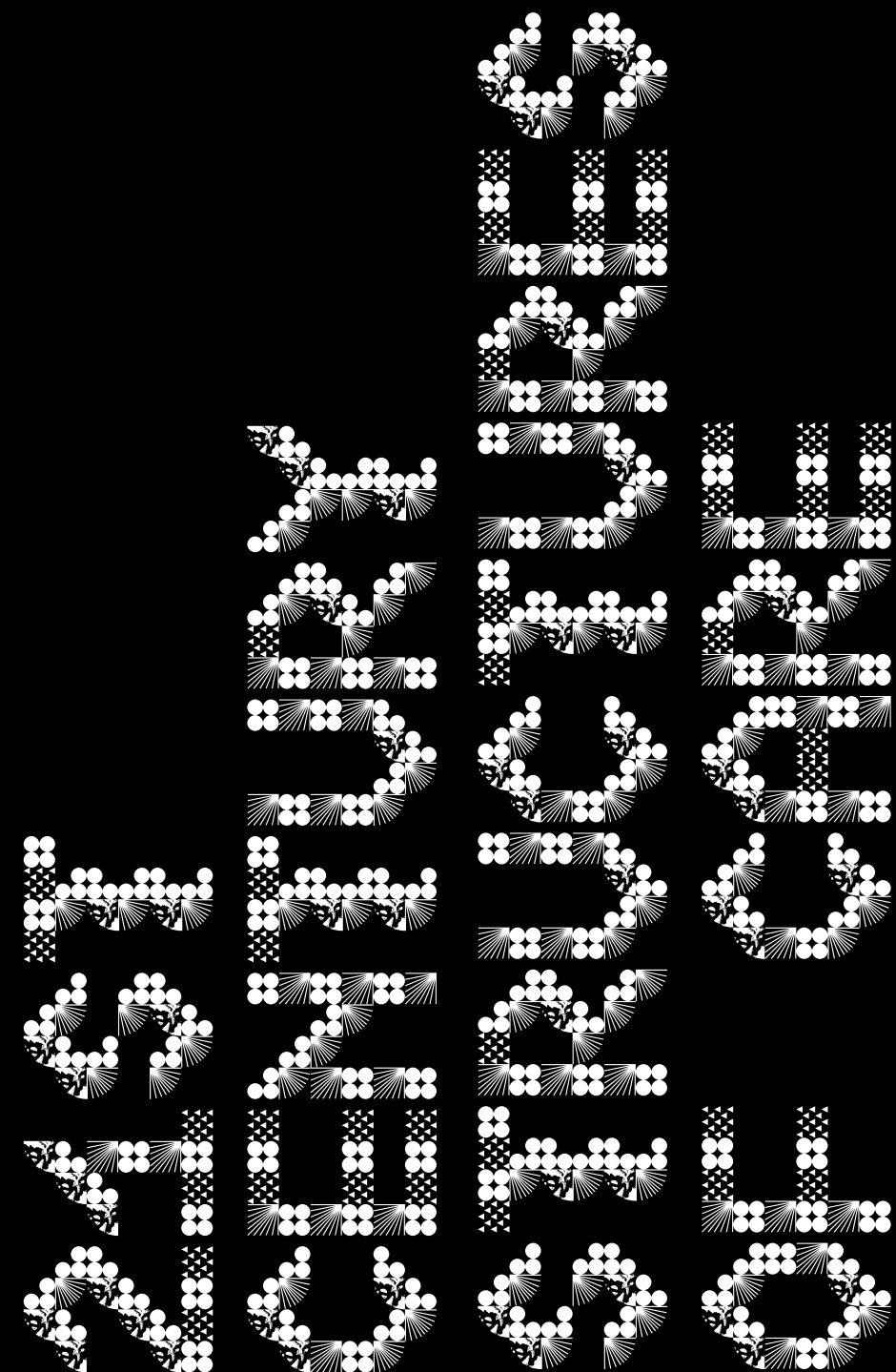
The rules for how the world is supposed to work are being rewritten. Nowhere is this more apparent than in emergency rooms across the country and around the world, where clinical staff are approaching decision-making challenges under conditions of extreme uncertainty and complexity.

In spring 2020 the Center for Complexity asked frontline practitioners to offer reflections and analysis in response to the question: How should emergency medicine transition from COVID? The six contributions that follow represent a breadth of experiences from professional care providers working in the midst of the pandemic.

Powerfully delivered, these unique insights begin to frame an ecology of issues and dependencies—the vulnerabilities and strengths exposed by what Dr. Gina Siddiqui describes as the "complex global phenomena" of COVID-19. Collectively, they function as a scaffold for this moment—varying perspectives brought together to reveal the relationships among the parts.

THE COLLABORATION

The practitioners whose work is presented here were given the freedom to share thoughts based on their frontline experience and expertise. As creative practitioners interested in systems issues and operating at the edges, they were asked to consider the following guiding principles:

- the gap between expectations and reality

- the psychological models that limit the range of questions asked and decisions made

- existing training for emergency medicine

- the culture of emergency medicine (managing uncertainty, the role of emotions in decision-making, effective communications, moral conflict, teamwork, making sense of clinical guidelines and norms against imperfect

information, balancing provider and patient wellbeing, and navigating the constraints and hazards of clinical environments)

- the impact of complex spaces for effectively delivering emergency care

- pressures and factors external to ER that impact care (including the economy, structures of government, psychological and environmental factors and so forth)

CfC posed the following guiding questions to identify the nature of existing conditions in emergency medicine:

- What is signal and what is noise? How do you distinguish between them?

- What should be kept and what should be discarded?

- What should be repurposed and what should continue as is?

- What should be prioritized? What should be ignored?

- Which things are important? Which things are obsolete?

CfC aspires to develop new insights and knowledge in complex systems and enable people to apply that knowledge in their practice. We look forward to building pathways of collaboration to work towards strategic improvement.

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LIVE CONVERSATION
PATHWAYS TOWARDS SYSTEMS CHANGE
IN EMERGENCY MEDICINE

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If you [the patient] feel like your needs are bigger than a clinic's—and that may not be just your medical needs, but it may be the other social needs that you have that feel too big for you to manage, then you'll go to the emergency room and that emergency room has more resources, they can take better care. And it's also a signal to the rest of the community that we're in deep need. We have deep needs that are overwhelming and urgent to us and that are bigger than a clinic can manage.

– WENDY DEAN

Because the evidence we [science researchers] pump out feeds into clinical practice guidelines, sometimes it reinforces the structures that just don't fit anymore…. We don't have evidence on bait, so you can't contemplate bait, but that doesn't mean bait isn't there…. A lot of the social issues and the things that don't fit the stroke, heart attack, gunshot wound modality of the emergency room as it used to be called—of the emergency care framework, the other social issues that come through—we in the evidence community have oversimplified this a little bit in the way that we treat the development of clinical practice guidelines and we've left you [clinicians] without evidence to support the decisions you make, or we decant that or bucket that evidence and port it to other disciplines.

– STACEY SPRINGS

My pet project I think would be for a rigorous, scientifically validated way for frontline providers to start understanding what the true underpinnings of patients' needs in emergency department are so that we can start to make a needs-based bucket list of the new systems we need to make outside of the ER. Similarly I would want patients to start being empowered in the community to present cases that they would want reviewed in a morbidity and mortality-style report just like we doctors do. Why shouldn't the community say this is a case that needs to be audited and considered and we need to think about how we need to move forward? And finally I want patients who've had bad outcomes, bad events, or even just equivocal ones to have a feedback mechanism to the research community to say this is unexplored territory, an unintended consequence we need to investigate further.

– GINA SIDDIQUI

There's a much bigger cultural conversation around goals of care… what as a human being you want done, realizing we all have finite ends approaching. "What do you plan to do with your one wild and precious life?" (Mary Oliver, poet) It's not just a question of trying to squeeze x amount of extra seconds out, the intersection and the comfort by care providers of trying to talk about what you want done. These are options, this is something we can do, these are the risks and benefit of it. But we're pretty profoundly uncomfortable—at least in the US— of having conversations of that ilk. It can be data-driven, I think. Some of it needs to be story-driven and values-driven, and individual human insight-driven. We need the basic courage to have conversations that make us uncomfortable but shouldn't.

– N. STUART HARRIS

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Gina Siddiqui (MD)
Emergency Medicine Resident, Yale New Haven Hospital;
Fellow, High-Risk Patient Interventions, NYC Health + Hospitals

Before COVID emergency medicine in the United States was already in the throes of an identity crisis. Emergency departments (EDs) across the country had plenty to do—in fact, they were busier than ever before—but the majority of business did not fall within the areas of expertise that had conventionally defined emergency medicine.

Kidney stones and ruptured appendices were getting outpaced by weak grandmas and weekend binges. Problems with a sudden onset and a surgical solution were losing ground to problems whose roots arose slowly, insidiously, and had no quick solutions. These chronic problems rarely could be definitively solved by a single visit to the ED. One hospitalization would beget another, and another. In the 21st century, some people visited EDs more days than they didn't.

Then COVID happened. Very quickly—and dramatically—the definition of who sought care in the emergency department changed again. As we spent our entire shifts adjusting ventilators and oxygen supports, we wondered how all of our prior patients were doing without us. Now that restrictions have lifted, more people have started to come back, though not exactly the same groups of patients as before.

All this changing of traffic patterns can't but lead those who reflect to ask: What is the job of the emergency department? Little satisfaction comes from a prescriptive answer to the question. The **old definition** of emergency medicine doesn't reflect our job as it is now. Much of what we do is not about acute injuries but rather injuries that have been around for a long time, and many patients we see are less in need of immediate medical attention than of regular, reliable medical care.

"Emergency Medicine - Merriam Webster", *Merriam Webster*. https://www.merriam-webster.com/dictionary/emergency%20medicine

Perhaps it is time for a **descriptive approach**: defining emergency medi-

David Foster Wallace, *Authority and American Usage - Consider the Lobster* (Little, Brown and Co., 2005)

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cine by whatever comes through our doors, not by what we say ought to come through our doors. What would happen if from now on we defined our jobs based on how the public interpreted the red sign outside, not on how we did?

Democratizing the definition of emergency care matters because the way we define our job determines when we can say we did our job well.

DEFINING THE PROBLEM

Democratizing the definition of emergency care matters because the way we define our job determines when we can say we did our job well. We can say that patients without primary care doctors who come to the ED for treatment of minor complaints should not be in the ED (prescriptive). Or we can acknowledge this group's ongoing presence in the ED, despite the ACA, and despite COVID (descriptive). When we call it our problem, we can adapt.

Because of how we define ourselves, this is how EDs define:

– *throughput*: seeing as many patients as efficiently as possible; trying to stay full (generating bills) at all times

– *quick disposition*: making sure patients leave the ED quickly. We send them home or into the hospital or to a facility based in part on how expeditiously it can be done

– our purview is emergencies, so our main job is ruling out life-threatening emergencies

– not getting sued

– narrow scope of responsibility

And if we defined ourselves differently, this is how we could see success:

– saving as many patients the trip to the ED as possible; helping people from home; trying to maintain a reserve

– making sure patients end up in the right place by doing disposition right the first time (even if it takes a little longer) to avoid problems down the road and limit dependency on the ED

– helping patients deal with non-emergent (and sometimes even non-medical) problems

– not missing the root problem

– broad scope of responsibility

When we classify certain "non-emergencies" that keep winding up in the ED time and time again as not our problem, we absolve ourselves. We resign these groups to subpar care—and harm ourselves in the process. This makes us less satisfied with our work as we pass much of our day not helping patients be any better off than when they came in.

SUCCESS STORIES
When we think of these patients as ours, we correct our blindspot. We bring the same urgency to finding a solution as we would to any sine qua non of our job. And when we apply urgency like that, things start to happen. Here are two examples:

Emergency Triage, Treat, and Transport (ET3)
EDs today are only paid for patients they see in-facility. Similarly, ambulances are only paid when they transport patients to "covered destinations" like the ED. This means that even when ambulances and EDs know a patient shouldn't be in the ED, bringing them there is the only way they will get paid. No one wants to fight an uphill battle and not get paid.

To correct this, the Center for Medicare & Medicaid Innovation launched **ET3**, a new model whereby ambulances and hospitals are paid for treating patients in "alternate destinations" such as clinics or on scene wherever the ambulance arrives. It also pays emergency medical service agencies to coordinate more with patients when they call 911. All of this rewards systems for meeting patients' needs flexibly rather than reflexively ushering them to the ED.

"Emergency Triage, Treat, and Transport (ET3) Model", *Centers for Medicare and Medicaid Services*, 2021, https://innovation.cms.gov/innovation-models/et3.

Dispatch Health
Another company taking on the patients not treated well by the status quo in EDs is Denver-based Dispatch Health. The company replaces trips to the ED with home visits by taking calls from patients intending to come to the ED and characterizing their level of medical need. Through this more in-depth assessment up front they identify a large subgroup of patients who can avoid the ED altogether if an emergency tech visits them with a few meds and supplies instead.

As long as the quality of service is high, many patients feel that treatment at home is more convenient and preferable to going to the ED. Insurance companies also favor treatment at home over the ED because it's less expensive. Unfortunately, however, many EDs oppose programs like this. Why? Because less complicated patients offer the highest profit margins.

MOVING FORWARD
Across the country patients are coming to EDs to face long wait times, higher bills and, in times of COVID and other pandemics, exposure to sick people even though we have safe medical alternatives that make all of this unnecessary. Should the ED own this problem or say that these patients do not fit with how we define ourselves?

You are what you do every day. Like it or not, we are whatever society demands of us. When we start thinking of our jobs in terms of the needs spelled out for us, we see both where we are well-equipped and where we need help. But when we ignore patients we aren't serving well, we don't develop alternative pathways for them. We end up stuck doing what we're not good at.

The old definition of emergency medicine doesn't reflect our job as it is now….Perhaps it is time for a descriptive approach: defining emergency medicine by whatever comes through our doors, not by what we say ought to come through our doors.

EDs that partner with communities will retain value and never be out of a job. In contrast, COVID has put EDs and affiliated hospitals that rigidly stick to old definitions of their purpose at risk. Defining emergency medicine to include all of our patients makes the goal of serving all a challenge we want to meet and can meet—not one we keep avoiding.

DOING JUSTICE
DIVYA K. CHHABRA
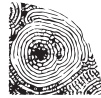
Divya K. Chhabra (MD)
Policy Fellow, New York State Office of Mental Health;
SAMHSA Minority Fellowship Chair

Coronavirus and its symbiotic relationship with racism, decreased immunity, old age, mental illness, poverty, and a failing government made 2020 not only feel like but actually revert into a dystopian nightmare, with increasing inequity, inequality, and injustice propelling our nation into an overdue war on racism. From April to June, my role in the hospital and in the community took on many shapes and forms. Through my reflections working on the frontlines—without a mask—this piece focuses on the relationship between the emergency room and medical floors, virtual palliative care, equity and equality, and well-practiced healthcare.

In April I was one of the first 10 residents in my program redeployed to treat coronavirus patients. One of my primary roles was in palliative care. Given the increased rate of patients rapidly being transferred to the ICU, discussions around code status and comfort care needed to be completed compassionately and quickly.

As a child psychiatrist by trade, I am far savvier with long-winded exchanges and nonverbal communication in person—with very alive children. Instead, I found myself trapped in a profoundly unhuman situation: swallowed by my couch, telling families I had never met— through an iPhone speaker—about their dying loved one, who I had also never met.

I had taken for granted the beauty of observing someone's way of being, of feeling physical and emotional presence in space, and the power of touch.

I knew I was safe from the virus, from sweating underneath a bucketload of PPE, from the swarm of back-to-back Code Blues—and spared a lonesome commute on an empty subway at the crack of dawn. But within minutes of my virtual introduction, "Hi, I'm Dr. Chhabra," the words "ventilator" or "If it's the end of life" would need to make their way out of my mouth, out

loud. With my ear glued to the phone, I'd hear the tears of a wife comforting her children, the fierce longing of a son with no smart phone to FaceTime his mother, and the powerlessness of a patient in their room, with only the company of coronavirus for the night.

If I'm honest, there were times I fantasized that I could be in the hospital, so I could (even for a moment) put a face to each 8-digit MRN. I had taken for granted the beauty of observing someone's way of being, of feeling physical and emotional presence in space, and the power of touch. My quiet, brick-inlaid, tiny apartment did not mesh with chaos, calamity, and coronavirus. I remember thinking to myself once, 'If only I was an ER doctor, I could be there, and all this wouldn't feel so surreal. I could do more.'

But inside what at the time felt like a living hellish underworld came immense reflection, and with that, lessons to be learned. Although I primarily worked with ICU and medical patients, these reflections remain pertinent to ERs.

First, is there a space for psychiatrists in ERs beyond the extra needs demanded by coronavirus? During this time, we have helped families, patients and medical teams process grief, uncertainty, loneliness, and powerlessness, while also processing all this ourselves. We have facilitated effective communication, which, whether we like it or not, can be as life-saving as medication. These processes inevitably exist in the emergency space even when we're not in the midst of a worldwide pandemic.

Psychiatric principles are important to various aspects of medical care and experiences since grief, uncertainty, and powerlessness are not exclusive to this virus. Whether we like it or not, feelings, dialogue, and heaviness are pervasive during emergencies. Emergencies may be a daily experience for us, but for a patient the emergency may be their first. Whereas I feel at ease in the hospital, a patient may feel vulnerable and scared during an

intimate or influential moment in their life. While coronavirus may have forced psychiatry to take on other roles, I wonder if skills used in psychiatry should be available to bring compassion to all patients who come through our doors—including the ER—and not be reserved solely for "consults" on mental illness.

Second, how can an emergency room visit be used beyond the medical emergency itself? Can it be preventative? Can families make important life choices during these interactions? ER visits are often seen by providers and social workers as an opportunity—for finding a shelter bed, STI-testing, connection with primary care or insurance. Why not also see them as an opportunity for education around end-of-life care, even if it is not the end of someone's life?

This could be an opportunity for training and also to recognize the importance of palliative care principles and standards in a hospital setting. Advanced care directives are often not completed—especially in healthy individuals who, three months ago, were unaware that they might contract a deadly virus. ER visits and primary care appointments—both frequent meeting points for patients—could provide an opportunity to educate families on having these discussions. When we think of ERs we think of urgent and life-saving measures. While this is true, ERs can also present the opportunity for prevention, connection, and education.

Third, effective healthcare involves the marrying of a bigger picture with meticulous attention to detail, all with the goal of collaboration. On my best redeployed days, I felt like an iPad with arms and legs—videoed into every room, an essential part of the team. The best teams narrated what they were doing, articulated clearly, and communicated with me more frequently given that I was not physically present. My virtual presence prevented me from missing important parts of patients' situations or plans, helped forge a connection with the patient

beginning each morning, and helped me sense the togetherness often felt while walking side by side with a colleague down the unit. In ERs life-changing decisions are made swiftly and interactions can be quick (or prolonged) and often intense. How can ER practitioners reflect on the small gestures that can go a long way and inevitably influence the bigger picture?

Something about being far away, I felt, encouraged patients to lean into their vulnerability—sometimes telling me more than they would have in a room full of doctors.

Fourth, redeployment taught me about humanity, which, at the end of the day, took precedence above all else. Not having a mask on was a big deal. I realized this one stir-crazy morning when a patient told me I was the only member of the team she recognized. While it didn't feel real for me, an unmasked face brought some semblance of normalcy to people whose worlds had turned upside down. In fact, screens cannot overcome tears, smiles, grimaces, and eye contact the way goggles, an N-95 mask, and a gown can. But something about being far away, I felt, encouraged patients to lean into their vulnerability—sometimes telling me more than they would have in a room full of doctors. Vulnerability is vital, especially when someone's only interaction with the healthcare system may be in the ER. During these moments, patients may not be thinking about their lab result, but will forever remember the way that result was given to them by the provider. How can we bring even more humanity into ER spaces, while not letting go of practicing evidence-based medicine?

And fifth, virtual medicine meant that I was on the news a lot, finding solace in the ritual and trajectory of my day with that of the news. I first read about the

science and data behind coronavirus statistics, then (albeit published too late) about the racial disparities in infection and death rates due to structural racism. Why was it that my hospital had a several-tier palliative care service that was padded by psychiatrists when one in the Bronx had no palliative care service at all? Why weren't doctors evenly distributed in our city? Why were some residents forced to be redeployed (sometimes without PPE), while others were feeling guilty and helpless at home, wishing for redeployment? And why are innocent Black folks being killed by cops on top of already being victimized by coronavirus and structural racism?

These are questions with no easy answers. These past few months left me questioning justice—specifically doing justice to what we are trying to do. Doing justice to an unexpected conversation about a ventilator, doing justice to an inseparable bond when a daughter can't see her dying mother, doing justice to wearing an N-95 mask, and doing justice to a job not meant to be practiced at home. And beyond this, doing justice to brown, Black, and other marginalized people, specifically those who have been forced to bear the consequences of colonialism and longstanding oppression—even and especially in our hospitals.

If emergency medicine and healthcare policies can shift drastically as a result of a deeply contagious virus, they can also shift as a result of a different and equally contagious pandemic: racism.

Despite the passage of time and rapid modernization, we are nowhere near doing justice to equity and equality in 2020. The past 90 days have been a stark reminder that the world is going to throw what it wants at you, and that what seems impossible can be made possible when a pandemic hits. If emergency medicine and

healthcare policies can shift drastically as a result of a deeply contagious virus, they can also shift as a result of a different and equally contagious pandemic: racism.

ORIENTEERING IN THE MORAL LANDSCAPE
WENDY DEAN

Wendy Dean (MD)
psychiatrist; co-founder and CEO,
Moral Injury of Healthcare

The world is reverberating in a cacophony of pain. The storms of loss from both COVID and social injustice are inseparable, stirring up huge waves of grief and anger that are pounding onto the pavement in communities around the world.

Healthcare workers (HCW) are awash in both types of losses every day. They have seen how very ugly COVID can be, and they have seen, reported, testified to, and fought against the injustice and casual brutality that too often hide in hulking systems. HCWs are a tough, resilient group of dogged, hard workers. But they are tiring fast. They are fighting wars on too many fronts, with too few troops, no promise of reinforcements, and no idea if anyone has their backs. This spring there have been whispers in the halls of hospitals that were anathema just weeks ago: "When this is over, I'm getting out."

Even in the midst of the most massive global health crisis in a century… clinicians are bombarded with daily evidence of brazen betrayal at every level—federal, state and local.

Even before the pandemic the medical field had a massive problem with workforce dissatisfaction. Nearly **half of doctors**[1] and **15% of nurses**[2] acknowledged at least one symptom of burnout, and a **recent poll**[3] showed that only 30% of the healthcare workforce felt engaged in their work.

Coronavirus has only widened the fissures in the foundation of US healthcare:

1. "Medscape National Physician Burnout & Suicide Report 2020: The Generational Divide", *Medscape*, 2020, https://www.medscape.com/slideshow/2020-lifestyle-burnout-6012460

2. Chaunie Brusie, "Study Reveals Alarming Statistics on Nurse Burnout", *Nurse.org*, 2019, https://nurse.org/articles/nurse-burnout-statistics/

3. Kellie Wong, "4 Unsettling Facts That Are Disrupting Employee Engagement in Healthcare", *Achievers*, March 2019, https://www.achievers.com/blog/4-unsettling-facts-that-are-disrupting-employee-engagement-in-healthcare/

deferred or diverted investments in public health; lean management cutting staffing, supplies, and space to the bone; clinicians micromanaged and hyper-monitored to drive optimum efficiency and keep the rivers of revenue flowing full. Each of those measures erodes clinicians' primary reason for choosing such grueling, risky work: providing high-quality care for patients in need.

Yesterday, clinicians wedged themselves into the pinch points of patient care, which happen when the needs are clear but the financial framework of care narrows access, resulting in: targeted chemotherapy for advanced disease that insurance will not cover; the struggle to take 20 extra minutes with a patient who received a difficult diagnosis even though that works against productivity metrics; watching a patient with COVID die alone because of insufficient PPE to go into the room to hold their hand. Clinicians have inserted themselves at those pinch points, fought relentlessly for patients who are most exquisitely vulnerable, and sustained **moral injury**[4] en masse along the way.

4. Simon G. Talbot and Wendy Dean, "Physicians aren't 'burning out.' They're suffering from moral injury", *STAT News*, July 26, 2018, https://www.statnews.com/2018/07/26/physicians-not-burning-out-they-are-suffering-moral-injury/

⚠ WARNING
PINCH POINT HAZARD.
DEATH or SERIOUS INJURY
could result from contact
with pinch points.
Keep clear.

Today, HCWs are also exquisitely vulnerable and are fighting for themselves, too. They worry about who will step in to care for the torrent of patients if they fall. They worry about who will tell their stories when they are silenced. They are afraid that they might not get out of this alive and if they do, that too many friends and colleagues will not. They wonder why their sacrifice does not count for anything—not hazard pay, not loan forgiveness, not even settling a tied score for

a rationed ventilator if they are desperately ill. They feel expendable, dismissed, and betrayed.

Even in the midst of the most massive global health crisis in a century, when there is already a **shortage of nurses**[5] and a **looming shortage**[6] of physicians, clinicians are bombarded with daily evidence of brazen betrayal at every level—federal, state and local. Hospitals failed to heed warnings about the massive need for PPE. When those predictions came true and stores began to run low, safety standards quickly shifted from optimum to minimum and **federal guidelines**[7] supported the shift. As a result, clinicians who are sickened or die because of what was previously considered inadequate PPE may no longer have legal recourse. Clearly, **their labor is important, but their lives are not**.[8]

Clinicians are fed up with healthcare decisions filtered first through green eyeshades. Before coronavirus, **half of all doctors in the US said they would take a pay cut**[9] to work fewer hours (60–80-hour weeks are typical now) and to have more time with patients during their appointments. Nurses are voting with their feet—between 10% and 30% (depending on location and specialty) leave their jobs every year, often citing overwork and too little time with patients as driving their decision. They are frustrated that options for patient care are increasingly shaped by boardroom

5."Nursing Shortage", *American Association of Colleges of Nursing*, 2020, https://www.aacnnursing.org/Portals/42/News/Factsheets/Nursing-Shortage-Factsheet.pdf

6.Stuart Heiser, "New Findings Confirm Predictions on Physician Shortage", *AAMC*, April 23, 2019, https://www.aamc.org/news-insights/press-releases/new-findings-confirm-predictions-physician-shortage

7. "Optimizing Personal Protective Equipment (PPE) Supplies", *Centers for Disease Control and Prevention*, 2020, https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html

8. Lili Loofbourow, "Who Do We Expect to Sacrifice?", *Slate*, April 04, 2020, https://slate.com/news-and-politics/2020/04/coronavirus-deaths-essential-workers.html

9. Joanne Finnegan, "Half of doctors would take a pay cut for less hours, more work-life balance", *Fierce Healthcare*, January 16, 2020, https://www.fiercehealthcare.com/practices/half-doctors-would-take-a-pay-cut-for-less-hours-and-more-work-life-balance

decisions without sufficient input from clinicians. COVID has only magnified these challenges.

Administrators, too, have been discomfited during the pandemic, facing decisions ripe for moral injury. Deciding when to stop elective procedures in an effort to conserve PPE, for example, was a choice between the safety of the workforce and the survival of the organization. Moreover, knowing what the workforce needed (PPE) and **not being able to get it**[10] because of federal seizures was akin to clinicians' daily struggle for patient care. No segment of the provider sector has been without strife during this crisis.

10. Andrew W. Artenstein, "In Pursuit of PPE", *New England Journal of Medicine*, 2020, https://www.nejm.org/doi/full/10.1056/NEJMc2010025

It is time to drop all façades and lead authentically—or to make room for those who will. The workforce and the patients know the difference.

But in the relative stillness of post-surge recovery, the grit of COVID experiences—the deaths, the wrenching decisions about resource allocation, the gaslighting by leaders—held in suspension by the constant motion of immediate crisis will settle out. As that grit begins to drift down, the jagged shards of grief and betrayal underfoot will make for unsteady and painful navigation of what—just a short time before—seemed like a clear career path.

As clinicians and their families do the reckoning of what's important in the wake of COVID-19, it is hard to imagine they will value employers who put the well-being of the organization ahead of the well-being of its workforce. It is unlikely that those who waded into the breach without sufficient protection—even as their pay was cut, their protests gagged, their employment threatened,

and their friends fell ill—will plan long, loyal careers with the organizations that treated them this way.

It would be wrong to underestimate the reckoning healthcare may face in the wake of the pandemic. We have lost too many clinicians to COVID mortality already. But once the landslide of grief and fear and sadness and anger comes crashing down, we are likely to lose scores more to disillusionment, anger, and a sense of betrayal. "When this is over, I'm getting out" is a sentiment of quiet resignation, barely veiled hostility, and justifiable fear.

There is no map to determine the direction to better medicine, so it is time to start orienteering with a collective moral compass as a guide—and patients as true north.

It is time for the senior leadership of healthcare organizations to **re-establish the social contract and human commitment**[11] between their institutions, their employees, their patients, and their communities.

The business and clinical sides of medicine have had conflicting goals for years. The only way to get back to compassion, to caring deeply for patients and what they value, is if both sides—administrative and clinical—work to understand each other, repair the ruptured relationship, realign incentives, and renegotiate the covenant of care. It is time to drop all façades and lead authentically—or to make room for those who will. The workforce and the patients know the difference.

11. Wendy K. Dean, "COVID-19 Is Making Moral Injury to Physicians Much Worse", *Medscape*, 2020, https://www.medscape.com/viewarticle/927859#vp_1

For those at the front lines: speak out about what must change—about the quandaries of getting patients what they need, or about how the primacy of business stymies care delivery. How are your hands

tied? And what will it take to loosen the knots, or to cut them clean off?

The current crises offer a clarion call for change. Let's hear the whispers, and raise them into a chorus of voices redesigning the halls of medicine, literally and figuratively. There is no map to determine the direction to better medicine, so it is time to start orienteering with a collective moral compass as a guide—and patients as true north.

As we work to redesign emergency medicine, some of the questions that are critical to consider include:

– How does value extraction (i.e. private equity investment) influence the emergency room environment? Does that align with true north on our collective moral compass?

– How do we realign all stakeholders in medicine (clinicians, administrators, and patients) to goals and incentives that provide better care for patients in an environment that is sustainable for clinicians?

– How might the built environment better protect and sustain the workforce?

– What structural changes in healthcare would reduce wasteful spending in the emergency room (for instance, tort reform to reduce medical testing for protection from litigation)? How would that reduction in testing impact hospital revenue? And how would that affect implementation of such reforms?

– Where are the double binds (rock and a hard place/damned if you do, damned if you don't) of patient care in the emergency room? Why do they exist? Whom do they serve?

– How must the culture shift in medicine to effectively support psychological recovery now and psychological readiness for the future?

WILDERNESS MEDICINE & COMPLEXITY: GAINING PERSPECTIVE
N. STUART HARRIS

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"One of the penalties of an ecological education is that one lives alone in a world of wounds. Much of the damage inflicted on land is quite invisible to laymen. An ecologist must either harden his shell and make believe that the consequences of science are none of his business, or he must be the doctor who sees the marks of death in a community that believes itself well and does not want to be told otherwise."
— Aldo Leopold

Complexity is too often seen as a threat—a barrier to be overcome—not as a source of a robust, resilient, self-ordering system. The history of 19th- and 20th-century medicine has largely been one of parsing this complexity by organ system and disease, advancing through an ever-finer specialization to explore pathophysiology and therapeutics. This process is the medical equivalent of pioneers carving settlements of narrow domestic order from the wilderness.

But intense focus comes with risks: namely, a fundamental loss of perspective. Just as quiet suburban streets must be recognized as dependent on fundamental natural systems, the forces encouraging increasing medical subspecialization require a countervailing awareness to remain grounded in a wider biologic reality. Human health—shorn of the broader perspective gained from an integrative ecological sense—is at the brink. Emergency medicine embraces this liminal space between a seemingly chaotic and complex world and the ordered flow of hospital floors and ICUs. We deal in uncertainty and complexity of condition, of age, of acuity, of volume. We take care of patients undifferentiated by time, age, gender, organ system, severity, or origin of disease. Whether suffering from gunshot wounds, strokes, environmental stressors, or the health disparities engendered by structural racism, all patients are ours,

transcend traditional organ-based specialty care, and come at hours not of our choosing.

Wilderness medicine (WM) is the practice of resource-limited medicine under austere conditions. It is practiced in remote areas, in the developed world after natural disasters (e.g., after the 2011 earthquake/tsunami in Japan), but also as a daily course of business in many remote regions of the world (from rural Alaska to Nepal to Africa). We provide critical care for patients in settings where most physicians have difficulty simply caring for themselves.

One gift of providing care outside of our well-resourced, state-of-the-art academic medical centers is that WM providers are forced to use a wider lens when viewing the ultimate sources of and constraints on human health. We practice in demanding environments outside of the carefully controlled setting of a hospital. In doing so, we gain perspective on how clinical staff approach decision-making under extreme conditions of uncertainty and complexity. We use these hard-won insights to improve outcomes at home.

COVID-related individual and systemic stresses recreate at home the systemic and resource-limited considerations experienced in remote sites—or as a routine feature of hospitals in the developing world. They provide us all ways to better understand methods of delivering healthcare more effectively.

Magnificent complexity (whether ecological systems, global warming, or human health) is often governed by subtle, fundamental guiding forces. Awareness of these forces is often granted by perspective, which allows us to see the forest as well as the trees—and then the planet on which the forests depend. WM is powered by an appreciation of the complexity of fundamental natural systems, which allows us to explore and expand perspectives to better address human health.

NEXT STEPS FOR MEDICINE

1) *Expand access to care*. WM provides critical care for patients in under-re-sourced settings. Our skills and technology allow diagnosis and treatment of patients outside of hospitals. Since our goal is to preempt hospital care, we develop tools and training to help keep patients out of the hospital. This care is not only more cost-effective and capacity-building, but often provides better quality and more humane care. For reasons of economy, infection control, patient autonomy, and familial support, more home-based care is the future for medicine that I wish for both my patients and myself.

This noted, acute stabilization through emergency medical care can make the difference between life and death, and can best guide later care. Emergency medicine promises to care for "anyone with any-thing at any time." The expertise of WM promises to address the missing dimen-sion: "anyone, *anywhere* with anything at any time."

A new vision worthy of the technology and human talents of a global 21st century is overdue. Expert healthcare is a portable intellectual and artistic talent—not an architectural phenomenon.

The future essence of academic medical centers (AMCs) must not be measured by the capacity of our buildings, but by the reach of our human expertise and talent capable of delivering care to patients. We should bring care to each patient, not force the patient to come to us.

Fully realized, AMCs must be recognized as a tool, not a destination—as a means to an end, not the end itself. To fulfill our moral responsibility and medical poten-tial, AMCs must embrace their ability to extend expert care to anywhere on the globe. By continuing our overly exuberant focus on concrete infrastructure (often subject to rising sea levels) rather than on the best use of human talents and vital natural systems, we are ever more poorly

positioned to serve our patients in the future.

2) *Respect limited resources*. WM teaches "essential medicine"—the archetypal inter-action between a caregiver and a patient. We teach that care has to be guided by listening, careful history, and an astute physical exam.

By stripping away features that many view as essential to modern medical practice (labs, computers, CT scans, and a "clean, well-lighted space"), WM fellows learn to focus on the essential in medicine: an empathetic human relationship between doctor and patient.

The strategies we teach for efficient use of limited resources are durable and trans-ferable from the wild to the bedside. WM teaches efficient, patient-centered care. We go outside to learn to be better doctors inside.

We foster innovative technologies. Our experience in extreme locations allows novel insights into fundamental threats to life (like hypoxia) and provides expertise in therapies (like inhaled nitric oxide, used to treat high-altitude pulmonary edema) that offer unique insights into potential approaches to novel viral (COVID) pandemics. Going outside makes for more innovative, diverse and resilient medicine inside.

Experience with complex, unpredictable systems strengthens disaster response. It increases our ability to care for patients under demanding conditions (resilience) and so strengthens the entire medical system. As residents of Manhattan learned from Hurricane Sandy, AMCs are only one disaster away from WM.

In the midst of the pandemic, fellow emergency physicians gave evidence of being profoundly disconcerted with even the distant prospect of having more patients in need than we could care for in Boston. My colleagues' surprise and discomfiture were understandable. It was a reality many had never been forced to

consider, even though resource-limited care is less the exception than the rule for the majority of the world's population.

Experience with resource-limited care informs the aptitude and comfort with which we provide care under the demand-ing conditions of a pandemic and teaches empathy for patient populations living in less privileged parts of the world.

3) *Recognize the critical impact of climate change on human health*. After millennia of slowly degrading our environment, humans are altering the biosphere's ability to compensate. These changes are having direct health impacts.

Emergency physicians are the first to respond as climate change negatively impacts health through increasing heat injury, psychological stressors, and changing disease patterns. To address the degree and severity of change, we must look outside the hospital to anticipate and adequately respond to the inevitable stresses ahead.

WM advocates for rational risk awareness and mitigation. Climate change is already impacting human health. The stresses and suffering will worsen. Working to care for a sick patient on a high-altitude glacier makes plain the impact of environmental stresses on our patients and our own health. Guided by this awareness, we advocate for rational, apolitical, nonpar-tisan, data-driven policy changes. We recognize that the least affluent of our patients contribute the least to climate change—and yet will be most negatively affected by it. We advocate for environ-mental justice.

"Black swan events" are too often entirely predictable if regarded with sufficient perspective. The historic weather patterns that have brought us largely stable food and water sources are being altered. Extreme weather is occurring more frequently: 100- and 1,000-year weather predictions are being revised. Drought-induced starvation that leads to forced migrations are occurring now

and are likely to become more common. Climate change refugees from Syria led to mass migrations, medical humanitarian crises, and then to dangerous instability in European democracies and increased international security instability—with attendant costs. The data indicate increased climate instability with negative health impacts, and point to potentially devastating future black swan events, from changing weather patterns altering food and water availability (storms, loss of glaciers that provide Asian drinking waters, etc.) to equatorial areas becoming so heat-stressed that they will be inhospi-table for habitation.

A functioning biosphere is the source of all human health—and yet we have no central federal funding source for cross-boundary research to surface solutions fast. Understanding complex systems requires more than myopic specialization.

4) *Respect the complexity of language*. The superpower of bedside clinicians is one we completely take for granted: narrative.

We are a storytelling species. We make sense of our lives, become who and what we are through the stories we've been told—and tell. We become Americans, Buddhists, Christians, and physicians through the stories we tell. Even as people increasingly walk through their lives with eyes adhered to small glowing screens, storytelling (even in 140-character bites) drives us as individuals and as a species.

Medicine exists at the intersection of sci-ence and story, making it the most human of the sciences. Similarly, diagnosis is the intersection of science (physiology, anat-omy, lab and imaging results) and story (history of present illness, past medical history, social history, etc.).

The ability to solicit and listen to a patient's story is at the apex of high-qual-ity care. Narrative is both the unparalleled diagnostic engine of medicine and an extraordinary (plus safe and cheap) means of therapy. At the end of Chekhov's

story *Misery* the sleigh-driver has exhausted all hope of making human contact to help share the unbearable pain he has endured through the recent death of his son. So he turns to the one being who will listen: his horse—and healing begins. The act of sharing one's unbearable pain can be a profound gift. Caregivers heal simply by listening and bearing witness.

The ferocious complexity of language is a system beyond our ability to comprehend. Operating below conscious control, our storytelling mind distills facts and feelings into actionable narratives. This process is unimaginably complex (and must be recognized as at the heart of our ability to comprehend complexity), yet it is fluidly accessible to an unschooled 4-year-old child.

Story is our innate self-righting mechanism. Place a human being in any condition, however brutal, and we will use story to make sense of our world, as has occurred from the time of Gilgamesh to the Torah to Cormac McCarthy's *The Road*. While clearly inherent in biologic capacity (wired in our cortex), the interplay between the biologic and cultural aspects of language only makes it more complex. And yet despite this innate, incomprehensible complexity, which exceeds any designed technology by orders of magnitude, facile wielding of story remains the tool of choice—from small children to national leaders—for us to make sense of our complex existence, ascribe value, make effective decisions, and create plans for our future.

Young doctors become real doctors when they are capable of listening carefully enough to discern nuance. It happens when they are able to appropriately recognize the individual human being next to them, gather thousands of external facts, provide proper weighting to a few key details of history, and then using the power of narrative, create a history and exam that results in an assessment and plan—a story with a beginning, middle and end that justifies a path forward. This is so innate in us as organisms that it goes

unnoted. But this is our central power as expert clinicians.

Only the extraordinary complexity of narrative rising from the unconscious depths of the human mind is capable of rendering this feat. Physicians dismiss medical care in the absence of story as "veterinary medicine." This is not unsympathetic to the care of nonhuman animals or their providers, but a painful recognition that bereft of the knowledge and empathy engaged through another person's story, our care and treatment are much more simplistic, inefficient, and less humane.

Physicians craft narratives to tell their patients every day so that they both understand and are motivated to alter their behavior. This power isn't only one of diagnosis and treatment at the bedside. It also has huge ramifications for the translation of any scientific data into action. We would love to believe that we are a data-driven species (but know that we are not). Data bereft of story are barren dust blown off fertile fields. Evolution has provided us with the alchemy to turn data into understanding and action—storytelling. This is as true in our post-atomic age, social media-driven world as it was under the hot sun of Mesopotamia 6,000 years ago.

Doctors do this with special ability. Every day we communicate arbitrary, complex scientific data to patients in human, storytelling form. Without this power, the import of a positive troponin (indicating injury to the heart muscle) or elevated H1C (indicating poorly controlled diabetes) would be meaningless to patients. That burning of fossil fuels has driven the atmospheric carbon dioxide levels from below 300 to above 400 parts per million (ppm) in little more than a century is no story—and yields no meaningful response until it is made one.

Just as a physician is responsible for communicating the coming vascular failures (failed kidneys, early strokes, decaying limbs) from wildly uncontrolled diabetes (and the telling A1C lab value

that portends this future), so, too, physicians must be the storytellers who make clear the health impacts of global data streams providing compelling evidence of a changing climate. The health impact of the atmospheric CO_2 continuing to rise beyond the current 417 ppm is a story not being effectively told at present. Physicians are capable of providing this critical public service by breathing story into complex scientific data.

A well-told story dissolves unproductive complexity. Terabytes of data don't tell us who we are, or what our aspirations are. Human judgment derived and transmitted through storytelling allows us to focus on the essence of good medical care—a caring, empathetic, human interaction and an elegant ordering of abstract scientific data in human form to protect our biosphere.

5) *Grow medicine from ecology.* It is a very simple statement: the totality of human health depends on a functioning biosphere. It is obvious—and yet is very poorly reflected in our medical education, bedside care, or federal funding priorities. Just as the complexity of language undergirds high-quality medical care, the complexity and elegance of ecology must be recognized as at the root of human health.

The reductionist, subspecialization of medicine appears to recoil from the universality and ferocious complexity of ecology. Medicine takes some apparent pride in how we have subdivided care by organs and diseases (as the organizational flowchart of the NIH bears witness). To look at this chart, the act of considering humans as ecologically placed and integrated organisms that are much more complex than the sum of their parts is a rare—and largely unfunded—exercise.

We subspecialize through residencies and multiple fellowships into more and more fractionated visions of care for a part of a human being (e.g., the joke about hand surgeons focusing on the middle phalanx of the middle finger—of the left hand—has

origins in truth). We operate with the bizarre assumption that by dissecting human beings using this microtome of pixelated care a unifying narrative will result—as if grammarians, each expert in only verbs or adjectives or nouns or adverbs, could provide insight into Lear's suffering on the moor.

Given this state of fractured care, to suggest that we expand the scope of medicine to include an awareness of ecological forces outside the hospital's walls is ambitious—but long overdue. In our exuberance for myopic "expertise," we lose sight of the single source of all human health: a functioning biosphere.

Physicians must recognize and become comfortable with the larger complexity (the biosphere) on which life depends. Just as a brain or kidney doesn't operate in isolation without relation to a vigorous self-regulating, autonomous, self-directed organism containing it, human health depends on a vigorous vital, autonomous, and stable biosphere.

As humans approach the carrying capacity of our biosphere, we are newly forced to this awareness to best guide and achieve health outcomes. Rather than funding health research as if human health was a bland post-mortem kidney sloshing in a cooler, separated from its source and function, we need to ground care in a larger ecological consideration. Just as kidneys have a limited cold ischemia time before they are non-viable for transplant, human health separated from its larger context has a finite limit beyond which permanent injury is inevitable.

Using an ecological lens, no physician or policy maker can be surprised that climate change will negatively impact human health outcomes, or that antibiotic resistance is growing and that the twilight of effective antibacterial therapy is upon us. At its essence, antibiotics function by evoking evolutionary forces. Resistance isn't a surprising side effect; it is an ecological inevitability.

In moving from an individual patient, to systems, to a biospheric view of human health, we are moving towards recognizing conditions as they are. We are at a point in human history and biospheric stress that change must come. To continue to ignore the preexisting ecological context in which we all exist will doom our species to continued stresses and "surprises" that would otherwise have been anticipated and mitigated.

Health viewed through an ecological lens provides an escape from our arbitrary academic silos and allows us to appropriately embrace the fullness of interconnected living systems, with humans as such an interesting part.

We are creatures of ecology. What a bizarre thought to think there could ever be "man" and "nature," an ancient, false dichotomy that has led us to the brink. We *are* nature. No rational thought leads to reproduction. Nature churns below our conscious awareness late at night, stands by soccer fields on weekends, cares for aging parents, paces through our EDs on overnight shifts, and types orders into our computers.

To address the primary threats to human health in the days ahead, a competent physician must be as comfortable understanding the Keeling curve as the Starling curve. We no longer have the luxury of saying, "I'm a doctor. That's outdoor stuff. That's not my department." People deserve an ecological approach that accurately addresses their health needs. To see humans not as distinct from or even evolved from nature but as a continuing fundamental cog in a larger and complex whole is critical to safeguarding our health.

6) *Challenge outdated healthcare infrastructure.* As noted above, American medical care and research funding are fragmented. The power of federal research funding for supporting human health is largely relegated to an outmoded organ- or disease-based system.

In contrast, emergency medicine has the luxury and responsibility of caring for the undifferentiated human: anyone with anything at any time.

The National Institutes of Health (NIH), still largely locked in structures based on the political landscape of the 1960s (immediately after the passage of the Civil Rights Act and before the academic practice of emergency medicine), lacks a dedicated federal research cost center with the capacity to fund acute care for the entire human being. It has even less capacity to fund multidisciplinary explorations of how deeply human health will be impacted by an increasingly stressed biosphere. Locked in an ossified, Vietnam-era federal funding hierarchy, the NIH acts as if emergency medicine still doesn't exist.

Even as emergency departments have become the diagnostic and acute treatment centers of American medicine, from the standpoint of the federal budget emergency medicine is nearly invisible. This is true even as daily American clinical practice speaks to a very different reality: have a heart attack at your cardiologist's office, a stroke at your neurologist's, a gunshot wound at your surgeon's, or an imminent delivery at your OB's, and the response will be universal: "Quick, call 911! Get this patient to the emergency department ASAP." This is even more true if you have acute hemiparesis at your cardiologist's or chest pain at your neurologist's. The emergency department is where America's generalists and specialists send their patients when they need acute answers and treatment.

As a medical researcher in 2020, I can go to the National Science Foundation for grant support to study carbon flux in the Alaskan permafrost, and to Alaska Native Health funding sources to study the acute effect of depression and substance use on Native Alaskan communities (not mentioning they are suffering physical and psychological trauma from the

destruction of their ancient villages due to melting permafrost). Yet there is no meaningful cross-specialty awareness or mechanism to address the direct, devastating effects of a rapidly warming arctic landscape on the health of Native Alaskans we work with—or the impact of these Arctic changes on health in the continental US. Decades ago 1960s-era ICBM silos were dismantled; unnatural medical silos live on.

Our reliance on structures based on 1960s realities is a dangerous anachronism. Our current Department of Defense isn't focused on winning the war in Vietnam; it has pivoted to present and future threats—and is frankly much more forward-thinking and integrative in planning for the inevitable acceleration of impacts due to climate change. As a nation and species we deserve a similar update to our federal medical funding structures.

Jaclyn O'Halloran (RN, BSN)

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COVID-19 has represented a mere drop in the ocean, setting off a rippling effect touching nearly every aspect of human existence. Tenets of our society have been radically altered, leaving many questioning where we go from here.

The pandemic has magnified the glaring faults within our healthcare system. In my nearly 10 years as a registered nurse, I have grown accustomed to the culture of the healthcare system in the United States. We thrive in a system based on excess: better equipment and medications, technological advancements, stronger innovations. We do this all for one thing: longevity, to prolong life. A system based on urgent excess breeds an environment where great age equals success. In this system, however, quality of life suffers to the point where it's completely overlooked.

Emergency medicine serves a distinct purpose in our healthcare system: saving patients from the brink of death. COVID has ransacked and brutalized the respiratory status of many, yet doctors and nurses practicing emergency and critical care medicine offered them a chance for survival. However, a chance at living does not equate to a life fulfilled. While many beat the virus thanks to advanced medical treatments, they are left weaker than before they entered the hospital.

The failure of our medical professionals to discuss end of life and goals of care leads to futile and morally distressing situations. The pandemic has exacerbated our inability to hold important, potentially life-altering conversations with patients and families. At the beginning of the outbreak, medical professionals in Italy struggled ethically in choosing who to place on ventilators—who to give a chance to live. In America we feared the same would occur here as many hospitals braced for impact and prepared for mass casualty protocols.

In cases of patients with multiple comorbidities, advanced age or immunocompromising conditions, contracting the virus

puts them at a great disadvantage. Nonetheless, our healthcare system pushes medicine to the brink—and patients along with it. COVID-19 has required prolonged ventilator use, causing patients to become gravely deconditioned and weak. Many require the placement of tracheostomies and feeding tubes to help them survive. Some face even greater complications from the virus: strokes, heart attacks, and amputations. Those who beat the virus face a long and arduous path of rehabilitation. Some may never fully recover, requiring skilled nursing facilities and long-term care.

During my nursing career, I have had periodic experience in taking care of patients with tracheostomies. However, as a result of the pandemic, my colleagues and I have seen a noticeable increase in patients with these special needs. Tracheostomy patients are often confused and agitated from being on ventilator support and sedation for countless days. As their mental status improves, they may grow increasingly frustrated with the inability to communicate. Most have had the intrusive placement of a feeding tube that bypasses the swallowing mechanism. In many cases, patients must be restrained in order to protect them from accidentally removing their fragile airway. Without the support of family members at the bedside, patients grow more exasperated with their situation. While patients may improve, they live days and weeks confined to their bed, unable to speak or eat. Cases like this are growing ever more common.

Our duty as nurses is to provide exceptional care to these patients. Yet our minds and hearts grow weary as time passes.

Our healthcare system strives to prevent the inevitability of death at every cost.

The advancement of medicine in the US has afforded patients opportunities to live through accidents and diseases that pre-

viously would have ended in death. A decade of healthcare experience has permitted me to observe many positive benefits of our advanced system. However, I have also watched our offered medical treatments prolong the inevitable. My 10 years of nursing experience have taught me that our healthcare system strives to prevent the inevitability of death at every cost. The prevalent use of tracheostomy placement during the pandemic has reiterated our aversion to the dying process. Instead of admitting that our efforts have been exhausted, we choose to push the boundaries of medicine further. We offer invasive treatments that at times yield minimal benefits. We strip our patients of their autonomy because of our system's inability to admit defeat. Healthcare fails to offer the most beneficial treatment of all: comfort and relief.

Initiating end-of-life conversations and discussing ramifications of prolonged ventilator use with patients and families may prevent difficult situations. Healthcare should never be provided in vain, yet this is the experience of many. I implore healthcare providers of every caliber to educate patients and family members before it's too late. Our healthcare system is doing a grave disservice when providers are not having transparent and honest conversations regarding prognosis and quality of life.

The state of Massachusetts has done a commendable job attempting to flatten the curve and prevent the spread of the virus. In doing so, our hospitals were not overwhelmed, like so many in other states. While this should be treated as a substantial, well-coordinated effort, our post-hospital facilities may now be overburdened.

Due to the rising costs of healthcare, many nursing homes and skilled nursing facilities have had to shutter their doors in recent years, leaving limited availability for patients with special, long-term needs. In 2019 alone 20 nursing home facilities closed in Massachusetts, leading to a loss

of nearly 1,900 long-term beds. Having saved the lives of many COVID-19 victims, the state's healthcare system is now dealing with an abundance of tracheostomy patients. These patients require long-term care facilities and intense rehabilitation. Some progress enough to eventually return home, while others live out their days in skilled nursing facilities.

With a massive loss of long-term care options, where will recovered COVID-19 patients requiring specialized care go? While our healthcare system prepared for a massive influx of critically ill inpatients, we did not prepare for the surge of recovered patients requiring post-hospital care. The surge may not be what we expected at all, but since our convoluted healthcare system has forced key facilities to close we are ill-prepared to absorb patients requiring long-term care and skilled nursing needs. We must now examine how to shoulder the burden of complex patients like these. Otherwise we may experience what we sought to prevent at the beginning of the pandemic.

Creating a more symbiotic relationship between emergency medicine and palliative care is paramount for the sustainability of our healthcare system.

The importance of emergency medicine as well as critical care should not be dismissed. Triaging and treating urgent and critical situations are hallmarks of medicine in our country. Stabilizing patients in danger of dying from their illnesses and injuries is a necessity.

However, after the initial crisis passes, patients often face an uphill battle. It is here that we must pause and think—but too often do not. The divergence of medicine lives in this opaque place. One path forges on with aggressive treatment and management, distancing patients from their true self. The other path halts and considers individualized goals of care and comfort.

Unfortunately, in our healthcare climate a duality exists between emergency critical care and palliative care.

COVID-19 may be the catalyst for the collapse of our healthcare system as we know it. Our flaws have been exposed, but I fear that those most vulnerable are the patients we care for—the very reason we entered this profession in the first place.

The consistent placement of tracheostomies during the pandemic appears to reinforce that trend. Creating a more symbiotic relationship between emergency medicine and palliative care is paramount for the sustainability of our healthcare system.

Early on I thought the COVID-19 pandemic would give palliative care the chance it so deserves. But unfortunately, most people still associate palliative care with hospice and the stigmata of death and dying. Yet the two are not synonymous and each deserve their own place in healthcare. Palliative care helps to clarify and support goals of care and patient wishes. In our system of great excess and medical uncertainty, palliative care helps steer the ship towards calmer waters.

Our healthcare providers' inability to have frank dialogue with patients and family members may have set them up for greater failure than COVID-19. As a nurse, I am concerned that we will be unable to support these patients in our current healthcare climate. Would having more transparent conversations with patients and families have changed the course of treatment? As healthcare providers we do not need to do better, we *have* to do better. Our fragile healthcare system and the patients it cares for cannot be sustained on the current path.

COVID-19 may be the catalyst for the collapse of our healthcare system as we know it. Our flaws have been exposed, but I fear that those most vulnerable are the patients we care for—the very reason we entered this profession in the first place.

Jay Baruch (MD)
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Director, Medical Humanities and Bioethics Scholarly Concentration

Pretend you're an ER physician in the COVID-19 pandemic. Mrs. Johnson, a 50-year-old otherwise healthy female, is gasping for air. There is fear in her eyes. Unless you place a breathing tube into her windpipe and use a ventilator to fill her lungs with oxygen, her heart will stop. But there are no ventilators and no ICU beds.

Then emergency medical services (EMS) rushes in with Mr. Gass, from a nursing home known to have many patients testing positive for COVID. They're doing **CPR**.[1] His heart stopped beating. He suffers from severe heart failure, lung disease that requires chronic oxygen, and multiple other medical problems. His prognosis is poor. His advanced directive says he wants everything done.

1. What is CPR?", *American Heart Association*, https://cpr.heart.org/en/resources/what-is-cpr

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Being prepared demands probing the very idea of preparedness. Assuming that we are prepared can lead to a complacency that rocks our foundations when we face destabilizing new conditions.

Under normal circumstances, you would not question those directives and the patient's request would be honored. But your experience amid COVID burdens you with the knowledge that more patients will be coming, resources are limited, and this patient's prognosis for recovery may be much lower than that of the next patient.

What do you do?

COVID-19 has challenged the clinical skills of healthcare providers and rattled some of the operating assumptions, beliefs, and norms in medicine. The ground shifted beneath our feet. Part of the process of preparing for the new normal that lies ahead is reevaluating the integrity of the houses that have stood the test of time.

"**Do no harm**"[2] is one of those houses. It is a bedrock precept of medicine that dates back over 2,500 years to Hippocrates. Of course, the commitment to avoid harm is not always possible. The practice of medicine is the practice of modulating benefits and harms. Many of our life-saving advances—including chemotherapy, surgery, and antibiotics—are not without various degrees of risk and potential harm.

2. "Primum non nocere", Wikipedia, https://en.wikipedia.org/wiki/Primum_non_nocere

An additional problem is that different people interpret "harm" differently. For example, "do no harm" in Mrs. Johnson's situation is to intubate her and support her breathing with a ventilator. Considering Mr. Gass' dismal prognosis, some physicians and surrogate decision-makers might consider "treatment" as harmful. "Life-saving" interventions won't save his life and instead become sources of burden and pain—although some people disagree with that logic.

During the pandemic, hospitals were faced with the stark possibility that there wouldn't be enough life-saving resources such as ventilators, ICU beds, and drugs for those who would need them. The practice of triage (prioritizing which patients need attention first) is part of everyday protocol in emergency medicine. The **ethical rules**[3] of care focus on saving the sickest people. But the rules shift in the face of scarcity. Resources are allocated to benefit the greatest number of patients. These triage decisions are both necessary and a source of discomfort. When COVID challenged hospital capacities, **states, professional organizations**,[4] and hospitals crafted documents—crisis standards of care (CSC)—to ensure that decisions promote transparency, trust, fairness, and equality.

3. Ezekiel J. Emanuel et. al, "Fair Allocation of Scarce Medical Resources in the Time of Covid-19", *New England Journal of Medicine*, 2020, https://www.nejm.org/doi/pdf/10.1056/NEJMsb2005114?articleTools=true

4. Crisis Standards of Care, A Systems Framework for Catastrophic Disaster Response: Volume 1: Introduction and CSC Framework, *The National Academies of Sciences, Engineering Medicine*, 2012, https://www.nap.edu/catalog/13351/crisis-standards-of-care-a-systems-framework-for-catastrophic-disaster

Model CSC protocols are designed so that patients are evaluated using the same, validated criteria, often offloading allocation decisions to a neutral **triage team**[5] not involved in an individual patient's care. This strategy supports thoughtful and objective deliberation but isn't always feasible for the time-sensitive

5. Douglas B. White et. al, "Allocation of Scarce Critical Care Resources During a Public Health Emergency", *University of Pittsburgh - Department of Critical Care Medicine*, 2020, https://ccm.pitt.edu/sites/default/files/UnivPittsburgh_ModelHospitalResourcePolicy_2020_04_15.pdf

situations emergency providers face. The ER physicians caring for Mrs. Johnson and Mr. Gass are confronted with **tough**,[6] unprecedented, and emotionally wrenching decisions and equally difficult conversations with patients and their families. And what if your CSC documents, despite

6. Sheri Fink, "The Hardest Questions Doctors May Face: Who Will Be Saved? Who Won't?", *The New York Times*, https://www.nytimes.com/2020/03/21/us/coronavirus-medical-rationing.html

their eloquence and detail, function more impressively as ideas on a page than as practical guidance for providers?

In the new COVID-19 world, "do no harm" serves as both a moral guidepost and a portal of entry for discussing the many clinical challenges of emergency care.

Being prepared demands probing the very idea of preparedness. Assuming that we are prepared can lead to a complacency that rocks our foundations when we face destabilizing new conditions. We have a responsibility to continually reevaluate and plan for the worst. How does emergency care as a practice achieve this?

Patients are generally the primary subject when assessing risks and benefits. What are their preferences? What are their desires and fears? But during COVID, operating conditions became more complex. **Frontline health workers**[7]

7. "CDC Underestimates Covid's Toll On Healthcare Workers - Experts Say", *Modern Healthcare*, https://www.modernhealthcare.com/safety-quality/cdc-underestimates-covids-toll-healthcare-workers-experts-say

cared for patients despite insufficient or inadequate personal protective equipment (PPE). Their safety entered into the calculus of "do no harm."

Personal risk isn't new to ER physicians and **nurses**.[8] Physical and verbal violence against healthcare workers was **increasing**[9] even before the pandemic. Despite a baseline tolerance for ER workplace violence, the risk due to COVID is different. Fulfilling our duty on the frontlines carries a statistically increased risk to self and family members due to the contagious nature of the coronavirus.

8. Megan Knowles, "Violence in-the-ER: 8 Ways Unresolved Healthcare Issues Harm Hospital Staff", *Becker's Hospital Review*, July 16th, 2020, https://www.beckershospitalreview.com/eds/violence-in-the-er-8-ways-unresolved-healthcare-issues-harm-hospital-staff.html

9. Ken Budd, "Rising violence in the emergency department", *AAMC*, February 24, 2020, https://www.aamc.org/news-insights/rising-violence-emergency-department

10. Ward Bauchner and Phil Fontanarosa, "Thinking of Risk in the Era of Covid-19", *JAMA Network*, 2020, https://jamanetwork.com/journals/jama/fullarticle/2767022

There is a difference between **risk assumed and risk imposed**.[10] Healthcare workers are used to accepting a measure of personal risk, but might draw the line on imposed risk to themselves or their families.

When it comes to cardiac arrest, most healthcare workers are hard-wired to respond to patients without considering risk. Look no further than the **California nurse**[11] who rushed to the bedside of a coding COVID patient without adequate PPE, only to die from the virus herself two weeks later. The code team responding to Mr. Gass includes physicians,

11. Soumya Karlamangla, "A Nurse Without an N95 Mask Raced in to Treat a 'Code Blue' Patient. She died 14 days later", *Los Angeles Times*, May 10 2020, https://www.latimes.com/california/story/2020-05-10/nurse-death-n95-covid-19-patients-coronavirus-hollywood-presbyterian

nurses, ER techs, and respiratory therapists. It requires procedures that expose multiple people to a potentially deadly virus and PPE that is in short supply. How do we factor in healthcare worker harm and levels of PPE scarcity when caring for patients?

In the new COVID-19 world, "do no harm" serves as both a moral guidepost and a portal of entry for discussing the many clinical challenges of emergency care. If a patient is in cardiac arrest, can healthcare providers take the precious minutes to don the appropriate PPE when time is critical to survival and outcomes? Should intubation and resuscitation be offered if a patient in cardiac arrest has a poor chance of survival? (And if not, what emergency measures should follow to ensure timely and compassionate alternative care pathways?) And what do you do with Mrs. Johnson? A chorus of insistent voices screams, "Intubate her!" But these voices change their tone when they realize that the only way for Mrs. Johnson to get a ventilator is to remove someone else with a worse prognosis. For many caring physicians (along with patients and communities), removing a patient from a life support machine because of someone else with a better prognosis based on clinical indicators is more than distressful, it's repugnant. It marks a sharp departure from existing medical norms.

In the examples cited, "do no harm" for one person may be perceived by another as medical-legal negligence. During the height of the pandemic, state statutes offered protections for clinicians. These protections were rolled back as crisis conditions eased, though some statutes remain in place regarding known COVID-19 patients. Unfortunately, emergency medicine is a practice of uncertainty. We might not know whether a patient actually has COVID when making clinical decisions and assessing risk.

These aren't esoteric concerns. The physician and poet **William Carlos Williams**[12] wrote that there are "no ideas but in things." Mrs. Johnson and Mr. Gass aren't real patients, but they serve as reminders that pandemic preparedness should never lose sight of how and why real people are impacted, including

12. "Williams Carlos Williams", *Poetry Foundation*, https://www.poetryfoundation.org/poets/william-carlos-williams

13. Clyde W. Yancy, "Covid-19 and African Americans", *JAMA Network*, 2020, https://jamanetwork.com/journals/jama/fullarticle/2764789

how people of color are ***disproportionately affected***[13] by COVID.

While some states are experiencing a pandemic pause, many others face **rising numbers**[14] of COVID cases. People aren't wearing masks. A **second wave** looms on the horizon. In addition to the infectious threat, there's a pandemic of mistrust as a nation **rages**[16] against years of police violence and systemic racism. And come the fall, hospitals must brace for seasonal influenza, and with that, possible hospital and ER crowding.

14. Madeline Holcombe, "12 States See Rising Covid-19 Hospitalizations as Arizona Asks Hospitals to Activate Emergency Plans", *CNN*, June 11, 2020, https://www.cnn.com/2020/06/10/health/us-coronavirus-wednesday/index.html

15. Len Strazewski, "Harvard epidemiologist: Beware COVID-19's second wave this fall", *AMA*, May 8, 2020, https://www.ama-assn.org/delivering-care/public-health/harvard-epidemiologist-beware-covid-19-s-second-wave-fall

16. Jessica Glenza, "George Floyd Killing: Peaceful Protests sweep America as Calls for Racial Justice Reach New Heights", *The Guardian*, June 7, 2020, https://www.theguardian.com/us-news/2020/jun/06/protests-george-floyd-black-lives-matter-saturday

How do we use "do no harm" when social distancing and cooperation are vital to minimizing transmission of the virus and large numbers of patients fill the waiting rooms? How do we function if the spaces in which we provide care present risk to patients and providers alike?

Since the ground has shifted, we must test the integrity of all the foundations of our moral and clinical beliefs and practices. Design presents pathways forward. It is a critical and logical partner for shaping our understanding of these moral spaces.

I reiterate: Emergency medicine is a practice of uncertainty. When providers don't know whether a patient is infected with SARS-CoV-2, how should they assess personal risk when making clinical decisions? If inadequate PPE continues to plague frontline providers, what constitutes

acceptable risks? And what are the options when that threshold isn't met? People's fear and anxiety about COVID-19 have kept many from going to hospitals for **much-needed**[17] medical treatment. How is it possible to do no harm in an environment where people are afraid to seek help? How can ERs overcome this narrative and create spaces and clinical practices to reassure patients that seeking care won't put their health at added risk?

17. Katie Hafner, "Fear of Covid-19 Leads Other Patients to Decline Critical Treatment", *The New York Times*, May 25, 2020, https://www.nytimes.com/2020/05/25/health/coronavirus-cancer-heart-treatment.html

Since the ground has shifted, we must test the integrity of all the foundations of our moral and clinical beliefs and practices. Design presents pathways forward. It is a critical and logical partner for shaping our understanding of these moral spaces. Design is a practice, the actual application or use of an idea, belief, or methods. Ethics shares the same root as *ethos*, the Greek word for character. For the Greeks, character is a function of the choices we make and the actions that emanate from those choices. Design and ethics share practical applications.

It has been my experience that artists are more comfortable working with uncertainty and probing discomfort. Their inquiry has roots in the messy particulars of the world. The pandemic is a reminder that medicine can't examine our cherished houses from above. We need to inspect the integrity of the rooms as the ground shifts and determine how well they're serving everyone who lives there.

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JAY BARUCH
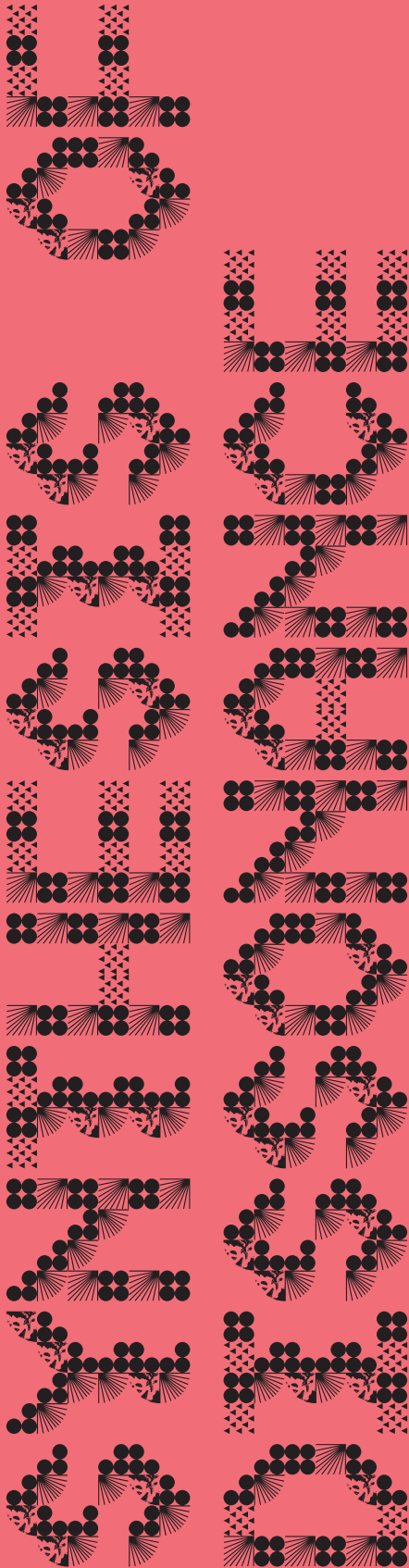
VISUALIZING DISSONANCE &
BALANCING THE FULCRUM
OF DISSONANCE

Visualizing Dissonance and Balancing the
Fulcrum of Dissonance present friction
points across elements in the content of
21st-century Structures of Care, Pathways
Towards Systems Change, and the
Compass Contributions. Discerning things
that are incongruous or in tension is gen-
erative. It allows us to ask what questions
need to be addressed, what questions are
not being asked, and what assumptions
are being made. Surfacing disagreement is
where the real work begins.

Content:

Elements from 21st-Century Structures of
Care Contributions

Elements from Dialogue on Pathways
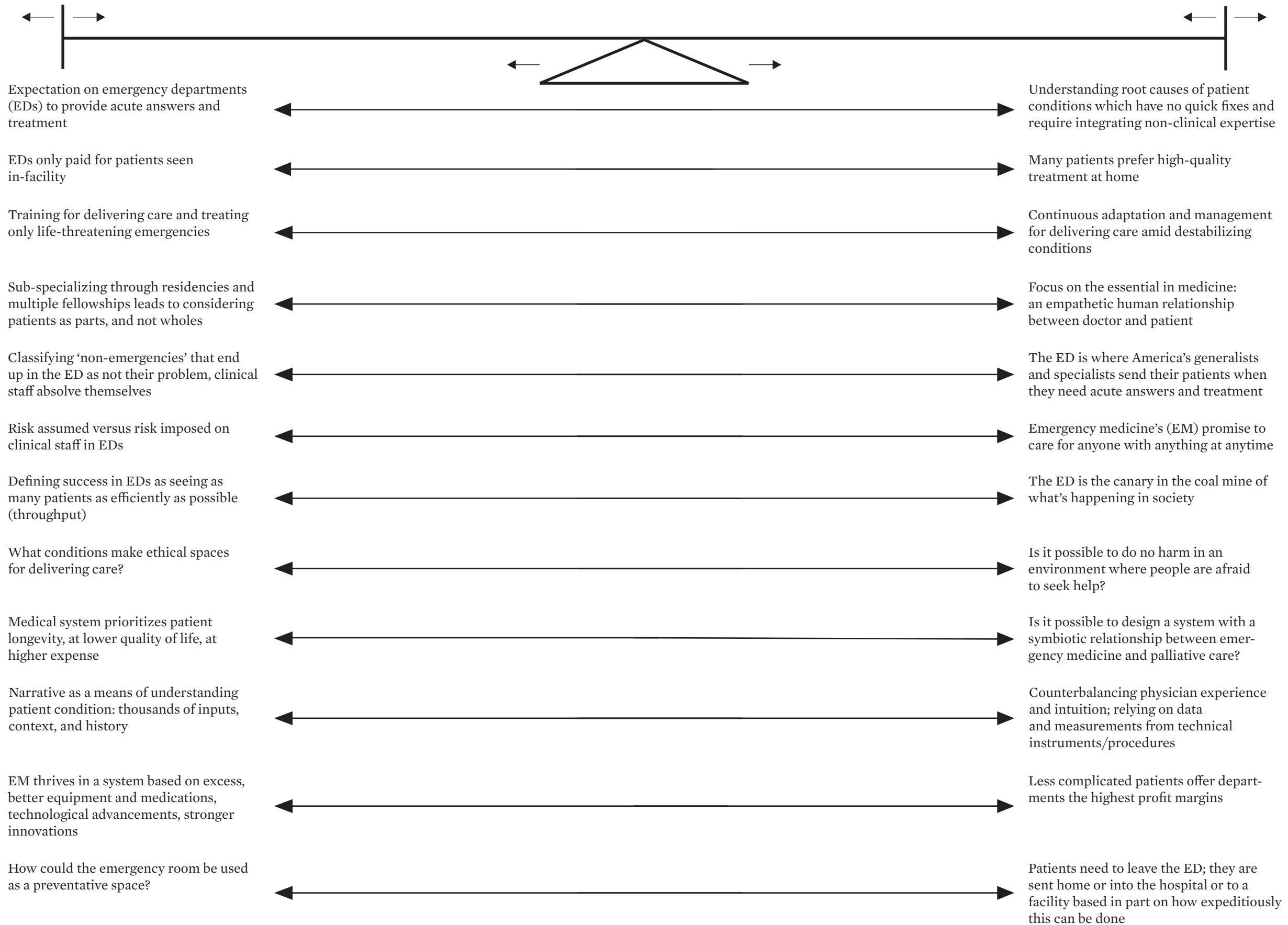Towards Systems Change in Emergency
Medicine

Elements from Compass Contributions

Left	Right
Expectation on emergency departments (EDs) to provide acute answers and treatment	Understanding root causes of patient conditions which have no quick fixes and require integrating non-clinical expertise
EDs only paid for patients seen in-facility	Many patients prefer high-quality treatment at home
Training for delivering care and treating only life-threatening emergencies	Continuous adaptation and management for delivering care amid destabilizing conditions
Sub-specializing through residencies and multiple fellowships leads to considering patients as parts, and not wholes	Focus on the essential in medicine: an empathetic human relationship between doctor and patient
Classifying 'non-emergencies' that end up in the ED as not their problem, clinical staff absolve themselves	The ED is where America's generalists and specialists send their patients when they need acute answers and treatment
Risk assumed versus risk imposed on clinical staff in EDs	Emergency medicine's (EM) promise to care for anyone with anything at anytime
Defining success in EDs as seeing as many patients as efficiently as possible (throughput)	The ED is the canary in the coal mine of what's happening in society
What conditions make ethical spaces for delivering care?	Is it possible to do no harm in an environment where people are afraid to seek help?
Medical system prioritizes patient longevity, at lower quality of life, at higher expense	Is it possible to design a system with a symbiotic relationship between emergency medicine and palliative care?
Narrative as a means of understanding patient condition: thousands of inputs, context, and history	Counterbalancing physician experience and intuition; relying on data and measurements from technical instruments/procedures
EM thrives in a system based on excess, better equipment and medications, technological advancements, stronger innovations	Less complicated patients offer departments the highest profit margins
How could the emergency room be used as a preventative space?	Patients need to leave the ED; they are sent home or into the hospital or to a facility based in part on how expeditiously this can be done

COMPASS PAIRING
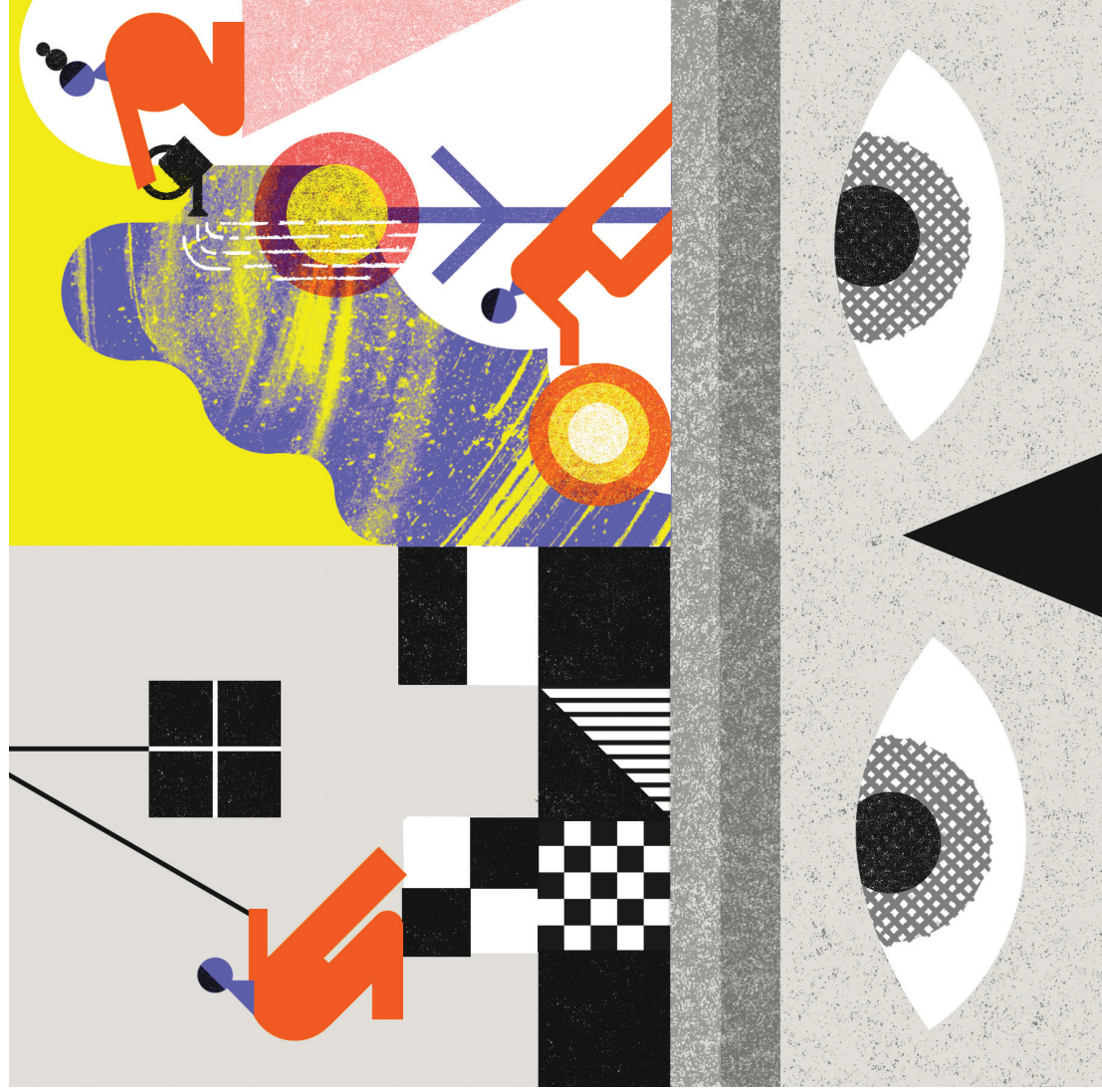## CULTURE & CONSTRUCTS

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Guiding Details:
property ownership, civil rights, is technology the answer? (Cedric Price)

Dan Hill (MA, BS)

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"Be slow. Let this distract you. Let it change how you think and how you see the world. Because the world is our work."
—**Aisha S. Ahmad**[1]

As I type—with the crackle of a Swedish Radio report describing protests here in Stockholm following the killing of George Floyd—we must confront the fact that African-Americans have died from COVID-19 **at almost three times the rate of white people**.[2] (In Kansas, Black residents are dying at seven times the rate of whites.) In the UK, Black, Asian and ethnic minority groups are **twice as likely to die from COVID-19**[3] compared to the general population. Of the first 15 people to die from the coronavirus in Stockholm, **six were Somali immigrants**.[4] Beyond race, those with respiratory illnesses—from living in proximity to **poor air quality**[5]—or with other **chronic illnesses**[6] due to other forms of structural inequality in our systems also seem to suffer disproportionately in "corona times."

These crises of climate, health, and social justice are intrinsically entwined. COVID-19 has shone a flashlight on the fissures in our patterns of living and working and caring for each other, revealing the deeper fractures beneath—just as the protests on city streets all over the world seem to exemplify all crises simultaneously.
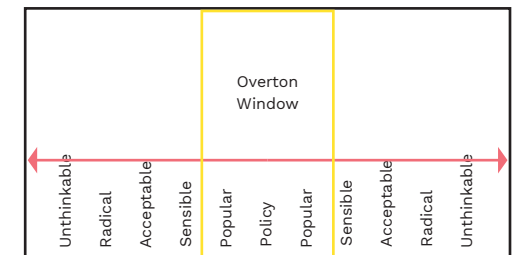
Yet our ability to approach them systematically—to see them as complex assemblages—is framed by the dominant mental models they fit within. As George Lakoff and Mark Johnson put it in ***Metaphors We Live By***[7]: "The concepts that govern our thoughts (also) govern our everyday functioning.… In the area of politics and economics, metaphors matter more because they constrain our lives."

Our range of possible action is articulated by the extent of our mental models, which are either springboards or cages. As a metaphor about mental models, the Overton Window seems relevant here, framing ideas that are deemed "acceptable" or "popular" at any given time. Smoking on airplanes used to be acceptable; now it is anathema. Wearing a seatbelt used to be an option at best; now it seems unthinkably risky not to do so. (Watch any episode of *Mad Men* for a handy reminder of how much the Overton Window can move—and within one generation.) Politicians tend to stay inside the window, for obvious reasons. Yet the window does move. Indeed it can be forced to move, as Rutger Bregman points out, by **"pushing on the edges. By being unreasonable, insufferable, and unrealistic."**[8]

1. Aisha S. Ahmad, "Why You Should Ignore All That Coronavirus-Inspired Productivity Pressure", *The Chronicle of Higher Education*, March 27, 2020 https://www.chronicle.com/article/Why-You-Should-Ignore-All-That/248366.

2. Ed Pilkinton, "Black Americans dying of Covid-19 at three times the rate of white people", *The Guardian*, 20 May 2020 https://www.theguardian.com/world/2020/may/20/black-americans-death-rate-covid-19-coronavirus.

3. Michelle Roberts, "Coronavirus: Risk of death is higher for ethnic minorities", *BBC*, 2 June 2020 https://www.bbc.com/news/health-52889106.

4. "Swedish Coronavirus deaths increase, with concerns about Somali-Swedes in particular", Sveriges Radio, 24 March 2020 https://sverigesradio.se/sida/artikel.aspx?programid=2054&artikel=7437072.

5. "How air pollution exacerbates Covid-19", *BBC*, 28 April 2020 https://www.bbc.com/future/article/20200427-how-air-pollution-exacerbates-covid-19.

6. David Heber, "Diabesity: The Tricky Devil in times of COVID-19", *Physician's Weekly*, May 8 2020 https://www.physiciansweekly.com/diabesity-the-tricky-devil-in-times-of-covid-19/.

7. George Lakoff and Mark Johnson, *Metaphors We Live By* (Chicago, IL, University of Chicago Press, 1980).

8. Rutger Bregman, "The neoliberal era is ending. What comes next?", The Correspondent, May 2020 https://thecorrespondent.com/466/the-neoliberal-era-is-ending-what-comes-next/8091775450-d0f74426.

Overton Window

Unthinkable | Radical | Acceptable | Sensible | Popular | Policy | Popular | Sensible | Acceptable | Radical | Unthinkable

redrawn by the Center for Complexity

To some extent the window is a container for ideology. In *Capital and Ideology*[9] Thomas Piketty explains, "I use 'ideology' in a positive and constructive sense to refer to a set of *a priori plausible* ideas and discourses describing how society should be structured." [my emphasis]

9. Thomas Piketty, *Capital and Ideology*, (Cambridge, Massachusetts: Harvard University Press, 2020).

That sense of "a priori plausible" also applies to orthodoxies around techniques for decision-making. Yet in a general context of complexity—and particularly in an unprecedented global lockdown/slowdown as protests over social justice grip cities worldwide—almost any sense of "a priori plausible" may smell a little fishy.

Imagine a set of such apparent certainties about practice: the centrality of economics, of user-centered design, of data-driven organizations; evidence-based policymaking; the importance of efficiency and value-for-money, of following the science, of deploying systems thinking, of investing in tech, of pursuing growth itself. The number of *Harvard Business Review* articles that have been written regarding these apparent virtues does not bear thinking about. Yet all can be hugely problematic in the way they are being interpreted or exerted, as is increasingly clear. We may need to be "unreasonable, insufferable, and unrealistic" about all of them.

It's actually easy to pick some of them off once you get in the habit. What do you do when you cannot use evidence because something hasn't been tried yet, and yet you still need to make policy? How can you "drive" an organization from merely the things you can capture data about? Why focus on systems thinking, trapped as it is with its cybernetic allusions to rational control and steering (noting, for instance, Tega Brain's assertion that "**the environment is not a system**"[10])?

10. Tega Brain, "The Environment is not a System", *Research Values* 2018, December 20 2017 https://researchvalues2018.wordpress.com/2017/12/20/tega-brain-the-environment-is-not-a-system/.

As for "following the science," as **David Runciman noted early on in the pandemic**,[11] "There's no such thing as simply doing what the science says. This is partly because science itself is political—how could it not be, when so much of it is the science of human behavior?"

11. David Runciman, "Too early or too late?", *London Review of Books*, Vol 42 - No 7, 2 April 2020 https://www.lrb.co.uk/the-paper/v42/n07/david-runciman/too-early-or-too-late.

Or turn to the utter centrality of economics to policy-making, politics, and apparently almost all decision-making in contemporary life. How economics managed to achieve this position may well be debated furiously in decades subsequent to ours, perhaps as much as it is largely unchallenged now. Broader perspectives—a wider environment, a range of identities, multiple species, the true complexity of culture, values beyond financial metrics—are lost once we approach a complex field with the blunt axe of contemporary economics.

In response to COVID-19, **the French sociologist Bruno Latour helpfully reminds us**,[12] "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 organizing life and deciding who is important and who is not important. If I could change one thing, it would be to get out of the system of production and instead build a political ecology."[12] In other words, it's not just the economy, stupid.

12. Jonathan Watts, "Bruno Latour: 'This is a global catastrophe that has come from within'", *The Guardian*, 6 June 2020 https://www.theguardian.com/world/2020/jun/06/bruno-latour-coronavirus-gaia-hypothesis-climate-crisis.

As we can see, events can change primary mental models—and rapidly. But equally, events spring from the soil available, and the way the ground has been prepared. **William H. Sewell, a scholar of the French Revolution, wrote**:[13]

13. William H. Sewell, Jr., "Historical Events as Transformations of Structures: Inventing Revolution at the Bastille", *Theory and Society*, Vol. 25, No. 6, December 1996 https://www.jstor.org/stable/657830?seq=1.

"Lumpiness, rather than smoothness, is the normal texture of historical temporality.... While the events are sometimes the culmination of processes long underway, events typically do more than carry out a rearrangement of practices made necessary by gradual and cumulative social change. Historical events tend to transform social relations in ways that could not be fully predicted from the gradual changes that may have made them possible."

Events and mental models are symbiotic: each changes the other in a somewhat "lumpy" ballet, occasionally with a sudden crescendo. Both COVID-19 and the protests in Minneapolis are responses to 400 years of human activity—in the former case, globalized environmental degradation; in the latter, systemic racism. Yet it is the sharp pointy end of these recent events that are accelerants for changing mental models, and thus the world around us.

But as the injustice in these two examples should make clear, we cannot simply sit on our hands and wait for events to occur. What about deeper patterns, which may only occasionally get rent asunder by such explosive events? These patterns are rather more mundane, and are so "a priori plausible" that they are rarely questioned, despite the many ways in which they have degraded the soil.

How do we tune our cultures of decision-making so that they benefit from actively incorporating uncertainty about fundamental assumptions, and prepare the ground for systemic change?

Chief amongst these may be the mental model of growth itself. Trump promised to grow the US economy by 6%. Sajid Javid, Boris Johnson's first chancellor (now gone), promised 2.8% growth in GDP per year, clinging to a relatively low

bar of the average for 50 years after the Second World War. (Not sure how these figures are going, guys? Someone should check.) Growth underpins almost all (over)developed and developing nations.

And to be clear, this is a particular form of growth, ideally predicated on speed, scale, and endlessly replenishing—apparently irrespective of finite environmental and social limits. It is therefore increasingly propped up on debt. This, in turn, is predicated on the mental model of the Great Acceleration, a growth pattern running from the mid-20th century and assumed to be continuing today, against which that debt is offset.

14. "Living Planet Report 2018", *World Wide Fund For Nature*, https://wwf.panda.org/knowledge_hub/all_publications/living_planet_report_2018/.

Even the World Wildlife Foundation's well-intentioned *Living Planet Report*[14] starts with this context and its many familiar themes: rising population growth, the rise of megacities, rapid technological innovation, increased life expectancy, growth in GDP per person, and so on.

Yet Oxford University Professor Danny Dorling takes that puzzle apart piece by piece in his recent book *Slowdown: The End of the Great Acceleration and Why It's Good for the Planet, the Economy, and Our Lives*.[15] Instead, he claims that the Great Acceleration ended some time ago, with the true patterns of our age characterized by deceleration rather than acceleration.

15. Danny Dorling, *Slowdown: The End of the Great Acceleration—and Why It's Good for the Planet, the Economy, and Our Lives*, New Haven, CT, Yale University Press 2020 http://www.dannydorling.org/books/SLOWDOWN/.

If you have not checked your assumptions for a while, encountering Dorling's book may be akin to stepping into the ring with a peak-years Mike Tyson, but having never worn a boxing glove. Graph after graph, datapoint after datapoint, story after story—each clobbers you around the head, repeatedly battering home a core message: that despite what we tell ourselves, the
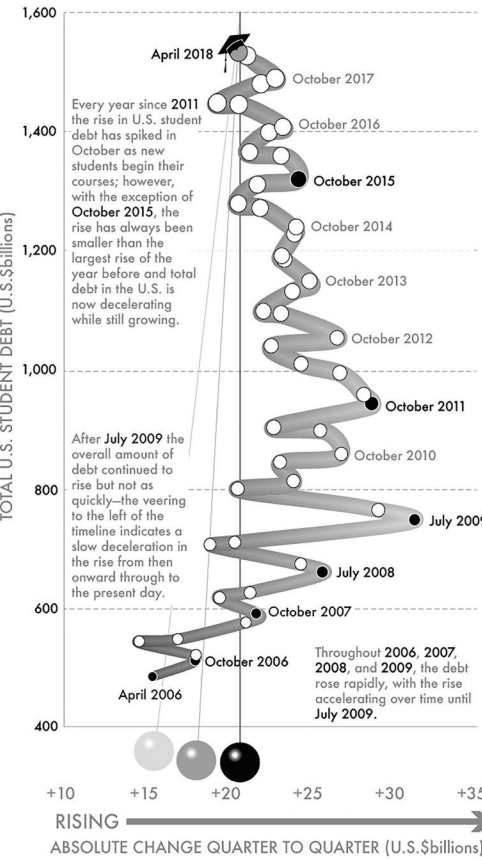
world is slowing down, and has been for a while, across almost every single measure that we think is moving in the opposite manner. It's a far more enjoyable book than the Tyson analogy suggests, but the effect is the same; a startling wake-up call, after which you see the world through very different eyes, and reassess your "a priori plausible" plans.

Actually, as Mike Tyson memorably said, "Everyone has a plan until you get punched in the mouth." So, if your plan was to thrive in the conditions of the Great Acceleration by pursuing GDP growth, Dorling just punched you in the mouth. Metaphorically, that is.

Dorling uses intriguing "phase portrait" graphs to plot both absolute values and crucially, the rate of change, conveying both at the same time. Global population,
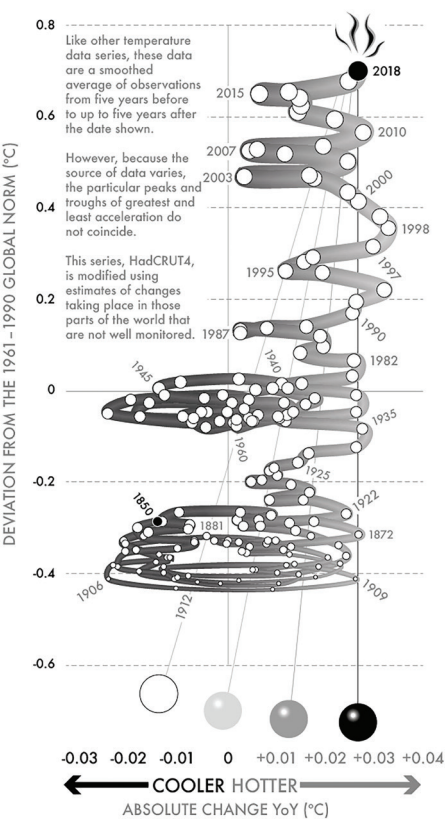
phase portrait diagrams from *Slowdown* by Danny Dorling fig. 2 average world temperature (MET office), 1850–2018

phase portrait diagrams from *Slowdown* by Danny Dorling fig. 1 US student debt, 2006–18

GDP per capita, life expectancy, fertility rates, house prices, productivity, mega-city growth, technological development, even the growth in average heights—each is in its deceleration phase, with "the change in the change" the key variable. Even American student debt—an element we thought as apparently boundless as carbon dioxide—is slowing down.

Unfortunately, Dorling also points out that the only key outliers are CO2 emissions and global temperature, both of which continue to rise—and rapidly. Yet in a sense that, too, fits into the broader message, as even in allegedly progressive European countries researchers are unable to find a way of reconciling economic growth with declining emissions—at least at the rate we need them to decline.

In broader social and environmental terms, as Dorling makes clear, the period

of Acceleration was not so Great, producing widespread wars, divided societies, massive inequality, ravaged ecosystems, climate crises, and fundamentally reduced resilience—as COVID-19 continues to reveal.

Yet slowing down by taking our foot off the gas (a handy metaphor in this context) undercuts the entire enterprise. Dorling suggests that this does not mean the end of capitalism, just of that particularly virulent strain with the sensibility of a Rottweiler straining at the leash in pursuit of endless growth: "Without both population growth and material economic growth, capitalism—the economic system we have become so used to that we cannot imagine it ending—transforms into something else. Something far more stable and sensible."

Last weekend the CEO of Kone, one of Finland's biggest corporations and the world's second largest producer of elevators, suggested that it was **effectively pointless pursuing economic growth in the midst of a climate crisis, if we can't keep the planet viable**.[16] (In

16. "Koneen pääomistaja Antti Herlin näkee, että koronakriisi luo mahdollisuuden myös parempaan tulevaisuuteen – ja lähettää kuuden kohdan viestin Sanna Marinin hallitukselle", *Helsingin Sanomat*, 7 June 2020 https://www.hs.fi/talous/art-2000006532778.html.

terms of metaphors, it's almost too delicious to note that this is from the boss of a company almost entirely predicated on upwards growth.)

Yet beyond the possibility of finally addressing the climate crisis, the slowdown could also unlock genuine social progress. In fact, it is hugely driven by various forms of social progress, not least "**the choices that women first made once they had won just a little of the freedom to work, vote, and plan the size of their families.**"[17]

This indicates the slowdown's true positive potential—for Dorling is optimistic about it. He states that a "well-ordered affluent society slows down" and the wealthier countries slowing down first

17. Dorling, ibid.

will enable poorer countries to catch up, ultimately levelling out across the board. He points to income inequality "**now falling in more countries than it is rising**."[18]

18. Dorling, ibid.

Interestingly, the flurry of research in and around COVID-19 indicates a consonance between slowdown messaging and emerging consensus. There are now **numerous surveys**[19] indicating that, at this point at least, many do not wish to "return" to what was there before, to "go back to normal." (Similarly, **work by Data for Progress**[20] indicates that American voters actually want a green/clean New Deal.)

19. Ash Singleton, "Brits see cleaner air, stronger social bonds and changing food habits amid lockdown", *Royal Society of Arts*, 17 April 2020 https://www.thersa.org/about-us/media/2019/brits-see-cleaner-air-stronger-social-bonds-and-changing-food-habits-amid-lockdown.

20.Sean McElwee, Julian NoiseCat and John Ray, "The coronavirus pandemic has made voters more supportive of the Green New Deal", *Data for Progress*, May 5 2020 https://www.dataforprogress.org/blog/5/5/coronavirus-makes-voters-support-gnd.

Events like COVID-19, alongside others, are a forcing function for assessing mental models, which can provoke awkward questions in the unlikeliest of places.

The editorial board at ***The Financial Times***[21] produced the following passage recently, which would have been entirely impossible to imagine only a few months ago: "Radical reforms—reversing the prevailing policy direction of the last four decades—will need to be put on the table. Governments will have to accept a more active role in the economy. They must see public services as investments rather than liabilities, and look for ways to make labour markets less insecure. Redistribution will again be on the agenda; the privileges of the elderly and wealthy in question. Policies until recently considered eccentric, such as basic income and wealth taxes, will have to be in the mix."

21. "Virus lays bare the frailty of the social contract", *Financial Times*, 3 April 2020 https://www.ft.com/content/7ef-f769a-74dd-11ea-95fe-fcd274e-920ca

This appeared in a paper that has been one of the leading voices of neoliberal financialization since, oh 1888, and literally prints a glossy supplement called "How To Spend It." (And they're not talking about how to spend universal basic income.) In recent years, the rate of questions about GDP growth appears to have grown faster than GDP itself. In 2019 more than 11,000 scientists from over 150 countries **published an article**[22] stating that: "Our goals need to shift from GDP growth and the pursuit of affluence toward sustaining ecosystems and improving human wellbeing by prioritizing basic needs and reducing inequality."

22. William J Ripple and Christopher Wolf, "World Scientists' Warning of a Climate Emergency", *BioScience*, Volume 70, Issue 1, January 2020, Pages 8–12, https://doi.org/10.1093/biosci/biz088.

Yet, perhaps more extraordinarily, on May 22, 2020 the Chinese government—for the first time in decades—did not set a target for GDP growth, with the government instead giving "priority to stabilising employment and ensuring living standards."

"We have not set a specific target for economic growth this year. This is because our country will face some factors that are difficult to predict in its development due to the great uncertainty regarding the Covid-19 pandemic and the world economic and trade environment."
—**Chinese Premier Li Keqiang opening the National People's Congress** [23]

23. Helen Davidson and Lily Kuo, "China abandons GDP target for first time in decades amid 'great uncertainty' of virus", *The Guardian*, 22 May 2020 https://www.theguardian.com/world/2020/may/22/china-abandons-gdp-target-for-first-time-in-years-amid-great-uncertainty-of-virus.

In 2019 New Zealand repositioned its budget around wellbeing rather than GDP, with the governments of Scotland and Iceland indicating they would follow suit. But with all due respect, the combined population of those fine countries is less than that of Wuhan. For China to make this step—its hand forced by "uncertainty"—is interesting, to say the least.

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Each day seems to bring a fresh challenge to those a priori mental models. A couple of weeks ago, videos started circulating of **thousands of Uber/Jump shared bikes being destroyed en masse at a recycling plant**.[24]

24. Andrew J. Hawkins, "Uber is scrapping tens of thousands of Jump bikes during a nationwide bike shortage", The Verge, 27 May 2020 https://www.theverge.com/2020/5/27/21271927/uber-jump-bike-scooter-scrap-photos-video-lime-junkyard.

They were not surplus to requirements, but rather surplus to Uber's "blitzscaling" growth model, which values constant upgrades over resilience. (Only a culture as crass as that of Silicon Valley would appropriate the word "blitz" for a business strategy.) It was hard to watch, particularly at a time when *The New York Times* reported that the US is facing "a severe bike shortage" due to the disruption in global supply chains, and with key workers all over the country needing bikes to get to work whilst public transit is down. A few days before a *Bloomberg CityLab* headline read "**In a Global Health Emergency, the Bicycle Shines**."[25] Yet these Jump bikes shone only through the tangle of metal and plastic at the dump, their pristine red livery indicating how young and reusable they were.

25. Hawkins, J. Andrew, "Uber is scrapping tens of thousands of Jump bikes during a nationwide bike shortage", *The Verge*, 27 May 2020 https://www.theverge.com/2020/5/27/21271927/uber-jump-bike-scooter-scrap-photos-video-lime-junkyard.

"An amazing COVID e-bike program could've done so much good and instead we have horrific images of bikes being eaten by the Claw at the dump. It's a shameful nightmare."
— **former JUMP employee**[26]

26. Aaron Gordon, "A Shameful Nightmare: Truckloads of Perfectly Good JUMP Bikes Are Being Shredded", *Vice Motherboard*, 28 May 2020 https://www.vice.com/en_uk/article/jgx8jb/a-shameful-nightmare-truckloads-of-perfectly-good-jump-bikes-are-being-shredded.

As I've written elsewhere,[27] judged purely through the reductive lens of traditional user-centred design processes, systems such as Uber and Jump appear to be well-designed. One cannot blame an interaction designer working on refining the user

27. Dan Hill, "The city is my homescreen", *Medium*, 2 February 2019 https://link.medium.com/i1wpRyNod7.

experience of the Jump app for this wider breakdown. She is only following orders, as it were. Yet if design more generally—almost half a century after Papanek's shattering intervention in ***Design for the Real World***[28]—still has little grip on the growth dynamics that surround and value that user experience, we have failed as a discipline, just as economics has. Watching metal jaws crush those perfectly good bikes brings that home in the most visceral of terms. Uber's stock market value is not intrinsically tied to the movements of those jaws; nor is the alleged value or design; nor is GDP, which in fact benefits from each transaction implied in this sorry episode.

28. Victor Papanek, *Design for the Real World: Human Ecology and Social Change* (New York, Pantheon Books 1971).

That single short video has all these mental models in play: valuing growth-obsessed startups and "market cap" over real world outcomes; practices aimed at market domination; a design practice centred on individualistic user experience rather than broader resilience; implicitly valuing obsolescence and "creative destruction" over repair and reuse; the tone-deaf ignorance of the tech sector in terms of the wider social context and needs; and so on.

So what if we slow down? What then? Ecological economists tend towards some consistent answers here: **shorten the work week**[29] (which New Zealand Prime Minister Jacinda Ardern just field-tested with a casual aside); create a job guarantee; retrain workers for clean industries; deploy some form of universal basic income, as is currently being trialled worldwide, albeit inadvertently (due to the pandemic).

29. Eleanor Ainge, "Jacinda Ardern flags four-day working week as way to rebuild New Zealand after Covid-19", *The Guardian*, 20 May 2020 https://www.theguardian.com/world/2020/may/20/jacinda-ardern-flags-four-day-working-week-as-way-to-rebuild-new-zealand-after-covid-19.

All of these "previously impossible" ideas are now at least within sight, visible through the smudged glass of the Overton Window. Wellbeing increases as people work

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less, reducing spiraling healthcare costs. Actually implementing an effective tax would cover much of the financial requirement. (**The 400 richest US Americans pay a lower tax rate than every single other income group, from plumbers to cleaners to nurses to retirees**,[30] **just as an average member of the richest 1% now receives more than eighty times as much income, and owns 950 times as much wealth, as the average member of the bottom 50%**.[31])

30. Bregman, Ibid.

31. Geoff Mann, "The Inequality Engine", *London Review of Books*, Vol 42 - No.11, 4 June 2020 https://www.lrb.co.uk/the-paper/v42/n11/geoff-mann/the-inequality-engine.

There are also other forms of structural inequality preventing change: the International Institute for Sustainable Development found that **redirecting only 10–30% of the world's existing fossil fuel subsidies could entirely pay for a global transition to clean energy**.[32] Slowing down, as **I wrote elsewhere**,[33] could enable a far more equitable and resilient distribution of work and value across spaces, times, and cultures.

32. Damian Carrington, "Just 10% of fossil fuel subsidy cash 'could pay for green transition'", *The Guardian*, 1 August 2019 https://www.theguardian.com/environment/2019/aug/01/fossil-fuel-subsidy-cash-pay-green-energy-transition.

33. Dan Hill, "From lockdown to slowdown", *Medium*, 22 April 2020 https://link.medium.com/GLvYw3ypd7.

Yet the World Bank can only see a COVID-fueled reduction in GDP as a meltdown rather than a slowdown, throwing **60 million people into poverty**.[34] Noting the vast wealth disparities above, there is no objective reason that a reduction in the rate of growth would lead to poverty at all—unless your mental model is only predicated on endless growth.

34. Richard Partington, "World Bank warns Covid-19 pandemic risks dramatic rise in poverty", *The Guardian*, 8 June 2020 https://www.theguardian.com/business/2020/jun/08/world-bank-warns-covid-19-pandemic-risks-dramatic-rise-in-poverty.

The embedded nature of those mental models means that the idea of a purposeful slowdown will have to prove itself many times over, whereas the inequality baked into current systems remains effectively unchallenged. We do

not just get to implement these things, no matter how apparently rational they may seem. My "rational" may be another person's "dangerously radical" (or vice versa). Geoff Mann notes that the phrase "common sense" is really a definition of "ideology... [or] the relationships or institutions that are taken as given, natural or necessary. Every time someone says 'of course' or 'realistically' they touch on it."

As we can see this week, this month, this year, it's the lightning rod of events—and thus changed behaviours—that tends to change attitudes, rather than the other way around. It is difficult to motivate people to take a rational planned approach to an apparently radical alternative given their "a priori plausibles." The rapid progress being made in Minneapolis, Bristol—on retrofitted streets all over the world—is wonderful. But it took awful events to make it happen rather than the careful deliberation of design and policy. As Mann continues, "ideology is too sedimented to be susceptible to design." This should give us significant pause for thought.

However, the Overton Window has been prised open nonetheless—albeit by what Solzhenitsyn called "**the pitiless crowbar of events**"[35]—and a flock of alternative ideas has flown straight in. Many of them will be thrown back out, as the window closes again soon. In the midst of the first wave, the UK briefly followed Finland's lauded Housing First strategy for homelessness, just as the conservative Australian government implemented free childcare. Both were only temporary adjustments. Yet some ideas may have made it through permanently, whilst those that were on the books even briefly—giving homeless people a home, giving children childcare—will have left a few marks on the furniture either way.

Sorting through them consciously involves the difference between strategy

35. Alexandr Solzhenitsyn, "A World Split Apart: Harvard Commencement Address 1978", *The Aleksandr Solzhenitsyn Center*, https://www.solzhenitsyncenter.org/a-world-split-apart.

versus tactics. Tarkatower describes tactics as what you do when you know what to do, whereas strategy is what you do when you don't know what to do. Many of those things bundled through the half-open window were tactical—of course we ground airplanes, work from home, shop more carefully, revalue public health systems. The choice as to what remains, though—what becomes new "sedimented ideology"—is strategic.

We can create vehicles that allow us to open up to uncertainty and ambiguity, focus our efforts on learning by doing and work through that sorting—shifting from tactical to strategic responses. This would be tilling the soil effectively, so that—after Milton Friedman's famous phrase on crises—the ideas that spring forth and burst in through the window are those "lying around" on the ground. This may be the biggest mental model challenge of all. How do we tune our cultures of decision-making so that they benefit from actively incorporating uncertainty about fundamental assumptions, and prepare the ground for systemic change?

A month ago, the Dutch prime minister Mark Rutte remarked that in a crisis, "**you have to make 100 percent of the decisions with 50 percent of the knowledge.**"[36] This is not only the case in a crisis, of course. It is only in the past few decades that we have been broadly aware that it is our actions that have created the climate crisis (awkwardly, those decades being the ones in which the damage was truly done). Before that, as Dorling points out, we might reasonably have argued that we didn't know that our actions were quite so destructive; it might not be completely true, but it would be possible to say that we didn't have all the data.

Anna Tsing writes about this in the context of multispecies landscapes,[37] which she sees as "products

36. Zack Newmark, "Everyone stay home if sick, many events banned, Dutch government tights coronavirus rules", *NL Times*, 12 March 2020 https://nltimes.nl/2020/03/12/everyone-stay-home-sick-many-events-banned-dutch-government-tightens-coronavirus-rules.

of unintentional design, that is, the overlapping world-making activities of many agents—human and not human. The design is clear in the landscape's ecosystem. But none of the agents have planned this effect. Humans join others in making landscapes of unintentional design."

37. 37. Anna Lowenhaupt Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*, (Princeton, NJ: Princeton University Press 2017)

We did not plan for various outcomes from COVID—for clearer streets and skies, increased social interaction and a deeper valuing of public healthcare systems. This is also an unintentional design in which we have played a part. But we did prepare the ground for it.

Milica Begovic of Denmark's UNDP Innovation[38] describes how their activities are designed to incorporate this sense of uncertainty, building learning through exploration and experimentation:
"In this optic, a development intervention that wants to bring about change, say in agricultural systems, is better seen as a mechanism that gradually resolves/explores uncertainties about system dynamics through learning and adaptation and ongoing sense-making, rather than a series of 'fixes' to a well identified set of problems. This might reveal that an agricultural system is a symptom of a larger set of dynamics playing out in the economic system, thereby opening up a wider set of entry points and policy options to 'play' with."

38. Milica Begovic, "Strategic innovation funding in times of radical uncertainty", *Medium*, 21 May 2020 https://link.medium.com/Hi5sc12pd7.

This is the approach we're taking with some of our innovation practices in Sweden, building such vehicles within "place-based missions" through which we can explore new forms of collaboration and experimentation to uncover and articulate the interdependencies between people and place, value and values.

The architect **Lori Brown recently wrote**[39] about her own experience of the COVID-instigated lockdown/slowdown in the context of her work with feminist geography and border politics. She suggests a broader ethics of care—for people, place and environment—rejecting the false separation of humans and nonhumans as well as the artificial structures and models it has led to, most obviously in the case of national borders that, after all, mean as little to a bird as they do to a virus. She concludes: "My hope is that during this time of slowness we presently inhabit, within the quarantined-being-in-the-world selves we maintain in order to reduce the virus's spread and protect others, this relational existence provides a way to more fully recognize our inherent interdependency and coexistence. This interdependency must become central to what actions will follow."

39. Lori Brown, "Transformational Slowness", *The Site Magazine*, May 2020 https://www.thesitemagazine.com/lori-brown.

The endless pursuit of rapid GDP growth can be seen as an utterly false goal in this light, a mental model so inappropriate that it is akin to trying to strap a Harley Davidson engine to a sparrow.

The nature of the transition from lockdown to slowdown may be key. Compared to the fossil-fuel powered winner-takes-all model of late capitalism—with its endlessly divisive politics—a broad appreciation that we are in slowdown (whether we like it or not) takes the pressure off.

Dorling suggests that otherwise we are working against the grain. It is as if some greater force—some invisible hand—is guiding not markets but dynamics themselves. We have tried to resist this—or at least have not woken up to this worldview and recalibrated our machinery accordingly. But that change has

actually been driven by the hard work of social progress, not least in women's rights (as discussed earlier). There is also clearly increasing awareness that we are reaching the limits of our finite resources, whether in terms of biodiversity or debt. We are implicitly slowing down as "there is no alternative," to play back Margaret Thatcher's awful phrase against her. Perhaps if we explicitly slowed down, we might enable forward movement on the things that matter.

In that regard, Dorling speculates that what could be left is something akin to Japan ("the first large country in the world to slow down") or perhaps other ageing countries like Sweden and Finland, which are also arguably in what he calls their "settling" phase. Dorling notes with relish that "Japanification" scares the pants off people like those on *The Financial Times* editorial board. Yet he also points out that there has been steady social progress in Japan around women's rights, migration, race, class and other matters (so that the daughter of a modest academic can now marry into the royal family—again, unthinkable a few decades ago). Japan clearly has a long way to go on these issues (don't we all, relatively speaking?), but this social progress happened precisely in the years that Japanification started occurring, whilst its economy and population growth were rapidly slowing.

If being the world's wealthiest nation means this utter breakdown—[in terms of] systematic racism and dysfunctional public health—shouldn't we at least consider slowing down to discuss in a slightly calmer mode what the hell is going on?

In English the phrase "settling down" is, of course, partly pejorative, as if all the gloriously romantic and heroic "raging against the dying of the light" associated

with idealistic youth has been discarded in favour of a meek and conservative retirement. Yet, as we can see, phenomena like COVID-19 and Black Lives Matter are not about "settling down" in that sense at all. They are not really about vicarious "engagement" on Twitter or cloistered academic debate.

Instead, as **Timothy Snyder writes in On Tyranny**,[40] "Protest can be organised through social media, but nothing is real that does not end on the streets." In slowdown states like Japan, Sweden, and Finland, we end up on the streets, too, from time to time, and the social progress there is absolutely necessary—more so than outsiders of those countries realise. Yet given the context, slowdown may generally be a rather more careful, deliberate process as many are beginning to realise that that's what we are in. In the US the battle is fiercer because the place is more fundamentally broken, more obviously in crisis.

40. Timothy Snyder, *On Tyranny: Twenty Lessons from the Twentieth Century*, (New York: Tim Duggan Books, 2017).

We started with mental models and metaphors. In *The New York Review*, Gary Younge writes that "**the killing of George Floyd stands not just as a murder but as a metaphor... it exemplifies a democracy in crisis.**"[41]

41. 41. Gary Younge, "What Black America Means to Europe", *New York Review of Books*, 6 June 2020 https://www.nybooks.com/daily/2020/06/06/what-black-america-means-to-europe/.

And so this is where we do not slow down. There is immense social and environmental progress to make, and a need to do so rapidly. That killing and many others make this horrifically clear, set as they are against a backdrop of Black people suffering the largest number of COVID-19 deaths by far and an attempt to go backwards on environmental standards whilst producing among the largest total and per capita carbon emissions ever put on record. The endless pursuit of rapid GDP growth can be seen as an utterly false goal

in this light, a mental model so inappropriate that it is akin to trying to strap a Harley Davidson engine to a sparrow. (This crisis can be seen in other aspects, too, as the US achieves high GDP per capita numbers, yet performs far worse on the indices that matter—education, healthcare, life expectancy, childhood mortality—than many countries with less than half the GDP per capita.)

If being the world's wealthiest nation means this utter breakdown—in fact, if it means actually creating the conditions of systematic racism and dysfunctional public health—shouldn't we at least consider slowing down to discuss in a slightly calmer mode what the hell is going on? Use rage to bring inequality to our collective attention in ways that can no longer be ignored. But unless we finally cool the economic and political engines that produce that inequality, our protests will struggle to engender meaningful system change, just as we will continue to trigger pandemics and extreme weather.

"Slowing down is a very good thing— and the alternative is unimaginably bad. If we do not slow down, there is no escape from imminent disaster. We would wreck our very home, the planet we live on. We need to slow down because we have nowhere else to speed to without catastrophic consequences."[42]
—**Danny Dorling**

42. Dorling, ibid.

But perhaps this will be the most challenging of narratives to develop in a world generally attuned to value the exact opposite. Can we imagine a president stating they want the economy to slow down? To extol the more complex relational virtues of care over simplistic but measurable efficiency and market cap? Or promote living standards higher than GDP growth? Or to pin their decision-making on "mechanisms that explore uncertainty" rather than maintaining a pretense of certainty?

Right now—halfway through 2020, a year that seems determined to check off every one of our more dystopian predictions in one go—it's hard to imagine the current POTUS saying anything of value, never mind getting behind the concept of slowdown, and suggesting that we might "Make America Slow Again, Make America Care Again, Make America Fair Again..."

No matter how we reach that understanding, we must do so, whether prompted by the relentless arrays of data, graphs, and anecdotes, or the fierce and righteous battles on the streets in Minneapolis, or by the deep reflective quiet to be found in the momentary darkness at midnight outside my window. The darkness, yes, and the ambiguity and the uncertainty—but reach that understanding knowing that it is more likely to lead us into the daylight, tilling the soil for ways of thinking and practice that are actually more in tune with our time, and better times to come.

"Month by month the roads smelt more strongly of petrol, and were more difficult to cross, and human beings heard each other speak with greater difficulty, breathed less of the air, and saw less of the sky. Nature withdrew: the leaves were falling by mid-summer; the sun shone through dirt with an admired obscurity."
—**E.M. Forster**, *Howards End* (1910)[43]

43. EM Forster, *Howards End*, (Penguin Random House, 1910).

"A silver lining, if there has to be one, is that only a few days after lockdown, I could see the stars again for the first time in years. My city is at a standstill and the smog has cleared. The sky at night is a revelation."
– **Wang Xiuying in Wuhan, 2020**[44]

44. Wang Xiuying, "#coronasomnia," *London Review of Books* - Vol. 42 No. 8, 16 April 2020 https://www.lrb.co.uk/the-paper/v42/n08/wang-xiuying/diary.

COMPASS PAIRING
COLLAPSE & (RE)CONSTRUCT

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Guiding Details:
from parts to wholes, from hierarchical / fragmented / linear institutions / organizations to organizations able to deal with complex, interconnected, ambiguous challenges

ON THE OTHER SIDE OF COVID-19
PUNITHA DHAVARAJA BALAMURUGAN
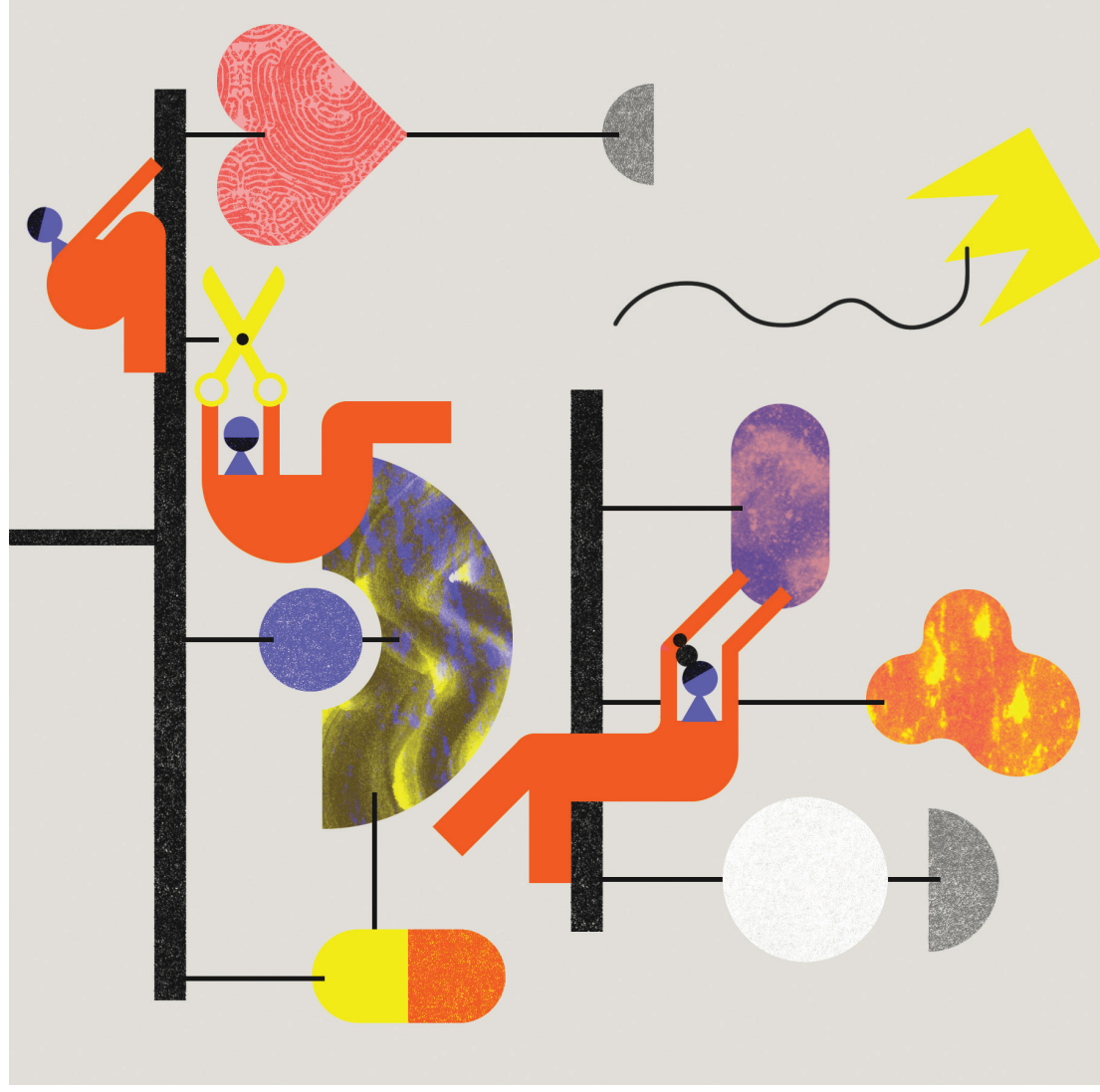
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How do we recognise the right questions that hold answers for our institutions' survival?

In future history, the human organisations that perished during the COVID-19 crisis, the ones that survived in their original form and the ones that reemerged in alternate singular or pluralistic forms will be the sources of insight into the dynamics of a resurrection post-crisis. The intent of this essay is to provide one possible framework on how to search for such insights whenever the time is ripe for such an exercise. How do we dissect, test, improve upon or integrate new insights to achieve a holistic and—most importantly—actionable framework?

THE CRISIS

Crisis is a state possible only for complex systems. We don't experience a plumbing "crisis" at home in the same way that we experience a financial, relationship or health crisis. The characteristics that define a crisis are:

– Its occurrence couldn't have been foreseen quickly enough to be prepared for it.

– There is uncertainty about the survival of a system over a period of time.

The COVID-19 pandemic, which we are in the midst of right now, has been declared a Public Health Emergency of International Concern (PHEIC) by the World Health Organization (WHO). By dealing with it for half a year and based on our past brushes with similar viruses (causing common colds, SARS and MERS), we have gathered some necessary knowledge to create scientifically viable models and predict a few certainties.

With a mortality rate of 5.92%, COVID doesn't adversely affect humanity's chances of survival. We also do not see humanity driving the causal virus SARS-CoV-2 to extinction anytime in the near future, even with herd immunity and a vaccine. We are looking at a future in which 82% of the human population is infected. Only then will our population achieve enough herd immunity to **limit the rate of spread and severity of the disease**.[1] At that point, along with a vaccine to expedite the outcome, the pandemic would be reduced to a state of an endemic—a homeostatic stage where there is a constant but manageable number of infections within a certain section of the population, just like with seasonal flu. That's where the certainties run out.

1. Sarah Cobey, "Modeling infectious disease dynamics", Department of Ecology & Evolution, University of Chicago, Chicago, IL, USA, *Science*, May 15, 2020 https://science.sciencemag.org/content/368/6492/713.full

As for the uncertainties, the current Intrinsic Reproductive Number (which assesses the number of people infected by one person who is transmitting the virus) for this novel coronavirus ranges from as high as 5.7 to as low as 1.4. We are at **too early a stage**[2] to know the seasonal patterns in transmissions, the durability of immunity of previously infected or vaccinated individuals, and the time required to ensure the availability of a potent and safe vaccine.

2. Cobey, ibid.

The pandemic itself is not a crisis. We know that humanity will survive it. The primary crisis has its roots in our healthcare systems. To be more precise, given the uncertainties and unknowns about the disease and its pathogen, our healthcare systems are inundated with way more patients than they can effectively deal with without collapsing. This passes on the crisis to administrative systems to introduce measures to bring down the transmission rate of the virus without causing the collapse of other critical organisational systems they are supposed to keep running—commerce, law and order, food security and the like.

In today's globally connected world, there is no precedent for effective standard operating procedures for administrative systems to achieve that objective. The measures—ranging from partial to complete restriction of movement of individuals—were neither monitored nor managed effectively and therefore

3. Imperial College COVID-19 Response Team, 'Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand,' March 16, 2020 https://www.imperial.ac.uk/media/imperial-college/medicine/sph/ide/gida-fellowships/Imperial-College-COVID19-NPI-modelling-16-03-2020.pdf

could not prevent the other organisational systems from entering into a crisis.[3] In the preceding few months we've witnessed the symptoms of several systemic collapses, including **bankruptcy of commercial enterprises**,[4] **accelerated tragedies of socio-economic inequalities**[5] and **entire countries staring into a dire future**.[6]

THE URGE FOR RESURRECTION

While organisations collapsing under this crisis occupy one end of the spectrum, other organisations such as pharmaceuticals, video streaming and online meeting platforms, internet service providers, e-commerce retailers and so forth are thriving in this pandemic. Most of the organisations that are thriving at this end of the spectrum are a poor source of insights into how organisations can survive and recover. They were just in the right business at the right time and they may not be good at surviving crises specific to their industries such as an unhealthy populace or prolonged internet outages. The real goldmines are the organisations that are adversely affected by this crisis as their collapse or survival will be an outcome of their direct and indirect interactions with an actual crisis.

Though the term resurrection sounds like an act of mythical significance, the unadulterated meaning is just survival through a crisis. The intent to survive by dodging a threat or adapting to live with it is a characteristic of all complex systems—or "living things"—on this planet. Human organisations inherit these intents from their fundamental elements—we humans. If we are looking for a better understanding of the dynamics of human survival as practiced by humans—consciously and

4. Hank Tucker, 'Coronavirus Bankruptcy Tracker: These Major Companies Are Failing Amid The Shutdown,' *Forbes*, May 3, 2020

5. Koustav Das, 'Hunger, poverty and jobs: India's poor pay heavy price in fight against coronavirus', *India Today*, May 28, 2020

6. Radmilla Suleymanova, 'Developing countries face economic collapse in COVID-19 fight: UN,' *Al Jazeera*, Mar 30, 2020

subconsciously—it is all the more reasonable to look for analogies in the fields of human psychology, sociobiology and evolutionary ecology.

THE INDIVIDUAL IDENTITY

In spite of the variety of cultural backgrounds, varying schools of human psychology and terminologies, there is a two-fold function of what we consider individual identity. First is the creation, modification and maintenance of definitions of the entities that do and don't make up that individual, in terms of mental stories. Second is the creation, modification and maintenance of mental stories substantiating that the individual is worthy enough to exist and not disappear out of existence—in short, that the individual is worthy enough to ensure its survival. These two functions endow the individual with the psychological need to survive and avoid death, sometimes at the cost of obliterating entities that are not part of the individual. The corollary is that the survival of entities that are a part of the mental stories defining the individual identity are also to be ensured by the individual.

The intent to survive by dodging a threat or adapting to live with it is a characteristic of all complex systems—or "living things"—on this planet.

So, if an individual stakeholder of a human organisation—such as an investor, employee or a customer—has a story in which that organisation is a part of his/her individual identity and that story is positive enough to increase the net value of his/her self worth, then the individual's instinct for survival extends to ensure the organisation's survival too. Such individuals make up the investors who are willing to take bigger investment risks, employees who are willing to work beyond what's expected of them and customers who buy products that they don't really need—acts which, though difficult to

explain logically, ensure the organisation's survival through a crisis.

The positiveness or negativeness of these mental stories is determined by the quantum of value added to or eroded from the individual's perceived net worth respectively.

The source of the stories that integrate an organisation's and an individual's identity come from the commonalities of their "intents" and the nature of the "relationships" between them.

INTENTS

While studying organisational life forms in order to derive insights for questioning whether an organisation like a corporation, an administrative body or a not-for-profit will survive, we must enter into the domain of sociobiology—a domain that lies at the intersection of the psychology of organisational behavior (that we merely touched on in the previous section) and evolutionary ecology (that we will return to in the next section). This is where the mere animal instincts, individual survival programming and amoral biological need for relationships to ensure survival get integrated with the introduction of morality—a recognisable dynamic that is closer to **the way things work among humans as opposed to other living beings**.[7]

7. Daniel C. Dennett, *Darwin's Dangerous Idea: Evolution and the Meanings of Life* (New York: Simon & Schuster,1958).

From the crystallization of abstract moral concepts come intents (like the Ten Commandments or the Bill of Rights in the US) that can define a value system to measure the worth of existence of an entity, its relationships and decisions. In the context of uncertainties introduced by crises without precedents, it is these intents that act as a guiding compass to choose one relationship at the risk of losing another or one story over another to assimilate into the individual identity—in short, to prefer one decision over **a spectrum of available decisions**.[8]

8. Bryan Boyer, Justin W. Cook, and Marco Steinberg, *In Studio: Recipes for Systemic Change*, (Helsinki Design Lab, Sitra Finnish Innovation Fund, 2011).

More often than not, crisis also acts as a litmus test for intents. The feedback from crisis situations usually causes organisations to make temporary or permanent changes to their intents. Such changes are always made from the perspective of treating survival as the primary intent. Much insight about the survival of organisations can be gathered from studying their changing intents and the observed outcomes.

RELATIONSHIPS

At any point in time, complex systems are in a work-in-progress stage of evolution. Falling back on the analogy of living things, in biological evolution crisis is one of the tools in the hands of evolution that selects species capable of adaptation to dramatic changes in their ecology. Though major extinction triggers—such as floods, basalt volcanic eruptions, global cooling or asteroid impacts—can cause the death of many individual animals directly, the majority of species go extinct over a period of thousands of years due to the collapse of their food chain triggered by the actual event. Species that survive such extinction events are the ones whose food chains are least affected, ones that are capable of establishing themselves in alternate food chains through migration or adaptation. A food chain in itself is a complex system. Its building blocks are six types of simple symbiotic relationships, offering a good analogy for organisational and individual relationships among humans.

Type of relationship description

mutualism — A relationship between two entities in which the probability of survival of both increases.

parasitism — A relationship between two entities in which the probability of survival of one entity increases whereas the other's decreases.

commensalism — A relationship between two entities in which the probability of survival of one entity increases whereas the other's remains unaffected.

amensalism — A relationship between two entities in which the probability of survival of one entity decreases whereas the other's remains unaffected.

neutralism — A relationship between two entities in which the probability of survival of both remains unaffected.

competition — A relationship between two entities in which the probability of survival of both decreases.

In a complex system of human organisations, the survival of an organisation is proportional to the net total of the probabilities contributed by all the past, present and potential relationships it has with other entities.

DECISIONS

Decisions are thoughts that were generated and gestated in the abstract world of the mind and then birthed into the real world. A decision is as concrete as a thought can get. Its next transformation is its appearance in the physical world as actions. Actions in the physical world need a physical direction of movement. That direction is provided by a vision. A vision is an imagined state of future reality that can inspire decisions and actions. Some decisions metamorphose into actions while others die in the process due to unsupported internal and external environmental conditions made up of a multitude of identities, intents, visions and relationships. One of the most reasonable ways to classify decisions would be:

Type of decision description

enforcer — Decisions ensuring that actions stay on the shortest path towards the existing vision. The focus is on moving forward towards the vision.

diverter — Decisions that realise any vision other than the originally intended one. The focus is on moving towards another vision.

accelerator — Decisions made to realise the original vision with fewer people, or less cost or time. The focus is on the economy of resource consumption.

decelerator — Decisions made to wait for a higher degree of certainty from feedback before making an enforcer, accelerator or a diverter decision. The focus is on avoiding risks.

The individual identities, intents, visions and relationships along with the crisis at hand make up the football field where the game of survival is played. Decisions and actions constitute the passes of the ball by individual players who identify themselves with a team (identity). Players aid their team in taking the ball towards the opposite team's goal (vision). They also decide and act to reduce the chances of the opposite team gaining possession of the ball and increase the chances of their own team gaining and retaining possession of the ball (relationships).

All this is done by keeping in mind that at best they will win the game or at worst they won't lose when the final whistle blows—and they've done their best to play fair and by the rules of the game (intents). A crisis that brings a team almost face-to-face with defeat may change the priority of the intents. Some team members may lose hope and give up winning as one of the intents. Others may not lose the intent to win but give up the intent to play fair. Some team members may end up caring about neither winning nor playing fair. With the change of intents, their relationships with their own team, the opposing team, the audience and the referees might also fluctuate.

In the real world of human organisations, the field is complex—with multiple teams with multiple players with multiple identities trying to reach for multiple goal posts.

THE FRAMEWORK AND THE QUESTIONS

In a complex system such as an organisation, the most resilient intents in the collective mind of all its individuals qualify for adoption as the organisation's intents—its raison d'être. When this union of individual intents and the system's intents materialises, the subsystems that enable navigating towards the vision of the world born out of such intents survive. The subsystems churning out decisions that cannot achieve a symbiotic balance with the most resilient intents of the system position themselves among neutralistic relationships or at the endangered side of amensalic and parasitic relationships. Individual identities, intents and relationships are components of this framework that cannot be observed directly. They are entities that can only be inferred based on observation and feedback from other components. Actions and outcomes of those actions are the observable components of the framework. Decisions are components that are sometimes observable but sometimes need to be inferred.

Let's consider an organisation under study as a subsystem (let's call it A) that is a part of the supersystem B. A has a multitude of symbiotic relationships with other subsystems within B. The most resilient intents among all subsystems of B contribute to the intents of B. A crisis for subsystem A is a sudden and unpredictable set of changes in the intents of a large number of other subsystems of B to such an extent that the intent of B changes in a way that pushes the survival of subsystem A into uncertainty.

Hence, in a prospective study to predict if an organisation (like subsystem A) can survive the COVID 19 crisis or not or how to figure out a way for the organisation to survive this crisis, some of the questions (not an exhaustive list) that can provide worthy insights are:

– What proportion of the individual stakeholders who make up the organisation have positively reinforced the organisation as part of their identity?

– What are the most resilient individual intents that currently exist in the organisation?
– How can this resilience be measured?
– What are the new intents of the supersystems (country, humanity, economic bodies, etc.)?
– How can changes in the intents of other organisations be predicted from observing their decisions, actions and outcomes?
– What type of relationships does the organisation have with other organisations? And which of those other organisations are actively undergoing transformation of their intents, vision and relationships?

At any point in time, complex systems are in a work-in-progress stage of evolution.

THE HELPING HAND OF ASSUMPTIONS

Assumptions are a very effective helping hand as long as one is completely aware—throughout the process of analysis—that an assumption must not be mistaken for reality.

Though complex systems are not clockworks, they help us to move forward by assuming they are—that they have a workable framework. The inspiration for this technique is from the field of complex algebra in mathematics. The assumption that an **imaginary number called 'i'**[9] with a value equal to the square root of -1 exists in the real world has helped in wrapping one's head around **complex**[10] and counterintuitive observations of the real world, while also solving equations of quantum mechanics and the general theory of relativity that explains them.

9. "Imaginary Number." Wikipedia. Wikimedia Foundation, https://en.wikipedia.org/wiki/Imaginary_number.

10. "Complex Number." Wikipedia. Wikimedia Foundation, https://en.wikipedia.org/wiki/Complex_number#Quantum_mechanics.

During the process of building this framework, it is natural to encounter situations in which one must choose between contradictory components (such as attributing two contradicting intents to the same entity). In order to avoid conflict among the stakeholders or indecision due to lack of data in such situations, a good way forward would be to assume that both entities can coexist but with different probabilities. No value needs to be attributed to these probabilities. If required, we can just model using descriptive values such as high, medium and low. The inspiration for this technique comes from the field of quantum physics, according to which every entity in reality exists as a probability at all times, at all places throughout the universe. And the act of observation of an entity at a particular time and place just collapses all other probabilities of existence in all other times and other places to zero.

Lastly, it is always safe (and wise) to assume that identities, intents, relationships and vision can change over time. We need to allow room for this because, if they can, they *will* change.

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PUNITHA D. BALAMURUGAN

RACIAL CAPITALISM, THE STACK & THE GREEN NEW DEAL: DESIGN FUTURING & DESIGN POLITICS AFTER THE PANDEMIC
DAMIAN WHITE

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Dean of Liberal Arts, RISD

"Historically, pandemics have forced humans to break with the past and imagine their world anew. This one is no different. It is a portal, a gateway between one world and the next."
— **Arundhati Roy**

"Get your knees off our neck."
— **Reverend Al Sharpton**

Through facades, packaging, rendering, styling, streamlining, prototyping and performative promises, design has always been good at hiding. COVID-19 has revealed things below the surface that the mainstream design industry—and a good deal of design education—has not been so keen to linger on over the past two decades. Design has many potential valances. There were moments across the 20th century when it was open to systemic critiques of what exists and provided a space for dialogue with revolutionary social movements about the material, visual, spatial and cultural forms that could support an emancipatory future. There have been times when design has created a space where different kinds of voices could engage in world-making and desire-shaping.

Yet design is also very easy to draw into formalist and instrumental approaches that cleave making from history, design from politics. A good deal of design thinking in recent years has largely traded systemic inquiry for the search for incremental win-win solutions within the existing system. This has often run along-side cultivated innocence for exploring the entanglements of race, class, gender, empire and other modes of subordination and ecological unravelling with our designed economies.

Could an event that in two short months has left 350,0000 dead; become entangled in urban insurrections against ongoing police racism and state violence; undercut the income of working designers every-where and possibly foreclosed the futures of many more young designers force new

directions? Could it give voice to marginalized currents within design that have long advocated for moving discussions of racial justice and settler colonialism, climate crisis and labor exploitation, ecology and gender from the margins to the center?

UNDERSTANDING THE RACIAL POLITICAL ECONOMY OF COMPLEX SYSTEMS AFTER COVID-19

The pandemic has brought about—as all pandemics do—a confrontation with the design of "complex systems" to be sure. The impact of living through the sharpest economic downturn since the Great Depression is very probably going to have long-lasting generational impacts. COVID has torn across the landscape in some strikingly selective ways, preying on the elderly, vulnerable and immuno-compromised. It is likely that the economic downturn will **negatively impact millennials in particular**,[1] flattening wages and curtailing their capacity for wealth generation. Moreover, this comes on top of existing research suggesting that millennials were already dealing with a two-track labor market, delaying home ownership and holding more debt than past generations—particularly in terms of student loans.[2]

This moment may well deepen existing generational splits in values and political alignments. Nevertheless, and **as we have already seen in the climate debate**,[3] **discussions of the racial wealth gap**[4] or the **gender wage gap**,[5] the use of generational thinking and categories to understand, explain and ultimately assign

1. See Andrew Van Dam, "The unluckiest generation in U.S. history" https://www.washingtonpost.com/business/2020/05/27/millennial-recession-covid/

2. Brooke Masters, "Covid-19 will blight the prospects of a generation," *Financial Times*, May 18, 2020 https://www.ft.com/content/e0a6cf16-98e0-11ea-adb1-529f96d8a00b

3, Jonathan White, "The Pitfalls of Generational Thinking" https://www.opendemocracy.net/en/transformation/pitfalls-of-generational-thinking/

4. "A conversation about the racial wealth gap—and how to address it" https://brook.gs/2Fu3zdB via @BrookingsInst

5. See The Institute for Women's Policy Research shttps://iwpr.org/issue/employment-education-economic-change/pay-equity-discrimination/?gclid=EAIaIQobChMIz_zit6_96QIVDTiGCh0OVAm-vEAAYASAAEgLy2_D_BwE

responsibility for phenomena can quickly hit upper limits. And, most obviously, as Keeanga-Yamahtta-Taylor has observed in relation to COVID, if we miss how this pandemic has already turned a public health crisis into "**an object lesson in racial and class inequality**,"[6] we will miss much.

When COVID-19 hit, upper-income New Yorkers of all ages quickly departed the city for their holiday homes and bolt holes across the country—to take them out of harm's way (while possibly bringing new viral loads to other communities). The pandemic has torn through the multira-cial and multigenerational working-class neighborhoods and households of urban America from Queens to Detroit. It left the racialized, classed and gendered bodies of healthcare workers, bus drivers, grocery store clerks and other service workers exposed and with no choice but to work. The owners of nursing homes and meat packing facilities successfully lobbied state and federal governments to protect their businesses from liability. The workforces in these facilities—disproportionately comprised of immigrants, women and low-wage employees of color—were forced back to work, often without adequate protection or healthcare.

We do not have sufficient data on the social epidemiology of the pandemic to fully understand how genetics and demography, age and environment, race, class, gender, disability and other factors interact with COVID-19. But, **as Julian Brave Noisecat has observed**,[7] the fact that the Navajo Nation in the US has experienced the worst cases of COVID outside Wuhan is sobering. It suggests that when the US histories of this pandemic are written, the way coronavirus has exacerbated the deadly impact

6. Keeanga-Yamahtta-Taylor, "The Black Plague: Public officials lament the way that the coronavirus is engulfing black communities. The question is, what are they prepared to do about it?" *The New Yorker*, April 16, 2020 https://www.newyorker.com/news/our-columnists/the-black-plague

7. Julian Brave Noisecat "How to Survive an Apocalypse and Keep Dreaming," *The Nation* https://www.thenation.com/article/society/native-american-postapocalypse/

of race and class will have to be foregrounded.

"Most modern people assume that our species controls its own destiny. We're in charge! we think. After all, isn't this the Anthropocene? Being modern people, historians have had trouble, as a profession, truly accepting that brainless packets of RNA and DNA can capsize the human enterprise in a few weeks or months."
— **Charles C. Mann** [8]

If generational talk might not always help us grasp populations that can shelter in place and those that are effectively seen as disposable, it would also seem apparent that if design is to grasp what is politically at stake in this moment, we need to explore not only the racialized political economy but also the political ecology of the pandemic. Notably, we will have to think harder about the ways in which the pandemic has operated as an epidemiological disrupter of the social ecologies we have been busy (mal)designing for decades.

The interventions of the epidemiologist and political ecologist Rob Wallace are important here. In **Big Farms Make Big Flu** [9] he argues that we have designed an agricultural system that in terms of its economic geography has constructed a direct transmission pipeline between the deepest pathogens in the forest and urban centers. Wallace notes that the basic configurations of neo-liberal agro-food industries are premised on hyper-intensive factory farms increasingly reliant on monocultures, massive overuse

8. Charles C. Mann, "Pandemics Leave Us Forever Altered: What history can tell us about the long-term effects of the coronavirus," *The Atlantic*, June 2020 https://www.theatlantic.com/magazine/archive/2020/06/pandemics-plagues-history/610558/?utm_source=twitter&utm_medium=social&utm_campaign=share

9. Rob Wallace *Big Farms Make Big Flu. Dispatches on Influenza, Agribusiness, and the Nature of Science*. Monthly Review Press. 2016. Also see Rob Wallace, Alex Liebman, Luis Fernando Chaves and Rodrick Wallace, "COVID-19 and Circuits of Capital", May 2020 (Volume 72, Number 1)

of antibiotics and other pharmacology for their functioning. This has coincided with the dramatic expansion of land clearance and deforestation in the Global South variously driven by mining, animal agriculture and so on. It is through these patterns of change—which mirror **Neil Brenner and his colleagues' ongoing attempt in urban geography** [10] to map the spread of *planetary urbanization* expanding into hinterlands—that we are seeing an increased circulation of pathogens.

Wallace argues that such forms of animal husbandry and land use change—coming together with the land grabs, expulsions, the ongoing dispossession of peasant and indigenous people and the undercutting of rural small-holder production—bringing together animal agriculture and wildlife in novel and dangerous ways. A widening circuit of agro-production and trade extends increasingly deep into the forest and back out into the cities. As industrial agriculture spreads out it puts pressure on hinterlands and we see increasing spillover between wild and agricultural animals. The ecologies of the host species that were typically confined to specific ecosystems are now increasingly bumping up against peri-urban regions where humans are concentrated. This is occurring across any number of species—from geese and bats to mosquitoes. It is this configuration of agro-industrial production that Wallace argues not only generates vast breeding grounds for zoonotic viruses but also through deregulated global trade and travel ensures that pathogens able to make it out can spread across travel networks and access susceptible populations very quickly.

The pandemic would seem to have demonstrated the salience of Wallace's concerns. Again, his analysis invites design to engage with the systematic and structural issues he raises. In terms of the political ecology of COVID-19, questions

10. See Neil Brenner, *New Urban Spaces: Urban Theory and the Scale Question* (New York: Oxford University Press, 2019) and his *Critique of Urbanization: Selected Essays* (Basel: Bauwelt Fundamente Series, Birkhäuser Verlag, 2016)

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are going to reverberate around the safety and adequacy of the design of current agro-food networks for workers and consumers across the supply chain. Of course, we need to be aware that these discussions can quickly take xenophobic forms. We have already seen attempts in the US to mobilize populations around fear of the "China virus" and mobilize old tropes of non-white folks as disease carriers. But, **as Charmaine Chua and her colleagues have argued,** [11] a more careful mapping of the politics of logistics might create new opportunities for organizing across these supply chains and more awareness of the strategic choke or leverage points that could open up opportunities for organized labor and environmental movements to press for different outcomes.

11. See Chua, C., Danyluk, M., Cowen, D., Khalili, L., "Introduction: Turbulent Circulation: Building a Critical Engagement with Logistics," *Environment and Planning D: Society and Space*, 36(4), 617–629,(2018). https://journals.sagepub.com/doi/10.1177/0263775818783101

The shock of affluent world experiences of supply shortage for the first time since World War II may prompt a rethinking of the wisdom of large sectors of the economy being entirely reliant on global just-in-time production chains. Of course, calls for de-globalization can take—and are already taking—quite reactionary forms. Prior to the pandemic we were already awash with populist BREXIT nationalisms, Sino-phobic trade war rhetoric and so on. **But as Winona LaDuke and Deborah Cowen have argued,** [12] there are other power geometries and reconfigured geographies—other ways of thinking about logistics and infrastructure premised on solidarity, justice, low-carbon imaginaries and ecological integrity that might force new openings.

12. See Winona LaDuke and Deborah Cowen, "Beyond Wiindigo Infrastructure," *The South Atlantic Quarterly* 119:2, April 2020 for a suggestive provocation.

COVID has reinforced what has been clear for a long time: notably that the US healthcare system—the most expensive healthcare system in the world—was failing dismally to meet the needs of its population and that a private

pharmaceutical industry in the United States, ridden by conflicts of interest, has done little to invest in antibiotic research in three decades. Conventional wisdom had it that such entrenched interests were so powerful as to be only open to minor reform. We were told that it took nothing short of a Great Depression and the experience of World War II to create the political conditions to build the British National Health system. Perhaps the experience of mass unemployment, the sight of over-abundant body bags and medics being forced to jerry-rig their own PPE with raincoats and scuba diving masks might shift our thinking here?

COVID-19 has revealed things below the surface that the mainstream design industry —and a good deal of design education—has not been so keen to linger on over the past two decades.

The implications for the design of urban or rural futures that will be drawn from the pandemic are similarly difficult to predict. **Félix de Rosen has reminded us** [13] that from Olmstead to Le Corbusier the management of space through architecture, land use and planning has always been influenced by public health movements and anxieties about pandemics. We know from many of these late 19th- and early 20th-century debates that they unleashed a complex political terrain to navigate. Few have mapped this moment better than Dorceta Taylor in *The Environment and the People in American Cities: 1600s–1900s*, which documents fragile labor-environmentalist alliances often undercut by racist conservation and planning schemes, where anxieties about hygiene, "racial contamination," racial mixing and eugenics often played a deciding role in the design of the landscape.

13. Félix de Rosen "Stories of Space in Times of Quarantine" | The McHarg Center https://mcharg.upenn.edu/blog/stories-space-times-quarantine

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Prior to the pandemic debates among conservation scientists, political ecologists and activists had already become fraught around the question of whether the best way forward is to support land sparing or land sharing, locally controlled agro-ecology, regenerative agriculture, sustainable intensification or **some hybrid of these**. [14] The relationship between urban density/sustainability and health is likely to receive a new round of interventions following the crisis. Yet, what does seem apparent is that all these questions raise systemic and structural issues. They require that we dig into the racial and class histories of conservation and urban planning, and rework old relationships between design education, ecology, political economy and the humanities.

If COVID has laid bare the history and geographies of racial capitalism in the US in all its brutal cruelty and upended the social ecologies of the present, it does ultimately suggest that design needs to be fully conscious of the deeply political role it will play in building post-pandemic futures. What are the resources that can guide us here?

Radical designers have already responded to the pandemic by helping to produce personal protective gear via 3D printing, generate pop-up testing sites and the like. Much of this work is urgent. The line between these kinds of proposals and what the blogger Kate Wagner has

14. For some sense of the range of perspectives in the discussion see variously Raj Patel and Jim Goodman, "A Green New Deal for Agriculture" *Jacobin* April 4, 2019 https://jacobinmag.com/2019/04/green-new-deal-agriculture-farm-workers; Max Ajl, "Beyond the Green New Deal", *The Brooklyn Rail*, https://brooklynrail.org/2018/11/field-notes/Beyond-the- Green-New-Deal; Angelina Sanderson Bellamy and Antonio A. R. Ioris, "Addressing the Knowledge Gaps in Agroecology and Identifying Guiding Principles for Transforming Conventional Agri-Food Systems", *Sustainability* 2017, 9, 330; Tim Searchinger, Richard Waite, Craig Hanson, Janet Ranganathan and Emily Matthews, "Creating a Sustainable Food Future", *World Resources Institute*, https://www.wri.org/blog/2018/12/how-sustainably-feed-10-billion-people-2050-21-charts; Ted Nordhaus "The Environmental Case for Industrial Agriculture", https://thebreakthrough.org/issues/food/the-environmental-case-for-industrial-agriculture. On the land sparing/land sharing debate see Fred Pearce, "Sparing versus Sharing", *Yale 360*, https://e360.yale.edu/features/sparing-vs-sharing-the- great-debate-over-how-to-protect-nature; and Bram Büscher and Robert Fletcher, "Why E O Wilson is wrong about how to save the Earth", *Aeon*, https://aeon.co/ideas/why-e-o-wilson-is-wrong-about-how-to-save-the-earth.

called **"corona-grifting"**[15] can be thin if the latest singular design intervention is (again) disconnected from dialogue with broader social movements or any structural or systemic understanding of the failings of the system.

We have seen a resurgence of interest in mutual aid, neighborhood support, talk of the virtues of WWI-style victory gardens and the like. If this contributes to a broader sense of communal possibility, it could be beneficial. If it merely reinforces the default of the past few decades into more localist, small-is-beautiful, anarcho-radical interventions, though, an opportunity will be lost. If we see the ways in which the pandemic has wreaked havoc across the landscape as symptomatic of and perhaps indicative of the broader systemic crisis—of climate, institutional decay, political legitimacy and inequality that surround liberal democracies everywhere—we are going to need to work with design-friendly political imaginaries which might allow us to both grasp the complexity of this moment and think and act differently at many scales.

Let us consider three bigger imaginaries here: the ecological/climatological, the digital and the decolonial that—both prior to and after the pandemic—are going to decisively shape the politics of our designed futures and, more likely, are going to require a design politics that can address systemic and structural failings.

DESIGN AND PLANNING FOR A GREEN NEW DEAL

The Green New Deal (GND) has had many half-lives since it first emerged in 2008 as a set of proposals to deal with the Great Recession of 2008/09. We have had fairly straightforward technocentric and neo-liberal iterations of the GND proposed by Tom Friedman, corporatist GND proposed by the European Commission and all manner of further

national and regional variations that have their own distinct features. The most recent political eruption of the concept in the US—triggered by the failed attempt of Representative-elect Alexandria Ocasio-Cortez and Senator Ed Markey to establish a special House committee to create a GND in November 2018—has had an interesting afterlife.

The core theme of the Green New Deal is that given climate change we must embark on a vastly complex, multi-decade, iterative project to decarbonize the entire economy and adapt as best we can to a warming world. But most critically, this must be done in ways that support and augment struggles for social, environmental and racial justice. At the core of AOC's and Markey's proposal was the notion that to obtain any kind of public support, designs for post-carbon energy transition need to be linked to broader hopes and aspirations for better jobs, affordable healthcare, sustainable urban worlds and viable and regenerative rural worlds.

As is well known, House Resolution 109 was quickly dismissed as a "green dream or whatever" by Speaker Nancy Pelosi's office. It generated further ire from various center-right environmental groups such as Jerry Taylor's at The Niskanen Center or the Breakthrough Institute, who warned that the GND was overloading the climate agenda with additional social issues that would merely guarantee failure. Who was going to fund this boondoggle? Such liberal grandstanding, according to climate realists, failed to understand that any possible post-partisan path to success in the US Senate would almost certainly have to speak to the political concerns of conservatives like Susan Collins (R-ME) and Joe Manchin (D-WV). Even sympathizers of HR109 acknowledged in November 2018 that **the proposal was big on aspirations and short on details**.[16]

The obstacles to the realization of the GND have not disappeared, nor have its critics and detractors. But the legislation has been propelled forward

not only by the ongoing (and often invisible) work of environmental justice movements led by women and people of color who have anticipated the arguments of the GND for nearly two decades, but also by a regalvanized indigenous movement that has offered us the Red Deal by Generation Gretta and hundreds of thousands of school strikers. Additionally, the GND has been amplified by the voices of a generation of younger academics, policy makers and activists participating in organizations such as New Compass, Date for Progress, the Democracy Collective, 350.org, People's Policy Project, the Design Justice Network, the indigenous Environmental Network, Feminists for a Green New Deal and Sunrise, among others.[17]

Perhaps the most interesting aspect of the Green New Deal has been the ways in which it has legitimized the work of assorted architects, designers, planners and engineers to reconsider the legacies of their past disciplines to create openings for the future. It has also forced more of a systemic turn in our architecture-design and politics discussions. For example, Billy Fleming and Nick Pevzner have both observed that the GND has exposed the drastic curtailment of ambition that four decades of neo-liberalism has had on the potential to develop **public-focused**

architectures,[18] urban planning and landscape designs.[19]

For a field that once proposed interventions into urban futures and the construction of public infrastructures as grand as Olmstead's Emerald Necklace in Boston, the GND has highlighted the massive constraints that have been imposed on forms of architecture and design that are now largely focused on office park prettification, or improving possibilities for real estate accumulation. Fleming and Pevzner have also highlighted the many ways in which the first New Deal not only put artists and designers back to work during the Depression through the Civilian Conservation Corps, the Works Progress Administration and the Tennessee Valley Authority, but also called architects, designers and artists to a public mission and actually employed them to enact this vision. Most critically, though, these interventions underscore that the construction of a post-carbon future is unthinkable without galvanizing the entire field of professional design to step up. Here the GND could provide a mechanism for employment and also a means through which all kinds of designers would see previously closed career paths in public service open up.

One of the most exciting aspects of the evolving discussion around the contribution that design could make to the Green New Deal is the recognition that there is no shortage of work to do. For example, the GND asserts that we will need to decarbonize the grid in 10 years. Whether we accept this deadline or not, this call to transform the power grid has profound implications on land use, urban planning, the use of public land and national parks, as **Kiah Goh and Dustin Mulvaney have observed**.[20] And as such, the

15. Kate Wagner, "Coronagrifting: A Design Phenomenon", *McMansion Hell*, March 23, 2020, https://mcmansionhell.com/post/618938984050147328/coronagrifting-a-design-phenomenon

16. For right-of-center critics of the GND see Jerry Taylor https://niskanencenter.org/blog/an-open-letter-to-green-new-dealers/ and Michael Liebrerich https://about.bnef.com/blog/liebreich-green-new-deal-trumpism-climate-characteristics/. For a centrist take on the GND from the Breakthrough Institute see https://thebreakthrough.org/issues/energy/the-green-new-deal-and-the-legacy-of-public-power. For left/radical critics of the GND proposal see https://communemag.com/between-the-devil-and- the-green-new-deal/. A response from the Indigenous Environmental Network can be found at https://www.ienearth.org/talking-points-on-the-aoc-markey-green-new-deal-gnd-resolution/. For excellent reviews of the whole debate see Thea Riofrancios https://www.viewpointmag.com/2019/05/16/plan- mood-battlefield-reflections-on-the-green-new-deal/ and David Roberts https://www.vox.com/energy-and-environment/2018/12/21/18144138/green-new-deal-alexandria-ocasio-cortez

17. For a small selection of a vast literature see Kate Aronoff, Alyssa Battistoni, Daniel Aldana Cohen, Thea Riofrancos, *A Planet to Win: Why We Need a Green New Deal*, Verso, 2019; A Feminist Green New Deal http://feministgreennewdeal.com/; Nick Estes 2019, A Red Deal https://www.jacobinmag.com/2019/08/red-deal-green-new-deal-ecosocialism-decolonization-indigenous-resistance-environment

18. Billy Fleming, "Design and the Green New Deal." Places Journal, April 2019 https://placesjournal.org/article/design-and-the-green-new-deal/

19. Nicholas Pevzner, "The Green New Deal, Landscape, and Public Imagination," Landscape Architecture Magazine, July 23, 2019 https://landscapearchitecturemagazine.org/2019/07/23/the-green-new-deal-landscape-and-public-imagination/

20. Dustin Mulvaney, *Solar Power: Innovation, Sustainability and Environmental Justice* (2019); Kian Goh, *Planning the Green New Deal: Climate Justice and the Politics of Sites and Scales* (2020), *Journal of the American Planning Association*, 86:2, 188-195, DOI: 10.1080/01944363.2019.1688671

implementation of the kinds of cross-continental transmission infrastructure and smart grids that can facilitate load sharing are going to depend on a transformation of the planning infrastructure. As **Kate Aronoff has argued**,[21] it may also require extended engagement with the design of new models of social ownership for energy utilities, or reconsidering the possibilities of cooperative utilities.

21. Kate Aronoff, "How to Socialize America's Energy," *Dissent*, Spring 2016 https://www.dissentmagazine.org/article/energy-democracy-usa-socialize-renewable-public-private-cooperatives

Daniel Aldana Cohen and Johanna Bozuwa[22] have similarly focused on the need for a Green New Deal to make connections between the climate crisis and the housing crisis. Both have focused on the urgency of religitimizing the need for affordable, sumptuous, low-carbon public housing at the center of future political struggles. As Cohen has elegantly argued, there are multiple models—from the public housing constructed by municipal socialists in Red Vienna to the experiments with housing cooperatives—that could guide us here.

22. Daniel Aldana Cohen, "A Green New Deal for Housing,"- *Jacobin*. February 8, 2019 https://jacobinmag.com/2019/02/green-new-deal-housing-ocasio-cortez-climate; Johanna Bozuwa, "Building Resiliency through Green Infrastructure: A Community Wealth Building Approach", February 28 2019 https://democracycollaborative.org/learn/publication/building-resiliency-through-green-infrastructure-community-wealth-building

Such observation connects to the **ongoing work of Daniel Barber**[23] to reread and unpack the tangled complexity of modernism in architecture. He has argued that modern architecture was a climate project in many respects, which allowed and focused on the management of climate and climate adaptability. To be sure it had authoritarian aspects; but it also brought insights that are still helpful. Alexandra Lillehei and Billy Fleming again have argued that in terms of public infrastructure the pandemic has drawn attention to the central role that parks, sidewalks and

23. Daniel Barber, *Modern Architecture and Climate: Design before Air Conditioning* (Princeton University Press, 2020) *A House in the Sun: Modern Architecture and Solar Energy in the Cold War* (Oxford University Press, 2016)

other public spaces play in cultivating our collective wellbeing.[24] Critical to the structure of a green stimulus will be developing a design politics that builds out new climate-resilient and high-quality public infrastructures "in beautiful, imaginative, low-carbon ways."

24. Billy Fleming and Alexandra Lillehei "To Rebuild Our Towns and Cities, We Need to Design a Green Stimulus," *Jacobin* https://www.jacobinmag.com/2020/04/green-stimulus-new-deal-infrastructure-buildout-coronavirus

The GND is an imperfect, evolving discussion. For the first time in a generation, though, it has stimulated a substantive discussion between designers, planners, radical policy advocates and critical theorists about the systemic failings of where we are now and how a consequential design politics might work so that interventions at scale could contribute to structural change.

THE STACK, TERRAFORMING AND DIGITAL DESIGN FUTURES

If the Green New Deal potentially creates one point of convergence between Generation COVID and Generation Gretta, it is interesting to look at the rather different mappings of post-COVID landscapes that are now hovering in design theory focused on digital futures. The sudden contraction of the bricks and mortar economy coupled with the forced pivot to all things online during the pandemic have already facilitated extensive speculation about winners and losers in the next phase of the evolution of platform capitalism.

Ongoing public health concerns running alongside economic contraction of businesses reliant on face-to-face modes of interaction would seem to be reinforcing the power of big tech—from Facebook and Google to Microsoft, Amazon and Apple. The consolidation of these key players would seem to further drive the expansion of digital technologies, monitoring systems, modes of communication, education, entertainment and surveillance into our lives. **Benjamin Bratton's recent interventions**[25] around *The Stack: On Software and Sovereignty*, *Quarantine*

25. See Benjamin Bratton *The Stack: On Software and Sovereignty* (MIT Press, 2015). Benjamin Bratton "18 Lessons of Quarantine Urbanism" https://strelkamag.com/en/article/18-lessons-from-quarantine-urbanism Benjamin Bratton 2020 *The Terraforming*.

Urbanism and *The Terraforming* present some of the boldest and most unsettling accounts to think through the implications of this moment.

The Stack is Bratton's proposal that we view the various types of planetary-scale computations such as cloud computing, smart grids, robotics, universal addressing systems, mobile and urban-scale software, ubiquitous computing and so forth "not as isolated, unrelated types of computation but as forming a larger, coherent whole" or an "accidental megastructure." He argues in *The Stack* that design has been fundamentally embedded in this megastructure for decades. In some fields of design, software has replaced theory not only as such but as a tool for thinking. More broadly, though, Bratton argues that The Stack as planetary-scale infrastructure "... is changing not only how governments govern, but also what governance even is in the first place."

The sudden contraction of the bricks and mortar economy coupled with the forced pivot to all things online during the pandemic have already facilitated extensive speculation about winners and losers in the next phase of the evolution of platform capitalism.

To respond to the challenge of The Stack with dystopian or utopian responses will get us nowhere. Rather, the model "is global but it is not immutable." On the contrary, it is intrinsically modular, making this megastructure also a platform—and an interface even—for the redesign and replacement of The Stack-we-have with a Stack-we-want (or perhaps with The Stack-we-want-the-least). In a provocative series of more recent writings Bratton has also

elaborated on the implications of stack thinking for facing post-carbon and post-pandemic futures.

One of the core themes running through *The Terraforming* is that speculations on the future of our planet in light of climate change or the pandemic are poorly served by a technophobic and romantic environmentalism. Our very engagement with the image of the blue planet from space, our discovery of climate change and our ongoing attempts to model, understand, adapt and influence future climates and other ecological disruptions are fundamentally dependent on The Stack. Planetary-scale computing is, in part, responsible for one of the iconic images of the earth that helped generate the iconography of the modern environmental movement. The general circulation models that inform our understanding of how increased greenhouse gas concentrations are impacting physical processes in the atmosphere, ocean, cryosphere and land surface are entirely reliant on supercomputers.

Moreover, Bratton argues that addressing and designing post-carbon and post-COVID futures is irreducibly going to drive us further into Stack world. Whether we consider the kinds of digital infrastructures that will have to be constructed to contain the pandemic and other future outbreaks or whether we consider the increasingly elaborate digital infrastructures we will have to design to monitor carbon emissions and protect biodiversity, this is going to give rise to increasingly more elaborate means of digital monitoring, surveillance, tracking and testing. To think otherwise, for Bratton, is to lapse into a naïve technophobic purism or a kind of **conspiratorial politics in the fashion of Giorgio Agamben**[26] that is politically useless. Bratton argues, moreover, that the scale of our design interventions is going to have to be commensurate with the problem. Different kinds of design

26. For a (hostile) mapping of the controversies over Agamben's reading of the pandemic see https://www.chronicle.com/article/Giorgio-Agamben-s/248306

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interventions—from climate geo-engineering to the expansion of nuclear power, the construction of new modes of quarantine urbanism to the reprogramming and governance of the smart city—are going to require an array of governance structures (both horizontal and vertical) if any kind of plausible post-pandemic infrastructure is to emerge.

Bratton's invitation for us to see "the suppressed potential of such technologies" invites a rather more forceful response along the lines of a "hack The Stack" design politics that has been **advanced by Tiziana Terranova**.[27] His recent writings argue that the systemic and structural failings revealed by the pandemic—"poor planning (or no planning), broken social systems, and isolationist reflexes—are the very same failing that prevents action on climate change." His observation that "[t]he various national and regional Green New Deals all imply a shift in the role of governance" is fair enough. However, the ways in which his analysis ultimately calls for a "geopolitics based on a deliberate plan for the coordination of the planet" without any clear account of the democratic forces that would steer this plan results in Stack-thinking without its critical coordinates. An underlying accelerationism to the analysis takes us back to a Promethean vision of the role of architecture and design in the world that seems both nostalgic and unworkable.

"A revolution takes place because people are so conservative. They wait and wait and wait and try every mortal thing until they reach a stage where it is absolutely impossible to go on. And then they come out into the streets and clear up in a few years the disorder of centuries."
— CLR James[28]

27. Tiziana Terranova, "Red Stack Attack! Algorithms, Capital and the Automation of the Common", https://www.academia.edu/8430149/Red_Stack_Attack_Algorithms_Capital_and_the_Automation_of_the_Common

28. C. L. R. James, M*odern Politics* (2013), p.64

DECOLONIAL AND DESIGN JUSTICE FUTURES

Let us conclude here with some very provisional attempts to connect both The Stack and the Green New Deal with ongoing discussions around decolonizing design futures. The call by the **Decolonializing Design Group and the Design Justice Network**[29] to acknowledge how much mainstream design thinking has been informed by Anglocentric/ Eurocentric assumptions and how much it has evaded engagement with settler colonialism and empire has been critically important in recent years. The call to recenter the perspectives, geographies and worldviews of those marginalized by these practices is a conversation that is only beginning to make headway in the design world.

29. See Tristan Schultz,Danah Abdulla, Ahmed Ansari, Ece Canlı, Mahmoud Keshavarz, Matthew Kiem, Luiza Prado de O. Martins, and Pedro JS Vieira de Oliveira, "What Is at Stake with Decolonizing Design? A Roundtable, Design and Culture", 2018, 10:1, 81-101, DOI: 10.1080/17547075.2018.1434368; Sasha Constanza-Chock, Design Justice, MIT Press 2020;

Yet, decolonial thinking does provide a lens to consider the partiality of all manner of design projects that can quickly slide into a kind of universal discourse. It forces us to acknowledge that the GND and The Stack are projects that emanate out of the Global North. The expansion of both these projects has significant implications for how design economies could be reconfigured. They portend possible futures that already meet significant resistance from assorted forces committed to the status quo. Perhaps the critical questions that lurk over both these projects have to do with who is going to have voice and agency in designing and constructing these particular kinds of futures and who is going to suffer as their downsides inevitably emerge?

The Green New Deal is a critically important project. However, it has to be acknowledged that geopolitically it is a project that takes much of its inspiration from not simply the more radical possibilities opened up by the original

New Deal but also by the vast pragmatic achievements accomplished by Northern European social democratic governance of the early 1970s. Much the same could be said about Bratton's largely Northern-centric visions of Stack/Terraforming worlds that seem to stretch from Southern California to Russia while being largely divorced from the multiple digital imaginaries that have emerged from the Global South. We need to acknowledge then that these are delimited local visions. They stand in relation to a fragmented world system that is structured by ongoing internal and external forms of subordination, domination and violence (even if the geographies of these imperial relations—from the US to China—are becoming more complicated). And as such, there are clearly complicated politics— resource politics, land-use concerns, food-system politics, infrastructure politics, questions of displacement, expulsion and state violence, and so on—**that have to be confronted if these projects are to move forward**.[30]

30. This is fully acknowledged by the more sophisticated versions of the GND see Kate Aronoff, Alyssa Battistoni, Daniel Aldana Cohen, Thea Riofrancos A Planet to Win: Why We Need a Green New Deal pp.139-169.

Green industrial revolutions that are primarily focused in the Global North or ongoing expansions of digital infrastructures and networks are not going to break overnight with existing exploitative forms of resource extraction and ecologically uneven exchange between North and South. The Green New Deal in the US at present is going to rely on the extraction of lithium, coltan and other rare metals mostly from the planetary mining industries located in the Global South. Similarly, computing is currently sustained by all kinds of high-carbon infrastructure and has many planetary-scale material and energy impacts. Extraction of the raw materials and even disassemblage of many low-carbon energy materials or e-waste materials are intimately connected to Black and brown labor. **As scholars such as Miles Lennon, Nick Estes, Thea Riofrancos and many others have argued, without a centering of these**

31. See Martín Arboleda *Planetary Mine:Territories of Extraction under Late Capitalism* (Verso, 2020); Max Ajl, "Beyond the Green New Deal" Brooklyn Rail; Myles Lennon, "Postcarbon Amnesia: Toward a Recognition of Racial Grief in Renewable Energy Futures," *Sage Journal Science, Technology, & Human Values*, 2020 https://journals.sagepub.com/doi/abs/10.1177/0162243919900556 Nick Estes, "A Red Deal", *Jacobin*, August 6 2019 https://www.jacobinmag.com/2019/08/red-deal-green-new-deal-ecosocialism-decolonization-indigenous-resistance-environment. For an interesting discussion of the possibilities of responsible sourcing for renewables see: Dominish, E., Florin, N. and Teske, S., *"Responsible Minerals Sourcing for Renewable Energy."* Report prepared for Earthworks by the Institute for Sustainable Futures, University of Technology Sydney and Francis Tseng *Inside-Out Renewable energy, the future of mining, and the re-localization of harm*, Jain Family Institute https://reports.phenomenalworld.org/inside-out/.

issues and broader concerns around racial justice we may continue to move backwards.[31]

Both these projects are also important for reestablishing the importance of the state as a terrain of struggle. Drawing from the parochial experience of the US, COVID-19 has additionally revealed just how poorly the neo-liberal state is performing when faced with pandemic and crisis. In 2020 the federal government is marked by worn capacities, conflicting interests and high levels of incompetence and corruption. We have seen the military and policing wing of the state used in recent years as the means through which extraordinary violence is rained down on people of color and indigenous people.

At the same time, rebuilding a minimally competent administrative state would seem to be a basic condition if we are to see the emergence of a climate- and justice-friendly future. The Green New Deal and the need to build effective systems of governance, coordination and transparency around the rise of planetary-scale computing clearly are going to require a revalidation of planning and of competent and trustworthy public expertise, along with public agencies that actually function in the public interest and are staffed by competent civil servants. It is not entirely clear as yet how this need to redirect the energies of the administrative state can coincide with the equally important task of forcing the democratization of the state, planning and coordination.

Finally, if both the Green New Deal and Bratton's digital futuring aim to "hack The Stack" to facilitate other design futures there is much more work to be done to identify the agencies, tools and platforms that could accomplish this. Thanks to literature on design justice and the "**new Jim Code**,"[32] we know enough about the rise of digital and coding worlds to understand that subordination and exploitation via race and class, gender, ableism and beyond can be both hidden and speeded up through discriminatory designs. A design politics that ends up giving more power to designers here might not be much of an improvement on the old modernist project. Finding ways to connect the rebuilding of public institutions and public power with modes of participatory and community design—to facilitate more democratic knowledge entering decarbonization and digital futuring projects at multiple scales—is clearly critical for moving these projects forward.

32. See Ruha Benjamin, *Race and Technology: The New Jim Code*, (Routledge, 2019); Sasha Constanza-Chock, Design Justice (MIT Press 2020)

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MARY JO (MJ) KAPLAN

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Mary Jo (MJ) Kaplan (BA)
Founder and CEO, Kaplan Consulting LLC

Ring the bells that still can ring
Forget your perfect offering
There is a crack, a crack in
everything
That's how the light gets in
— **Leonard Cohen**, *Anthem*

COLLAPSE, A RESPONSE

Are we in a time of collapse? **Balamurugan**[1] writes that the pandemic itself is not a crisis because humanity will survive. In contrast, **White**[2] argues that we are facing a demand for revolution. He explores how to achieve radical change rather than whether it is needed. I concur that we are experiencing a collision of system failures that opens up the potential for radical change.

The status quo is potent. History teaches us that eras of reasonable stability—incremental change—are followed by accelerated unrest that eventually leads to a burst of radical transformation. Forces are converging in the US and across the globe to foment widespread unrest. The time is ripe to fundamentally alter core frameworks and systems to care for growing numbers of people living at the margins of deteriorating communities. **White**[3] calls for the field of design to step up and play a disruptive role to reimagine and create sustainable communities.

The pandemic is triggering havoc and shining a light on myriad cracks in our healthcare and economic systems. COVID-19 also exposes broader systemic crises: climate, institutional decay,

1. Punitha Balamurugan, *On the other side of COVID-19*, Generation C—A hybrid symposium, Center for Complexity, Rhode Island School of Design https://www.generationc.xyz/punithad-balamurugan

2. Damian White, *Racial Capitalism, The Stack and the Green New Deal: Design Futuring and Design Politics after the Pandemic*, Generation C—A hybrid symposium, Center for Complexity, Rhode Island School of Design https://www.generationc.xyz/damianwhite

3. Damian White, *Racial Capitalism, The Stack and the Green New Deal: Design Futuring and Design Politics after the Pandemic*, Generation C—A hybrid symposium, Center for Complexity, Rhode Island School of Design https://www.generationc.xyz/damianwhite

political legitimacy and inequality. Both the pandemic and the climate crisis span the globe, yet the difference in response is remarkable. The global community has spent decades ignoring dire warnings about a warming climate. In stark contrast, the pandemic instigated swift and dramatic action. When a frog is placed in a pot of water that is heated slowly, it adjusts to the warming until it perishes. A frog immersed in boiling water leaps out of the pot in response and saves itself. Will the pandemic help us make the leap and face the urgency of climate change?

The pandemic and related economic trauma validate the need for massive system redesign. They expose the destructiveness of decades of neoliberalism. The killing of George Floyd and subsequent protests connect inequality and racial injustice to the economic and healthcare fallout of the pandemic. George Floyd's killing at the hands of police is unleashing pain and anger like a volcano that bubbles beneath the surface for years before it explodes. We have ignored the scars of colonialism, racial injustice and white supremacy for far too long. Massive unemployment, racial justice protests and a pandemic with no remedy in sight signal social system collapse. From demise to… what?

Will the pandemic help us make the leap and face the urgency of climate change?

(RE)CONSTRUCTION

Perhaps Aotearoa, New Zealand illustrates an alternative design that prizes collective wellbeing over individual freedom. My perspective is informed by eight years of active engagement working with diverse communities and institutions in New Zealand with a focus on social innovation, enterprise and impact. New Zealand is not perfect by any measure. Cohen admonishes us to forget the perfect and accept progress over perfection.

Following are three features:

Treaty of Waitangi Act of 1975 and 2017 legal status of the river Te Awa Tupua (face the past)
The US and many other countries barely acknowledge their histories and legacies of colonialism. In contrast, protests in the 1960s and 1970s by New Zealand's indigenous population, the Māori, led to a process for negotiated settlements. Though contentious, tribal settlements included financial redress, a formal Crown apology for breaches of the original 1840 Treaty, and recognition of cultural sites.

An important part of biculturalism is the acknowledgement that Māori are *tangata whenua* (the people of the land) and have a special relationship with the land and water. Grounded in these indigenous spiritual values, Māori leaders fought and won legal rights for the Te Awa Tupua river in 2017. This protection reorients humans to the natural world based on responsibilities rather than rights. The government atoned for its past wrongs and sought healing. This precedent has led to forests, lakes, and mountains gaining personhood status.

What if nations across the globe atone for past wrongs, pursue healing and include indigenous mindsets, values, traditions and ways of working?

Wellbeing framework (boldly envision the future)
New Zealand is redefining how it measures progress as a nation, emphasizing quality of life for all. The shift is from traditional short-term growth measures such as GDP to a long-term framework with five priorities: transitioning to a sustainable, low-emission economy; thriving in the digital age; lifting indigenous Māori and Pacific incomes, skills and opportunities; reducing child poverty; and supporting mental health. Perhaps freedom truly reigns when expansive public goods such healthcare, education

4. Umair Haque, *The New Leader of the Free World*, Eudaimonia & Co https://www.google.com/url?q=https://eand.co/the-new-leader-of-the-free-world-4c9faa78f9b3&sa=D&source=editors&ust=16273550408360000&usg=AOvVaw3vQajMrbfvXtV_32jvl9ew

5. Punitha Balamurugan, *On the other side of COVID-19*, Generation C—A hybrid symposium, Center for Complexity, Rhode Island School of Design https://www.generationc.xyz/punithad-balamurugan

and retirement are **accessible to everyone**.[4]

Balamurugan[5] describes "intents" as the guiding compass to choose one story over another. The New Zealand government is testing a radically different intent to unlock a pathway to transformation. They are choosing intergenerational, collective wellbeing over short-term growth. We must pay attention to this experiment.

Leadership and trust (be ruthlessly honest about the present)
Prime Minister Jacinda Ardern gained international accolades for how she handled the terrorist massacre at a mosque in March 2019. She demonstrated empathy and strength. She embraced victims and immediately enacted gun reforms.

Perhaps Ardern's compassion and action last year helped her unite the country quickly and effectively in the face of coronavirus. Only 21 people died of the virus in 2020 before New Zealand declared it eliminated. On June 14, 2020 sellout crowds filled rugby stadiums to celebrate their beloved sport, making it one of few countries worldwide resuming large events. Trust in government ranked higher in New Zealand at the onset of the pandemic than almost any other country: 88%. It is impossible to overstate the role that trust in institutions and leaders plays in motivating people to relinquish their freedoms and their livelihoods to protect the health of their neighbors.

What if nations across the globe atone for past wrongs, pursue healing and include indigenous mindsets, values, traditions and ways of working?

Aotearoa, New Zealand demonstrates that the downward spiral of institutions and wellbeing is not inevitable. The country faces astonishing income inequality, mental health challenges and a degraded environment. It has one of the highest youth suicide rates in the developed world. New Zealand is not perfect. Yet it is establishing a socio-cultural-political mindset for collective wellbeing that distinguishes it from most countries. Perhaps Prime Minister Ardern is as much a reflection of her people and culture as she is a leader.

GETTING FROM HERE TO THERE

How does change happen? Individual and collective beliefs create a powerful immunity to change (see **Kegan and Lahey**).[6] Can changes in beliefs become levers for complex change? How do we enable new mindsets? **White**[7] suggests that participatory design is critical to opening up new perspectives. How do we engage diverse co-creators?

We are in a conversation about the politics of the possible with new voices rising up. Which ideas will be legitimized for mass adoption? Perhaps we already know what a better future is, but arguments in favor of this path have mostly fallen on deaf ears until now. **Are we ready to listen?**[8]

6. Robert Kegan and Lisa Laskow Lahey, *Immunity to Change: How to Overcome It and Unlock the Potential in Yourself and Your Organization* https://store.hbr.org/product/immunity-to-change-how-to-overcome-it-and-unlock-the-potential-in-yourself-and-your-organization/1736

7. Damian White, *Racial Capitalism, The Stack and the Green New Deal: Design Futuring and Design Politics after the Pandemic*, Generation C—A hybrid symposium, Center for Complexity, Rhode Island School of Design https://www.generationc.xyz/damianwhite

8. Charlie Warzel, 'The Floyd Protests Show That Twitter Is Real Life', *NewYork Times*

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MARY JO (MJ) KAPLAN

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PUBLIC CONTRIBUTIONS

My pieces are intended as protective garments that can be used to survive COVID-19. They reference medical uniforms, and the veil, which brings to mind divine protection. During the pandemic, people around the world learned to wear protective masks. These garments are wearable and I am a firm believer in the need to use protective masks to prevent the spread of the virus.

— Melissa Lockwood

MELISSA LOCKWOOD

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Melissa Lockwood
Covid Clothing
found bedsheet, ink on fabric, hand drawn.
Contact & Constraints
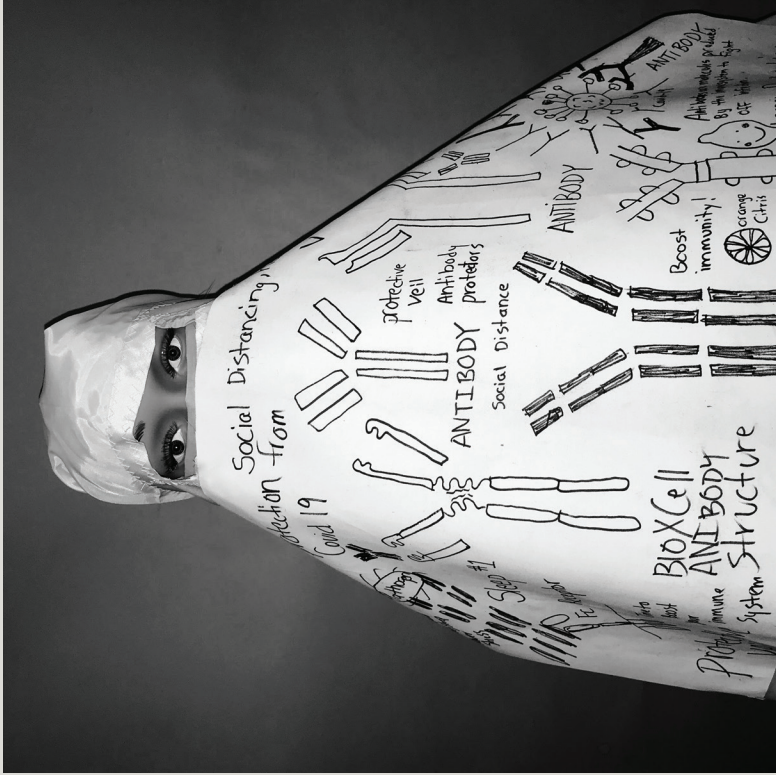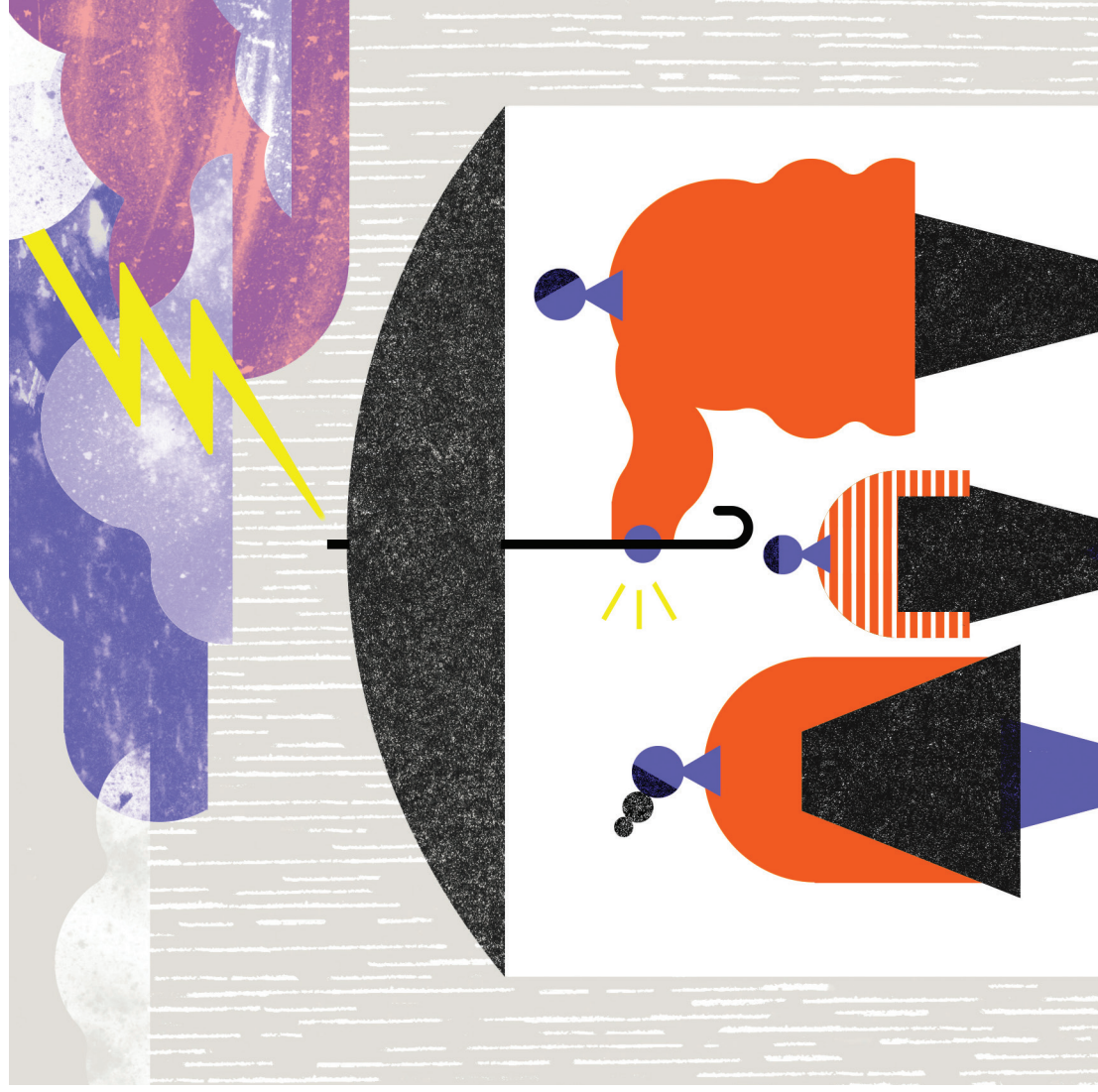
COMPASS PAIRING
CHAOS & CONTROL

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Guiding Details:
unintended consequences, parts don't retain their nature in whole

Charlie Cannon (MArch, BA)
Associate Professor, RISD and design consultant
Harry Jones (PhD, BS)
founder, Virtuu, former West Point faculty
Tom Weis (MID, BFA)
Associate Professor, RISD and cofounder of the Steel House

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ABSTRACT
In an increasingly complex and rapidly changing world, we cannot control the future, but we can control how we anticipate and prepare for emerging futures. The chaos of the moment reveals how difficult it is to prepare for—and respond to—failures in intricately interconnected systems. In this paper we share some insights from our professional experience that we hope can serve others in the days and months ahead—and in the crises yet to come.

PROLOGUE
As we grapple with the entangled epidemics of COVID-19 and systemic racism in America, we are listening, learning and reflecting as a team on what it means to imagine, design and work towards more resilient and just futures.

In his address to the graduating class of 2020, Barack Obama wove the hopeful imagination we are witnessing at this moment with the long history of structural change when he said: "America changed—has always changed—because young people dared to hope. As someone once said, hope is not a lottery ticket. It's a hammer for us to use in a national emergency—to break the glass, sound the alarm, and sprint into action. That's what hope is. It's not the blind faith that things will get better. It's the conviction that with effort, and perseverance, and courage, and a concern for others, things can get better. That remains the truest part of our American story."[1]

The hope that Obama described and the collective imagination and action we are watching unfold across the country spring not from a misguided sense of control, but from an imperative to act—from a sense of agency and responsibility to imagine

[1] It was Rebecca Solnit who wrote: "I say this to you because hope is not like a lottery ticket you can sit on the sofa and clutch feeling lucky. I say this because hope is when you break down doors in an emergency; because hope should shove you out the door, because it will take everything you have to steer the future away from endless war, for the annihilation of the earth's treasures and the grinding down of the poor and the marginal. Hope just means another world is possible, not promised, not guaranteed. Hope calls for action; action is impossible without hope." *Hope in the Dark*, Rebecca Solnit, 2003

and "**embody the just and liberated worlds we long for**"[2] and the belief that we hold both the power and the responsibility to imagine a just future and actively work to bring it about.

2. Brown, Adrienne Maree, 2017, "Emergent Strategy Shaping Change, Changing Worlds" , AK Press https://www.akpress.org/emergentstrategy.html

INTRODUCTION
The world we live in is increasing in both complexity and interdependency. The most pressing (and worthy) challenges we face cannot be solved by a lone genius, a group of technical experts, or indeed by any one sector of society. They cannot be solved by predictive models built on a vast array of assumptions drawn from our experience of the past. Nor can they be solved by any single vision for our future. In fact, they may not be solvable—and may require constant attention and adjustment.

One of the many things that COVID-19 has taught us is that despite signs, warnings and lessons learned from previous public health emergencies, we are not good at imagining the future.

To work in this way, we need one another more than ever, and we have to refocus our efforts. Predictions, forecasts and other signals—long the foundation of planning-based approaches—are not sufficient. One of the many things that COVID-19 has taught us is that despite signs, warnings and lessons learned from previous public health emergencies, we are not good at imagining the future. The swift spread of the virus vividly demonstrates three characteristics of **complex social challenges**[3]: 1) the situation is emergent, 2) as a result, there is a constant flow of information to navigate, and 3) this means that actors are constantly adapting their behavior.

3. Hassan, Zaid, 2014, "The Social Labs Revolution: A New Approach to Solving Our Most Complex Challenges" Penguin Random House

Predicting emergent situations is difficult; controlling them is impossible. But we *can* prepare for them. Rather than focusing efforts on predict, command and control, we need a resilience framework that emphasizes *anticipate-withstand-mitigate-adapt*. This approach recognizes our lack of control, and thus tries to build the tools, skills and systems to think about the future, to shape the future, and to proactively adapt to the future that actually unfolds.

ACTS OF IMAGINATION

In our work, we draw on foresight practices (trend analysis), future studies, scenario planning (storytelling about emerging trends), and design (making objects to ground stories in lived experience) to help our partners imagine various emerging futures.

Operating as we do between these disciplines, we are mindful of the shortcomings of each of them. We try to elide the easy pretense that our work can secure or should focus on a particular solution. At the same time, we are wary of developing speculative scenarios that are untethered from reality. Instead, the point of these acts of imagination is to examine the dynamic interactions we might see in order to better prepare ourselves for the dynamic interventions that multiple futures may require.

Rather than focusing efforts on predict, command and control, we need a resilience framework that emphasizes *anticipate-withstand-mitigate-adapt.*

We do that by:
– prompting participants to think about the dynamic interactions of emerging trends (note the plural), an exercise that forces them to consider wider social, cultural, and environmental contexts.

– asking them to write stories about the worlds (again note the plural) that could be shaped by those interactions, an exercise that requires them to think more precisely about the ramifications of these trends.
– examining objects intended to illustrate and extend those scenarios, an exercise that invites them to think about how they would respond to the worlds they have described.

The goal of these nested efforts is to help build the participant's personal resilience and their organization's capacity to respond to emergent trends, and through those efforts be able to positively contribute to society's larger responses. The difficulty our partners—and indeed all of us—face is creating a space for imagination in our organizations, in our political discourse and in our daily lives.

But how do we respond and imagine when we are operating within organizational structures that value expertise and experience? Recently, we have begun our workshops by inviting participants to not only acknowledge their specific roles within their organization, but to suggest that they have more to offer than what their job title or recognized area of expertise might indicate. This simple adjustment to an introduction (While I may be an expert in _____, I also offer unique value by _____.) immediately presents the idea that our greatest problems will not be solved by staying within the boundaries of our expected areas of knowledge—and comfort. It will certainly take scientists, engineers, technologists, and policymakers to address tomorrow's challenges. But it will also take really good listeners, deeply thoughtful mentors, and maybe even people who know how to lighten the mood.

When faced with the unknown, we often draw from a collection of our lived experiences in order to process and respond—or at least we should. We believe that to build a sense of agency, it will take acts of imagination and the space to practice it.

CRISES, IMAGINATION AND TRANSFORMATION

The entangled epidemics of COVID-19 and systemic racism have created a moment of **intense grief and intense purpose**,[4] opening new space for imagination and transformation.

4. "Obama holds virtual town hall on policing and civil unrest", PBS News Hour, June 2020

Over the past several months, the coronavirus pandemic has changed and challenged our imaginations. "What felt impossible has become thinkable," **wrote Kim Stanley Robinson**[5] in *The New Yorker*. "We're getting a different sense of our place in history.... We know that we're living in a moment of historic importance. We realize

5. Robinson, Kim Stanley , 2020, "The Coronavirus Is Rewriting Our Imaginations", *The New Yorker* , https://www.newyorker.com/culture/annals-of-inquiry/the-coronavirus-and-our-future

that what we do now, well or badly, will be remembered later on. This sense of enacting history matters."

The current calls for radical imagination echo a long history of Black leaders and social movements that powerfully "transport us to another place, compel us to relive horrors and, more importantly, enable us to imagine a new society."

And over the past several weeks, young leaders organizing for change in response to the atrocious murders of Ahmaud Arbery, Breonna Taylor, George Floyd and so many others that signal the broader systemic racism in America have renewed calls for radical imagination. As activist **Brittany Packnett Cunningham described**,[6] "we are reimagining what public safety can look like... imagining what it would look like when we don't even have traditional systems because our communities

6. PBS News Hour, ibid.

CHARLIE CANNON, HARRY JONES, TOM WEIS

7. SaVonne Anderson, "Radical imagination is a necessary, sustaining force of black activism", Mashable, February 28 2016 https://mashable.com/article/black-activism-radical-imagination

8. Robin D.G. Kelley, "Freedom Dreams THE BLACK RADICAL IMAGINATION", (Penguin Random House, 2003)

are so healthy from the ground up." **The current calls for radical imagination**[7] echo **a long history of Black leaders and social movements**[8] that powerfully "transport us to another place, compel us to relive horrors and, more importantly, enable us to imagine a new society."

We hopefully—and modestly—believe that the methods we have described can support these and other acts of radical imagination needed to make real progress in the present and prepare for our future.

CONCLUSION

We face difficult challenges, and those challenges are all the more difficult because of their relatively unpredictable nature. **As Rittel and Weber note**,[9] "social problems are never solved. At best they are only re-solved—over and over again." When we consider the complex and unpredictable nature of the future, we should

9. Horst W. J. Rittel, Melvin M. Webber, "Dilemmas in a general theory of planning". (Policy Sci 4, 155–169, 1973)

stop aiming to predict it and "solve" our next crisis. Instead, we must prepare to resolve it, or re-solve it—and that means building our capacity for adaptability and resilience at the individual, organizational, and institutional levels.

EPILOGUE

In this moment we reflect on imagination and transformation, and our own agency as foresight and design practitioners. We recognize that the tools and methods we use, the stories and objects we create, and the imagination we exercise are never neutral. **As Adrienne Maree Brown wrote in 2017**,[10] "We are in an imagination battle.

10. Brown, ibid.

Trayvon Martin and Mike Brown and Renisha McBride and so many others are dead because in some white imagination, they were dangerous. And that imagination is so respected that those who kill—based on imagined, racialized fear of Black people—are rarely held accountable." She goes on to say, "We have to imagine beyond those fears. We have to ideate—imagine and conceive—together."

And so we must.

Ignacio Garnham (MFA, BA)
Founder, Abiotic; consultant; social entrepreneur

The paper by Cannon, Jones, and Weis, aptly titled **Imagination**,[1] *discusses the epidemic and social crisis sweeping across the United States in the spring of 2020. Although the temporal dimension of both crises differs—the first being episodic, the latter historical—the authors discuss a crisis of imagination as central to our shortcomings in anticipating and challenging the dynamics that support the governments, organizations, and institutions that now stand trial for failing to provide safety—in all its dimensions—to the people these structures are in place to protect. Imagination, resilience, and hope—in the context of chaos, uncertainty, and temporality—will be examined in the following response.*

1. Charlie Cannon, Harry Jones, and Tom Weis, *Imagination*, Generation C – A hybrid symposium, Center for Complexity, Rhode Island School of Design

In a society that organizes through order rather than **ordering through organization**,[2] change is bound to happen at the edge of chaos. While I agree with the authors that the momentum social movements are experiencing this spring emerges from "a sense of agency and responsibility," it also arises out of anger, despair, and frustration. And rightly so. The crisis of imagination the **authors**[3] examine has roots not only in the oppressive restraints for those who dare to imagine, but in the scant efforts to democratize the right to imagine. In the "land of the free," not everyone is free to imagine.

2. Morin, E., 1992. From the concept of system to the paradigm of complexity. Journal of social and evolutionary systems, 15(4), pp. 371-385

3. Charlie Cannon, Harry Jones, and Tom Weis, *Imagination*, Generation C – A hybrid symposium, Center for Complexity, Rhode Island School of Design

Making plans and anticipating the future with a high degree of success comes with privilege; it requires reliable information and knowledge of how multiple systems inform and shape each other. The authors quote President Obama in saying that hope is a hammer. To this I add: Imagination is the hand that wields it. But

when imagination is a privilege, hope is a luxury.

How far we can imagine into the future matters. Yet, thinking about the future comes with a price; temporality is a commodity, and many cannot afford it. For the vast number of people in the US, the limits to how far they can imagine are becoming more apparent than ever. As the economy crumbles and healthcare collapses, others are experiencing the temporal cost of imagination for the first time. An elder infected with COVID-19 can only envision a future as far as the next available bed. A woman marching for her rights can only plan for as far as the line of armed police stands. A man being strangled can only hope to catch another breath.

In the "land of the free," not everyone is free to imagine.

How we think about possible futures matters since it reflects on our (perceived) agency to change the future. To imagine, to envision, to daydream, to plan for—all are subject to your place in culture and society. Certainty is a privilege.

In the context of distributing access to imagination, we must intentionally discuss imagination as a human right rather than an ability to be bought. As the authors reflect in their epilogue, it is important to ask: Futures for whom? The practice of futurists, speculative designers, and foresight consultants often puts them in a position to decide who gets to imagine futures, whose futures are being imagined, and which futures are being prevented from being imagined. As designers exponentially engage in future-oriented interventions, it is essential to acknowledge that the "imagination battle" is also a battle to decolonize collective imagination.

To this end, the authors reflect on the dire need to come together as a society to rewire the muscle memory of imagination.

Humans imagine futures using their memories. It is undeniable, therefore, that digging deeper into issues of collective memory will shed light on pervasive practices deeply buried in procedural memory.

Yes, the past can be retold, but as **Eyal Weizman**,[4] **Fred Martins**,[5] and **others**[6] have shown, it can also be redesigned. Insofar as temporality is a commodity, being strategic in reimagining how we speak about the past can provide currency to swim ahead in the tides of temporality. HeLa, the mother of modern medicine, or Henrietta Lacks, a Black woman stripped from her cell line? Rosa Parks, a fragile old lady on the wrong side of the bus, or Rosa Parks, the determined activist? How we communicate historic events that can fuel future change matters.

4. Bois, Y.A., Feher, M., Foster, H. and Weizman, E., 2016. On forensic architecture: A conversation with Eyal Weizman. October, pp.116–140

5. Design Indaba. 2017. Black History Month: Honouring past heroes. [Accessed 13 June 2020]

6. Soro, A., Taylor, J.L. and Brereton, M., 2019, May. Designing the past. In Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems, pp. 1–10

To imagine, to envision, to daydream, to plan for—all are subject to your place in culture and society. Certainty is a privilege.

That brings me to my final thought: resilience, an admirable trait of nature, yet a dangerous metaphor for society. In nature resiliency is an adaptive mechanism for change in the environment. A resilient organism adapts but doesn't change the conditions that called for adaptation. To be resilient is to survive even if that means leaving traits behind, or surviving at the expense of other organisms. In nature resilience can be ruthless, but there is no bias in the processes of adaptation. The same cannot be said of structures that adapt to change following an agenda. Pervasive structures of power, the very same we now fight to hold accountable, are prime examples of resilience; for many

in a position of authority, resilience is a zero-sum game.

Social movements don't adapt to change; they are the change. Metaphors matter. To conclude, the crisis of imagination needs to be dissected from a systems perspective. It is easy to identify those who can't afford to imagine and those who can indulge in daydreaming. But an isometric analysis won't disclose the forces that keep the crisis in place—the ideologies, doctrines, behaviors, biases, and myriad social constructs that put a price on the temporal dimension of our imaginations, choking the words, ideas, and vision that construct them.

As the authors allude to throughout their reflection, reimagining imagination is an ontological endeavor rooted in empathy, adaptability, hope, and a systems view of the world.

Moving forward, if hope is the hammer and imagination the hand that wields it, information is the grip that holds it. For design practice to continue becoming a force for positive change and build on a renewed interest in systems science and complexity, designers must:

– commit to understanding the coevolutionary dynamics of information and physical systems.

– acknowledge the extent to which design mobilizes information.

– become accountable for the consequences arising from the information socialized through the outcomes of their practice.

LIVE CONVERSATION WITH COMPASS CONTRIBUTORS

Who gets to imagine these futures, experience these exercises? There is an agency and privilege to thinking about the future. We know these tools are valuable, and now how do we make them part of a larger community, and how would that change the way we engage in these practices?

— IGNACIO GARNHAM

What has to be true to get people to take this work seriously – the same way they take seriously the products of scientific discovery or peer reviewed research? I don't subdue emotion over other kinds of data. We tend to consider reliable those things which are easily measured. And so we create these metrics which are understandable. I think that the most interesting problems just don't lend themselves to that kind of measurement, or at least it's so complex that it can't be reduced to a simple series of metrics.

— HARRY JONES

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On the one hand, COVID-19 suggests we can predict some things, but we might not be any good at acting upon them. Public health officials have been suggesting that we need to be preparing for something like this for years, decades even. And the question of our ability to move beyond anticipation to preparation is clearly incredibly difficult. The other part of the present moment—where we are actively engaged in discussions around structural racism—is that not only are we not good at imagining the future, we are also not good at reimagining the present.

— CHARLIE CANNON

One of the ways we've been able to use objects in conversations, was with national security experts at a conference we planned 5 years ago. We sent the participants a simple box in the mail. We invited them to send a gift to the future and share that with people once they got to the conference. I was blown away when everyone showed up with the box under their arm on the first day of the conference. They wanted to talk about what was in it because it was personal. Suddenly you have people sharing about shoes from their childhood, someone had a piece from the Berlin wall with a note saying "I didn't think I'd see this come down in my lifetime". You suddenly had people who might have had different points of view on our national security structure, talking about what they believed in, and what they hoped for…This is a quote from our partner Elizabeth Kistin Keller 'an object can untether you from the limits of your own imagination'.

— TOM WEIS

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Patriot Propaganda Cards *is a visual indictment of the present-day identity of what the USA represents. The piece is filled with patriotic iconography that does not/should not be associated with other heavy symbolism such as the Statue of Liberty sporting an assault rifle, government idols printed on poker cards, a woman blindfolded and pointing a gun, etc. The idea came to me from the many conversations I had about "what was" versus "what is" America in the eyes of political tribalists. The imagery exhibits governmental hypocrisy hopes that if you have liberty, justice is the other side of the same card, even if that's governed by lethal force.*

— Julius Cavira

JULIUS CAVIRA

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Julius Cavira
Patriot Propaganda Cards
pen & ink drawing, digitally reformatted
and printed on 54 poker playing cards
3.5" × 2.5" per card
2019
Collapse & (re)Construct

COMPASS PAIRING
CONTACT & CONSTRAINTS

Guiding Details:

When does the short-term need to avoid human touch threaten long-term wellbeing?
What constitutes "acceptable" risk? What makes life worth living? No economy, no touch?
How can spaces and habitats be redesigned to account for the need to live in
isolation at times?
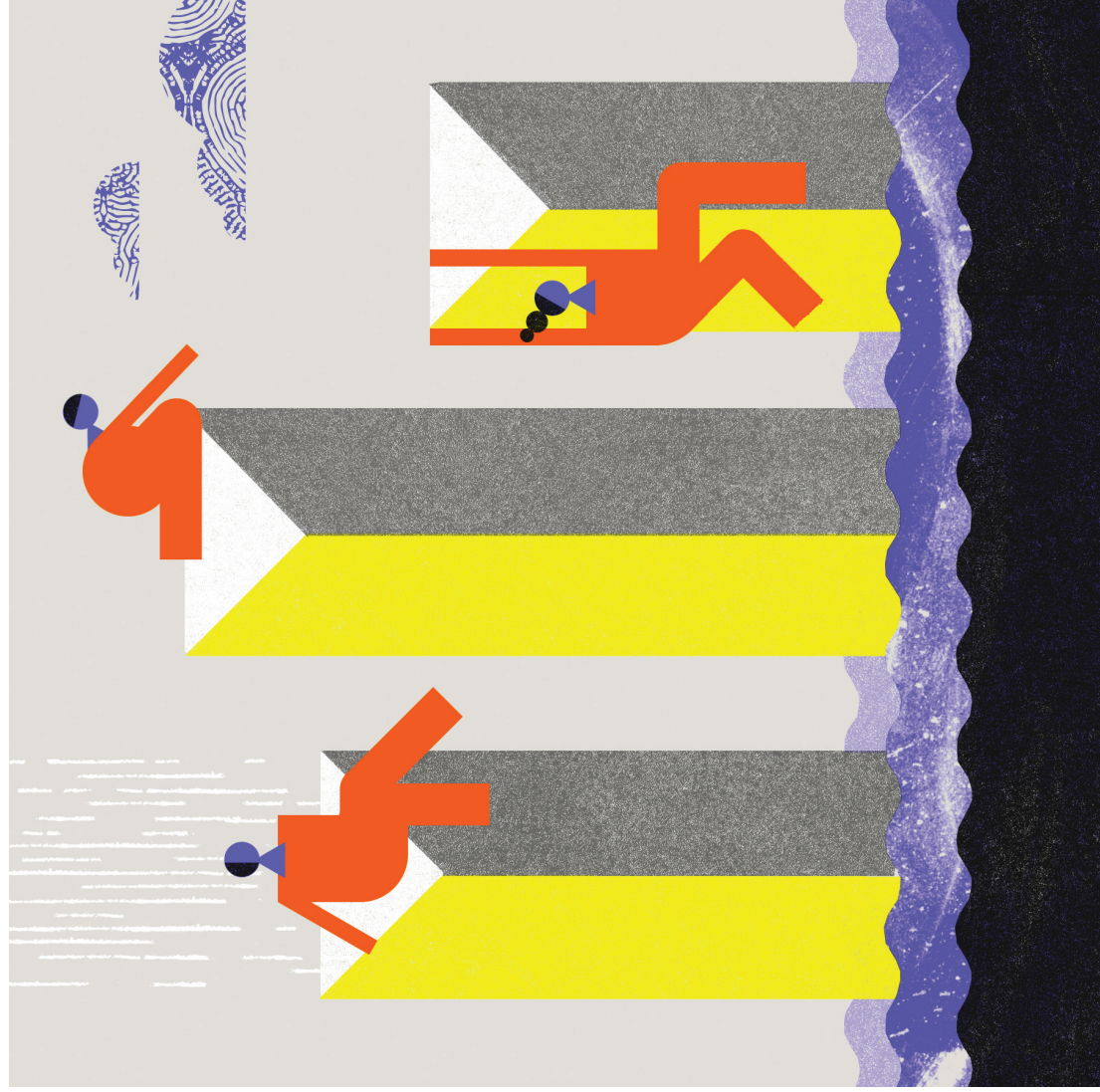
It is in crisis times like these that our fears, dreams, hopes and all the most basic characteristics that make us emerge from the psyche in disruptive ways, in a natural urge to survive. In this sense, the states of crisis implicit in a certain chaos become compulsory terrain in the need for change, this being an inherent aspect of the nature of what is alive. It is here that the idea of control becomes relevant as long as it is not absolute. There is an understanding that the fortuitous will always be present in processes and results—to degrees—and that control is more part of the method-ological side and not the ultimate purpose.

—Regina Arruti Zapata

PUBLIC CONTRIBUTIONS

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Regina Arruti Zapata
Cosmic Hope
patchwork, quilting, batik, ink on fabric.
120 × 95 cm
2020
Chaos & Control

Judah Armani (MA, BA)
Visiting Fellow, RISD; founder, Public Service Design Practice; founder, InHouse Records UK

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FLUX

The only constant over the first half of 2020 has been change: bush fires, threats of a third world war and a global pandemic, to name but a few of the most disturbing changes.

The statement "everything is in flux" feels as relevant today as it was when Heraclitus inscribed it on papyrus over two and half thousand years ago, capturing his thoughts **on nature**.[1]

1. Heraclitus, of Ephesus; Patrick, George Thomas White, 1857–; Bywater, Ingram, 1840–1914 'The fragments of the work of Heraclitus of Ephesus on nature'.

2. COVID-19, *Wikipedia*, https://en.wikipedia.org/wiki/COVID-19

COVID-19,[2] like nature, doesn't appear to recognise the demarcation lines that constitute our national borders, nor does it appear to care for tourist visas, homeland security or luxury cruises.

Nature, it seems, is oblivious to manmade structures of order.

In *Jurassic Park* Michael Crichton conveys (through Jeff Goldblum in the movie version) a warning that has an eerie, prophetic narrative when listened to with lockdown-ears: "If there is one thing the history of evolution has taught us, it's that life will not be contained. Life breaks free, it expands to new territories and crashes through barriers, painfully, maybe even dangerously, but **life...finds a way**."[3]

3. Steven Spielberg, "Life Finds a Way—Jurassic Park Movie", *Universal Pictures*, 1993

Heraclitus points out that everything is in flux and Crichton explains that this "flux" is everything working to sustain itself—all life is trying to find a way.

Almost 5,000 kilometres from Hawaii (where Jurassic Park was filmed) lives **the Pando**,[4] in Utah. It is the world's largest living single organism. A forest of Aspen trees covers 106 acres—every tree connected to one solitary underground root.

4. "Pando (Tree)", *Wikipedia*, https://en.wikipedia.org/wiki/Pando_(tree)

The Aspen demonstrates a truth of nature: We are all connected. More than connected, we are interdependent, mutually reliant on each other. In nature nothing happens without affecting everything.

Traveling east from the Pando in Utah to Washington, DC and going back in time almost 50 years, President Kennedy **reminded the world of our interdependence**.[5] We all inhabit this small planet and breathe the same air. Not only do we share an interrelated relationship with nature, we also experience an integral connection to each other. A global nation grieving together from **recent events in Minneapolis**[6] is testimony to our connectivity.

5. Pangambam S, "President Kennedy's Peace Speech at American University", *The Singju Post*, June 10, 1963 https://singjupost.com/full-transcript-president-kennedys-peace-speech-at-american-university-june-10-1963/

6. "George Floyd: What happened in the final moments of his life", *BBC News*, July 2020 https://www.bbc.com/news/world-us-canada-52861726

Everything is in flux.
Everything is in flux to sustain itself.
Everything is connected.

We are interdependent, and together with the planet that sustains us, we are constantly in flux to sustain ourselves.

In the shadow of COVID-19, we find ourselves figuring out how to be a contactless society. The same shadow has also... highlight[ed] how we have been thinking separately for far too long.

THINK SEPARATELY

Living with flux is difficult.

Chaos isn't easy to navigate. We need order to make sense of our lives. We limit chaos, mitigating a lot of uncertainty by creating systems that provide enough certainty to help us plan our future days, months, and years. These systems arc across every facet of our lives, from social

and economic to political and technological networks—and everything in between.

Creating any kind of order from chaos always comes at a cost.

What do we trade?
What are we willing to lose in order to gain the comfort of security? Somewhere in this process we seem to have forgotten our interdependence. Or not just forgotten, we act as if we are independent.

Something is wrong.

Inherently, we are interdependent with everything in flux around us, but we act independently as if most things are certain. Something is very wrong if we think and act as if we are separate when actually we are tethered.

A decade of working in the homeless sector revealed a profound truth to me: while many people could survive without shelter and with limited food, none could survive without human connection. We may try to act separately, but the consequences are severe.

I recall living in a slum community on the outskirts of Chennai, India for a brief period at the turn of the century—many bodies in tight proximity with limited nutrition, sanitation, and a lack of clean running water. One afternoon in conversation with an elder, I asked how the community copes with stress and anxiety. He laughed out loud and locking his eyes with mine, answered with assured gravity that "those are western diseases." The community in Chennai recognised what was inherent to them: their interdependence.

Before traveling to India, I briefly became friends with a Premiership footballer who showed interest in social change. We agreed to meet and share ideas. At our first meeting he confided in me. Me? A stranger? His life had become so independent that even those closest to him were far from him. My friend had accumulated,

JUDAH ARMANI

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acquired, and self-promoted. We all have. He was thinking separately. We all do.

Thinking we are separate and living independently provides little support for working out our problems.

If the Pando in Utah were to deny its connectivity, it would also be denying the very root that sustains it. The consequences of acting independently can seriously affect our personal lives in terms of wellbeing, debt, relational and professional network erosion, while also impacting our civic lives through issues of inequality, prejudice, and systems failure.

I am not dismissing independence. Autonomy is an essential part of personal growth, ensuring we are able to operate as our own advocates in society. When this is not possible for whatever reason, the role of advocacy is provided for those who do not have a voice (yet) or the agency to amplify their needs or thoughts. Independence is essential, but only within the knowledge that we are connected.

If as a society we can work interdependently to lock down something as small and invisible as a microbe, then surely we can work interdependently to lock down something as ugly and visible as racism.

We need to create the space to be regularly reminded of our interdependence. The Pando in Utah may need to see its solitary root every now and then, just to remember that a deep connection is always at work regardless of how separate things may appear on the surface.

Refraction[7] has always fascinated me—the process of light slowing down as it travels through a medium like glass to reveal a myriad of colours. In the wider narrative

7. "Snell's Law", *Wikipedia*, https://en.wikipedia.org/wiki/Snell%27s_law

of interdependence, "lockdown" hasn't made us any more disconnected than we were before. But it has inadvertently provided us with a medium by which to "refract" our own lives.

Thinking separately causes additional flux. More chaos.

In the shadow of COVID-19, we find ourselves figuring out how to be a contactless society.

The same shadow has also unconsciously served to highlight how we have been thinking separately for far too long.

HARMONY

Three years ago, I was privileged to have founded a rehabilitative record label called **InHouse Records**,[8] co-created with 10 prisoners from within Her Majesty's Prison Service in the UK.

8. InHouse Records, https://www.inhouserecords.org

Today, that initiative has impacted thousands of men, exponentially increasing positive behaviour and making an incredible contribution to the reduction of the reoffending rate. As we explored the topology of the problem space by hearing from all who occupy it, we began to see a familiar pattern. Many had been thinking separately. They found themselves part of a system built on the promise of delivering certainty, but struggling to provide any. What if the antidote to uncertainty isn't always certainty?

The greater the chaos, the deeper the interdependence and the more beautiful the harmony.

The community in Chennai had almost no mental health issues because they relied on one another and supported each other; their network of relationships created harmony. My time in Chennai left a deep impression on my practice. Indeed, throughout the past 15 years working

in the homelessness sector and in the criminal justice system, I still pursue the kind of harmony I witnessed in that slum community.

Harmony is the combination of separate but mutually dependent parts, formed in a manner that uses their similarities and differences to bring unity through complexity.

How do we create harmony? At InHouse we focused on what's strong, not what's wrong. Believing that we are connected helped us to act connected. We stopped seeing officers, prisoners and uniforms, and began seeing people—just people, all keen to change their circumstances.

Harmony is not a dream needing to be fulfilled. It is a reality that needs to be recalled.

The ghost of Jacob Marley in Dickens' *A Christmas Carol* cautioned Scrooge that, "Mankind should be his business." Visited by three phantoms during the night, Scrooge realized who he needed to be, who he had always been. Who we have always been. Interdependent. Connected to one another, responsible for each other, and compassionate toward each other.

Dickens' genius was to illustrate that Scrooge didn't need to acquire kindness, forbearance, and charity because they were already there. Like the single root of the Pando that is already there underneath the surface, Dickens urges us to lose our "separate thinking" and in doing so, uncover our buried interdependence. Life... will find a way.

We desperately need to find better ways of being human, especially in light of the dark events in Minneapolis recently. If as a society we can work interdependently to lock down something as small and invisible as a microbe, then surely we can work interdependently to lock down something as ugly and visible as racism.

Everything is in flux, yes. But with a deepening interdependence the flux

MAKING CONTACT IN A CONTACTLESS SEASON

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can sound more like harmony and less like uncertainty.

At InHouse we focus on creating safe and enabling environments to foster interdependence. Our success is in spite of operating in a challenging and changing environment like prison. In fact, we turned a prison into a safe space, not by altering the bricks and mortar but by understanding and not judging the people. Ultimately, InHouse is about developing the skills to do relationships better, and subsequently build those relationships into healthy networks—ones that spiral elegantly skywards toward mobility and equality.

Healthy relationships naturally draw us to greater interdependence, and away from separate thinking. Healthy relationships grow into healthier networks and foster harmony. I am sharing three simple actions learned from our work with InHouse that we can all do right now in order to cultivate better relationships, build healthier networks, and remind ourselves of our interdependence through harmony.

BE ACCOUNTABLE TO ONE ANOTHER

What are the mediums that can freeze-frame our lives and allow us to see a refracted version of ourselves? Slowing down enables us to identify the areas of our lives that need upgrading and the relationship skills that require nurturing.

By taking responsibility for our actions, behaviour, and thoughts we are becoming aware of our connection to each other. Greater accountability doesn't just apply to our lives, but extends to the interdependence required for healthy civic life too.

Through research for InHouse we know the significance of mayors and district attorneys, who have huge power in shaping our criminal justice system at local and state levels. These roles are elected positions.

9. "Voter identification laws in the United States", *Wikipedia*, https://en.wikipedia.org/wiki/Voter_identification_laws_in_the_United_States

10. "Voter suppression", *Wikipedia*, https://en.wikipedia.org/wiki/Voter_suppression

Greater accountability means realizing our civic responsibility to punch through **stifling ID laws**[9] and **voter suppression tactics**[10] that make it difficult for everyone to engage with democracy. It means using our civic muscles (where atrophy has developed) to demand accountability by exercising our vote at local and state elections, where turnout has been historically low—especially among young people.

Our interdependence must span deeper and wider than merely allowing the myriad refracted colours to shape harmony within our lives. It must extend to an accountability that reminds us we have a duty to all. Freedom cannot be freedom if inequality exists. We can start by making our personal lives more accountable, and then bring those to account who assume great responsibility.

COMMUNICATE CLEARLY TO ALL

The harmony created by greater interdependence develops better relationships, which in turn forms healthier networks. Healthy networks break inequality. Developing better communication skills makes us more likely to understand and less likely to judge. We have learned through InHouse that communicating with honesty and integrity, however difficult, produces compassion.

Dickens reminds us that our interdependence may be buried beneath our separate thinking and by uncovering it we can communicate clearly in our relationships

11. "Civil and political rights", *Wikipedia*, https://en.wikipedia.org/wiki/Civil_and_political_rights

and through our networks. We can rediscover our civic literacy and experience **protection from discrimination**[11] on grounds such as race, gender, sexual orientation, gender identity, national origin, colour, age, political affiliation, ethnicity, religion, and disability.

We are interdependent, and if we choose to act and start communicating with one another interdependently right now, then even amidst the constant flux our lives can begin to provide the harmony that will sustain us, allowing us to do more than merely survive, but actually thrive.

ADAPT TOGETHER

Living in an environment that constantly changes requires us to be constantly learning.

It's often said that failure can be the greatest teacher, although how ironic that failure is a word that brings such shame and rarely conjures up images of our favorite teacher. Failure is something society has always managed to social distance itself from (by far more than 2 meters).

As children we are warned to avoid failure, so when it does visit us (as it always does) our reaction is to hide it under the carpet. As we age, we are less inclined to accept it (see accountability above) and may even explore blaming someone else. But if we can't learn from our mistakes we will not only keep making them, we will create more chaos in the process.

Life always finds a way, and with it—interdependently—we can find better ways of being human.

Far from avoiding it, we must do all we can to make failure our friend. The more we are able to adapt from our mistakes, the stronger our interdependence becomes.

The greater the uncertainty, the greater the potential for interdependence and subsequently the greater the harmony. Big changes can create stronger connections among us, with deeper relationships that lead to antifragile networks and complex harmonies. We can start right now by being brave and exploring our own failure, not critically or with judgment but

lovingly and with compassion, encouraging ourselves to adapt and in doing so, adapt together.

Living in an environment that constantly changes requires us to be constantly learning.

EVERYTHING IN ITS RIGHT PLACE

Heraclitus noted that everything is in flux and we can respond to this by deepening our interdependence and becoming stronger in our understanding of each other. The safe and enabling environments we need to cultivate require the skills found in the fabric of our relationships: our love, tolerance, and compassion.

We need to slow down our lives with a refractive process to see failure more clearly, reminding ourselves (as Dickens reminds us) that what we seek we already have (though it's likely to be buried under a lot of separate thinking). We need to adapt, communicate, and be accountable to one another because we all inhabit this small planet and breathe the same air.

How can we make contact in a contactless season?

Heraclitus, Crichton and Dickens remind us that we were never disconnected in the first place.

By embracing our interdependence, like the Pando in Utah, we are able to foster harmony amidst flux. Indeed, the greater the chaos, the deeper the interdependence and the more beautiful the harmony. Life always finds a way, and with it—interdependently—we can find better ways of being human.

Nora N. Khan (MFA, BA)
critic, Digital+Media, RISD; editor, Rhizome

I teach criticism of technological design to students on and through software used by the police and the FBI to surveil and capture criminals. Industrious teenagers with 3D printers create masks for doctors working in PPE fashioned from trash bags while the US military—wearing spectacular Marvel-worthy outfits—mobilized overnight, flooding the feed. Apps like Neighbor and Next Door have surged in popularity as self-appointed renegade watchers respond to the surveillance impulse among citizens. At the same time, mutual aid and care networks organized around lateral, non-hierarchical exchange unfold.

The demand of this movement is that all of the imaginable contradictions and conflicting imperatives one can conceive of exist at once, in the same place, at the same time. Online and offline we live and work through and within profound political and conceptual contradictions in which our professed values for how to live with others are in direct conflict with the design of the infrastructure and systems available for expressing our choices.

In isolation—without physical communion and togetherness, without gathering—we've turned to communing largely through the seamless mediation of our digital identities and ambassadors (the usernames, profiles, addresses, and accounts that produce our online presence, based on the faint memory of being near others). We are learning to watch and not touch, to observe the world from a silent remove. In amplifying what is outside the frame and left unseen— what is invisible to others—algorithms bind, grid, repeat, and exacerbate metrics of unseeing.

How has leveraging fear of the skin, the bodies of others—imagined and real— echoed historical and well-established political specters of imagined threats? The lexicon of the pandemic—no contact, social distancing, curbside pickup—reifies social and class barriers. Who do we imagine ourselves in contact with?

Who are we never in contact with, as is? Who do we never want to be in contact with? In the absence of community, what ethical violations are ushered in under the cover of social solutions—quick fixes for systemic breaks? How do institutional and corporate control concentrate through each solution? How has technological solutionism accelerated and entrenched unimaginable levels of surveillance through the loophole of crisis?

"**COVID-19 is not a design challenge**."[1]
Like systemic racism, deeply entrenched historical projects cannot be approached as design challenges. Across the instant-share progressive spectrum, where the dominant energy of activism today is taking form, debate over what designers and design thinking should and shouldn't do is flourishing. Many look sidelong at one-off promises, encapsulated by the *Atlantic* headline *The Technology that Could Free America from Quarantine*.[2] What should designers be able to touch, have contact with, mediate, manage, intervene in, and determine? The impulse to swiftly intervene in crises with a tech-solutionist approach—with the magic key, app, or program—is increasingly rejected by activists, community organizers, and critics. Change is necessarily slow and demands collaboration across fields of seemingly incompatible expertise and knowledge.

DESIGNING FROM ABOVE
Early on in my RISD class on technological criticism, we analyze the world views of Buckminster Fuller, who along with Stewart Brand and the Whole Earth Catalog Network, created a field of design thinking that embedded a deep remove—a kind of no contact. The comprehensive designer was "**an emerging synthesis of artist, inventor, mechanic,**

1. Letter to the RISD Community, *We demand an immediate shift in RISD's priorities*. Google Docs. March 15, 2020.

2. Derek Thompson, "The Technology That Could Free America From Quarantine", *The Atlantic*, April 7, 2020. https://www.theatlantic.com/ideas/archive/2020/04/contact-tracing-could-free-america-from-its-quarantine-nightmare/609577/

objective economist and evolutionary strategist"[3] who hovered above the globe, its activity and problems buzzing at his fingertips. He would use the material and information afforded by an emerging technocracy, but remain at a considered, comfortable remove in order to observe, consider, critique.

3. Buckminster Fuller, *Anthology for the New Millennium*. Thomas T.K. Zung, Ed., pg 71, (St Martin's Press: New York, 2001)

Central to this narrative is the designer's distance from the earth, his single hand reaching down from the heavens to shape, move, and create pathways for us, the lab rats below. This is a kind of no-contact ethic—to nudge, to influence, to move without touching, to shape infrastructure, build walls and highways, create green spaces in areas of cities that apparently deserve them. This ethic also absolves one from taking responsibility for the social and cultural impact of what one makes.

For Fuller and Brand and their acolytes, technology was without doubt a tool for social transformation. Technology was the medium and intermediary that absolved the maker. Tracing how this optimistic, starry-eyed view of the tools of technology became fused with techno-centrism—and slowly but surely evolved into techno determinism—is beyond the scope of this piece. Let's just say that collectively we live with the effects of this thinking-at-a-remove every second of our computationally-mediated lives.

Being distant and at a remove from one another—meditating individually on this one unseen—has helped many to think and focus on all that goes unseen.

Today, dual design (and technological) impulses face off in a showdown galvanized by crisis. The first impulse is to engineer and increase methods of

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influence even without touch by advancing critical awareness of our being tied together in a network, embedded in how one another lives. Your suffering is tied to mine. The second impulse is to bunker down; to leave, self-isolate, entrench oneself within one's position, security, and ways of thinking; to continue to unsee the deeper systemic imperatives that exist for no touch—avoidance—at scale.

For the past three months, I have seen designers and serious students of design struggle with how to continue to work and think and make in the midst of profound uncertainty, large-scale trauma, and upheaval. The struggle in the arts— in making fields—will be as much with what to make for this moment as with the underlying, conceptual drive of a no-contact, techno-solutionist frame of churning out tools. There is a very healthy suspicion of the ideal of a singular genius who develops interventions—as air-drops or drive-by glosses on complex, lived problems reifying the social and class hierarchies that are killing us.

FROM TRACING TO CAPTURE

This spring demanded an attunement at scale towards an elusive, changing thing— towards invisible, asymptomatic carriers of the thing. We collectively modeled and simulated the thing's effects. Being distant and at a remove from one another— meditating individually on this one unseen—has helped many to think and focus on all that goes unseen. Essential work is actively unseen. Mental health crises often go unseen. The racialized elements of this virus, which disproportionately kills Black and brown people, go unseen. Many people are using their rhetorical powers and systems thinking to reframe, name, and gesture continually at these unseens.

Technology is one crucial home for this shift in perspectives. The pandemic has unfolded on a computational front, shaping our lives through surveilled interfaces, the politics of simulation, daily digital labor, and the economies of social

networks. This profound algorithmic turn is both a site of possibility and a difficult double bind. For instance, after nine days of protests, the FBI tweeted, asking for "information and digital media depicting individuals inciting violence." Beneath it, linked back-to-back, is a thread of hundreds of videos of traumatic police violence against "peaceful protesters" across the country.

This was evidence of a widespread adoption of sousveillance in which the citizen watcher looks back at violence, names it, shares it, and shifts collective attention. Twitter and Instagram are havens for critical reading of the language of power, refusing gestures and shows of solidarity in favor of meaningful structural change, which requires redistribution of resources.

But our dominant technological frameworks over-determine the solutions—technological or otherwise—that we are open to adopting. Technological design is already geared towards encouraging a clean, contactless process in which there is as little friction as possible. Adoption is made instant. Within a month and a half, under the state imperative to gather essential medical data, iPhones have been converted into local surveillance nodes. We have accepted the prospect of a measured surveillance in which we can still get to celebrate full connectivity through data-draining platforms. Journalists question which of our civic freedoms we are willing to trade for a simulation or false feeling of safety. They may also ask: What have we already been willing to trade in?

Any surveillance protocol for public health must account for the reality of contemporary technology as it is designed and is likely to be experienced in America, not how it might be ideally used by an ideal user in an ideal civic society. Efforts are lauded when surveillance is done "right," as in Finland or Taiwan. But this ignores the contextual, lived, and historical effect of the language of tracing, tracking, hunting down, enrolling, and

exclusion in this country. The infrastructure and architecture of quarantine have been shown to establish nodes of acceptable temporary surveillance that are normalized and folded in as soon as they're introduced. The emergency's state of exception allows a gathering of power that is difficult to turn off. It can't imagine any kind of technology that isn't oriented around expanding surveillance and the logic of capture.

For instance, in May 2020 protests erupted in dozens of cities across America in response to the viral filmed extra-judicial murder of George Floyd at the hands of Minneapolis police officer Derek Chauvin and three others. In late May, Minnesota Public Safety Commissioner John Harrington announced that protest arrestees would be **"contact traced"**[4] to determine their associations, political affiliation, levels of organization, and platforms in order to build "an information network." That contact tracing, a concept used for "passively" accounting for sickness, could be used to then trace "unseen" sentiments like being anti-police, anti-fascist, or anti-racist and criminalize them as sickness is not even an ambiguous move. **Think of how swiftly this conversion happened.**[5]

4. NBC News, Twitter Post. May 30, 2020. https://twitter.com/NBCNews/status/1266758240018276352

5. Keen technology critics like Adrian Chen have noted how swiftly the "war on COVID is normalizing surveillance in a bad way." Chen, quoting a tweet from NBC News. Twitter. May 30, 2020. Found at: https://twitter.com/NBCNews/status/1266758240018276352.

The lexicon of the pandemic— no contact, social distancing, curbside pickup—reifies social and class barriers.

In three months, one can map the story of a seamless transition from measures of necessity based on fear of viral infection to a wave of necessary surveillance based on fear of people protesting police violence and state fear of Black Americans as a political force, hidden beneath a stated fear of the specter of "antifa."

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WATCHING THE WORLD FROM A REMOVE

At this moment, calls to redesign or redefine surveillance—in some cases, embracing it as a potential good, or advocating for more "trained" systems for deeper tracking of health—ignore how the current infrastructure of surveillance is working perfectly, just as designed. Surveillance depends on people in power identifying with the police, wanting to be safe, wanting to themselves be the police. Many of us are served by surveillance; many of us are eager agents of it, happy pets, ready to turn our neighbors in overnight for perceived infractions. Our comforts in quarantine have been predicated on being at home, on being healthy enough, yes, but most of all, on being part of the exact apparatus that captures and names and marks the potential for disease.

As contact tracing becomes inevitable, it would seem that we need a more nuanced, productive lexicon for typologies and approaches to biological surveillance in the name of public health. And we should remember the eagerness our communities displayed in this crisis to have more phone surveillance—more police—in exchange for civic freedoms. We should be hedging against the casually dangerous impulse to embrace tracking and tracing for being inside or outside, and instead move our energy and critique to governments being wholly unprepared. Can we name the widespread desire for techno-authoritarian oversight, the scolds hoping for more police, more photos, more tracing? How much space will we leave for a serious self-critique of the comforts afforded by our relative positions? How much space in cultural discourse do we make for assessing our role in continuing state surveillance, in expressing its logic?

SOME FRONTS—SIMULATIONS
AND INTERFACES
Our interventions can take place in precisely the spaces of no-contact that ultimately determine how we will be in contact in the future. I encourage designers to deploy a rigorous social critique of technology, to recalibrate the metrics of technological fronts that directly shape

how we imagine contact and proximity, inclusion and exclusion.

The first front is interfaces, where we are reading now. Program interfaces become expressions of law, order, expressly stated values and virtues. Institutions that want to perfectly replicate their in-person settings online can only do so through the same logic of adopting contact tracing: in this case, forceful adoption of extractive interfaces and platforms that support and work with the police. Which institutions will change, given this information?

On platforms and interfaces, we have a valorization of difference, of highly expressed individual viewpoints atop symbolic interfaces. We might imagine interface design, which is driven by connectivity and individuated expression, in tension with underlying structural mechanics. This could include the aesthetics and politics of video conferencing platforms like Zoom, on which we perform endless digital labor and the material of our lives is visible to one another. As this becomes a dominant form of no-contact labor mediation, how will we carve out spaces of community and solidarity within them? How will we account for the psychological impact of such a flattening of social relations? Further, are there other solutions to such flat engagement that don't ask for more design solutions?

One strategy is to engage and use these interfaces critically, close-reading them. See across and through interfaces—analyze every font, every shape, every skeuomorphic icon, their suggested workflow, the ideologies of white collar labor and extraction and class hierarchies, the ways of reading that they encourage, the ideas of a user they design, and assume, and select for. Practice seeing through algorithmic modes of capture—through to how we are named, sorted, parsed, and understood. Practice cutting through systems to the institutional or market imperatives that speak clearly through them.

And when gathered, we can practice seeing through the screen to others in this space—to their contexts, their experiences, and their lives—by extending our imaginative empathy to them and truly sitting close to their lives rather than embracing and settling into the gaps and remove, the act of watching passively. Even as we are designing no-contact worlds through technology, we have to resist the hierarchies of cognitive labor they express, being aware of how our digital playgrounds of cognitive labor are predicated on their remove from other kinds of labor and laborers, from data labeling to manual and care labor.

Just as we attempt to reform our social systems, our computational models can be reformed as well to account for users moving differently based on cultural, historical, and economic factors.

The second front is simulation, which can **often fix in place that view from above**,[6] the modeler predicting the actions and desires of tiny human lives on a chessboard far below. The power of simulation as an evolving statistical and computational tool cannot be overstated. The news is shaped by simulations of the pandemic; our movements in relation to one another respond directly to "official" competing simulations of how people should move, could move, and might move while distancing. As a way of predicting and imagining how people will move, act, and work, simulations are deep expressions of power—a scientific imagining of social movement that produces reality.

We have lived the outcomes of simulations that unfold according to bounded parameters of models (that can be adjusted, revised, and changed). The flaws in assumptions have been lived as well.

6. Jenn Frank, "Diablo III is Adorable". *Unwinnable*. May, 25, 2012 https://unwinnable. com/2012/05/25/diablo-3/

After all, the idea that there is a universal model of movement regardless of culture, religious beliefs, ability, socioeconomic status and access is an absurd—if statistically efficient—assumption. So, too, are the assumptions that people move in isolated units, are always able to be totally self-sufficient, and are able to survive without the presence of others, with no sociological impact. Instead, there's an ongoing pandemic in "unseen" mental health crises, intimate partner violence, and murders.

Simulations from March 19 and 20, 2020 now look quaint and naive. They carry the image and perception of truth, small bobbing dots with humble hills rendered in oranges and pinks. The simulations we have been watching and reading and thinking through, discussing, and debating reveal themselves as endlessly subject to revision.

In a number of collapsed and limited simulations, the predisposition to die becomes a reason to die, an inevitability. Any "preexisting conditions" of health issues, genetic or environmental predisposition to diabetes and heart disease (outcomes frequently associated with race) are accelerated as expedited death sentences.

Just as we attempt to reform our social systems, our computational models can be reformed as well to account for users moving differently based on cultural, historical, and economic factors. Predictive models of human movement are ideologically shaped since computation depends on a statistically predictable user without too many "complicating" qualities. Critical intervention into a simulation could potentially produce policy and action that actually reflects how we all move in the world—how I move differently from you. Simulations might—and can—better account for how diverse groups of people move within different geographic, economic, and cultural contexts. Critical simulations would account for having a stable, supported life,

even with social distancing. They would account for the unseen.

For inspiration, look at ground-breaking models of radical cartography like the **Detroit Geographic Expedition and Institute (DGEI)**,[7] in which citizen mappers made maps of Detroit that describe racial and spatial injustice according to different metrics of how people really move: where Black children have spaces to play, how long it takes to walk to hospitals and schools, and so forth.

7. For a good overview of the Detroit Geographic Expedition and Institute, please see: https://civic.mit.edu/2013/08/07/the-detroit-geographic-expedition-and-institute-a-case-study-in-civic-mapping/.

Maps and simulations are political expressions of power, determining where we can move, who we see, who we imagine ourselves in contact with.

Simulation is a mental act first: We think about a world beyond this one and imagine ourselves moving and hugging, shaking hands, dancing in the future. We imagine ourselves after today. We have the cognitively embedded capacity to imagine ourselves far into the future. In these digital spaces, we need to practice such simulation of future systems by thinking through systems with others, using the same thinking one might practice when designing a game. Models are imported from each field to make new hybrids. The virtual landscape can be viewed from infinitely more perspectives—traversed by shepherds and surveyors, geologists and anthropologists, writers, psychologists, social designers. An interface is designed based on collective bargaining over its workflow. A simulation becomes culturally-specific and historically-rooted. A model revises itself based on new information.

A system is constructed for artificial beings to move in ways that allow them to live—six feet apart, but still collaborating, still in relation.

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COMPLEX MINDS

The gates creek with heaviness,
the coroner heaves a deep sigh,
the dreaded disease takes its toll.
A folly of the complex human mind
warps the very nature of existence.
Chaos is the order of the day.
History gets deconstructed.
Bills remain unpaid.
Healthcare is now a game.
As bats fly in the night sky,
the moon waxes ironically
while our foundation is shaken
forever.

— Kumar Rao
2019 graduate of RISD's Strategic Design program

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COMPASS PAIRING
CRISIS & CAPACITY

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Guiding Details:
climate, policing, governance, education, inequality / inequity,
the economy, food growth and distribution, public health
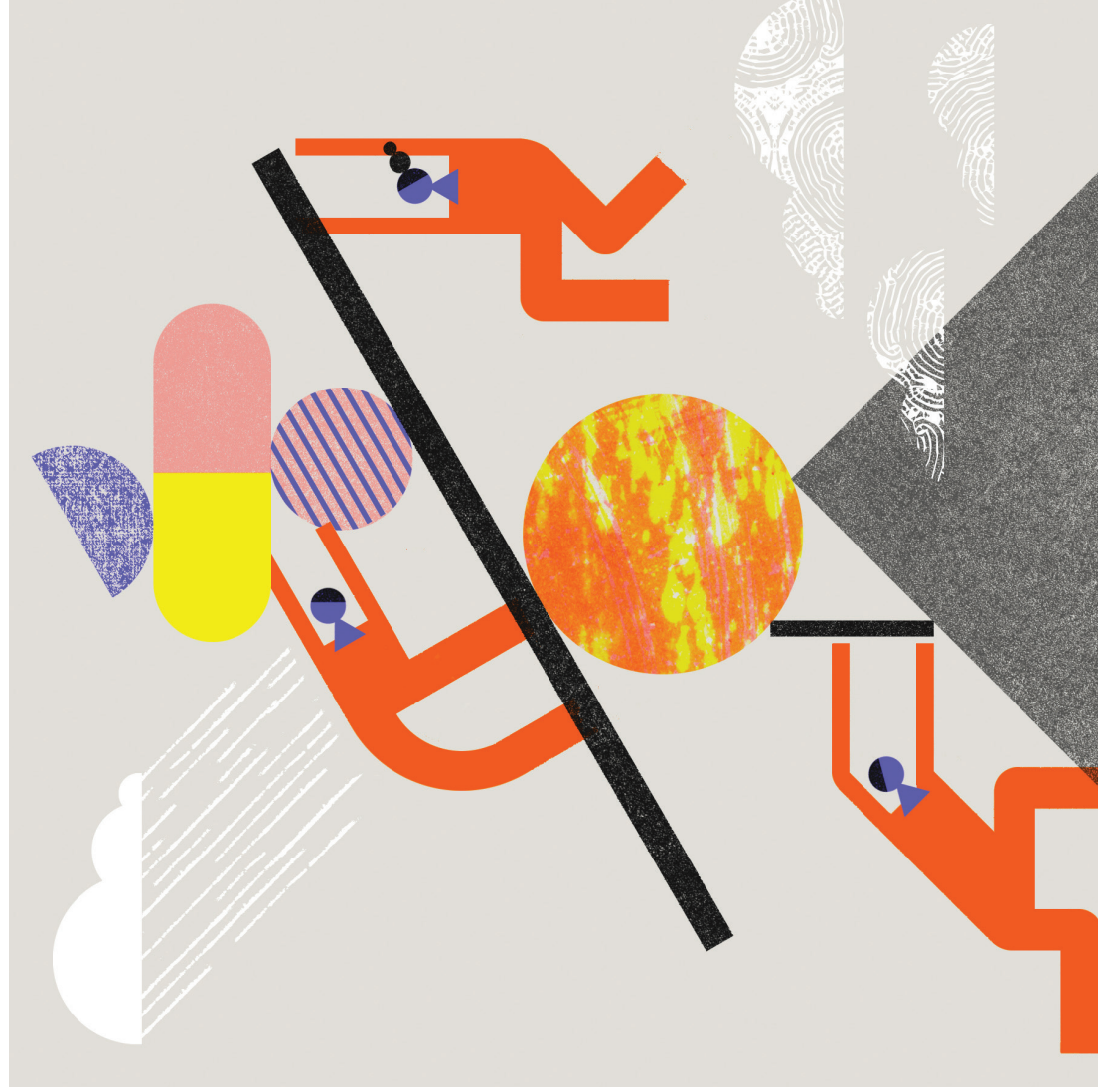
Ingrid Burrington (BFA)
Senior Fellow, Annenberg Innovation Lab, University of Southern California; writer, teacher

I can't pay no doctor's bills
but whitey's on the moon.
— **Gil Scott-Heron**, *Whitey on the Moon*

On the fifth day of protests and the 80th day since the World Health Organization declared the pandemic, two men were sent to space. The men who went to space—Americans, both of them—went up in a rocket launched from American soil for the first time in almost a decade, a rocket built by the private American company SpaceX.

For some future—yours, maybe—this is an important moment not because of the protests or the pandemic but because it lays the foundation for a new era of human space travel, which begets an era of human space exploration and human space societies.

The day they sent two men to space, I watched videos filmed less than a mile from my house of burning cop cars and tried (but failed) to work on this essay, which I still question the purpose of writing even as it goes through another round of edits.

This probably isn't important for understanding what happened. It's not going to come up when this era is the subject of a history test. I mention it for that far-future reader—yes, you, again. I am breaking the fourth wall here, speaking across centuries and void to a future I hope never occurs. I mention it because one of the hardest things to convey about a history as it's happening is that many of the people trying to document it are very tired and somehow expected to show up for the parts of the world that insist on operating "as usual."

I have been reassured by the people in charge of the event (who commissioned this essay) that the show must go on, that there is a need for continued discourse because, after all, during these past two weeks when America changed carbon emissions did not magically stop. Supply chain capitalism did not abruptly

transform for the better. Long-term thinking remains relevant.

Except, it doesn't. Not exactly. Not in the same way. What the summer of 2020 has made undeniable is that any long-term anything that doesn't explicitly incorporate the work of dismantling white supremacy is, in fact, still short-term thinking. Or at least, it's deeply cynical and decidedly not reading the fucking room. It's why your far-future history of the space colonies doesn't note the protests when it notes the momentous crewed rocket launch. It's why you probably don't know that the launch was supposed to happen on day two of the protests, but it was postponed because of weather.

The space-industrial complex can wait for weather, but doesn't exactly wait for peace on earth. Its origins, after all, lie in the opposite—fear of nuclear annihilation. The American space program's greatest moment of triumph, the 1969 moon landing, took place against a backdrop of terrestrial unrest. How is it possible, people marveled, that we can put a man on the moon but we cannot quell race riots?

What the summer of 2020 has made undeniable is that any long-term anything that doesn't explicitly incorporate the work of dismantling white supremacy is, in fact, still short-term thinking.

The answer, of course, lies in the presumptive "we" of the question, and what exactly "our" priorities really are. The capacity to engage in human space exploration is largely a matter of amassing technical resources. The capacity to reckon with centuries of racist oppression is largely a matter of redistributing resources. Those two ideas don't have to be in opposition to each other, but they tend to be.

The persistence with which space projects continue through a pandemic and protest is not new, though the outsized role of private companies with their own agendas in those space projects is. They make it harder to ignore one of the subtexts of space-as-usual amidst crisis: maintaining an exit strategy for the rich. Jeff Bezos and Elon Musk have been waxing rhapsodic about humanity's future in space for years, and they've got decades of pop-culture to back up their visions. Leave the chaos of Earth behind. A new life awaits you in the off-world colonies. That it may not ever happen, or that living in space actually sounds pretty awful (even right now as you read this, are you casually shitting yourself in low-g?), isn't really the point.

> The crisis I write from... is a respiratory condition. Conditions. A crisis of breath. A cascade of crises of breath.

Let's say it happens. Elon and Jeff get what they want. Let's say you're in space—a descendent of the people who believed that leaving the planet would produce a return to stability and prosperity. You're looking back, trying to understand this planet that you probably don't even have the bone density to safely visit. Maybe you're only just starting to understand that you come from a long line of extremely capable cowards. Breathing recycled air, you want to know about what happened before the Great Departure. How shall I explain this era?

"Eras are conveniences, particularly for those who never experienced them."
– **William Gibson**, *The Peripheral*

The crisis I write from—a present that someday will be a historical moment with a convenient name—we could say is a respiratory condition. Conditions. A crisis of breath. A cascade of crises of breath.

Some of this is obvious: a virus that robs its victims of breath continues to kill thousands daily worldwide. At its peaks, doctors struggle to obtain equipment to keep patients breathing and to keep themselves safe.

For the second time in less than 10 years, the world watches a Black man plead, "I can't breathe" as he dies on camera. In response to protests sparked by George Floyd's murder, police deploy chemical weapons that choke protestors—yes, even as those same protestors risk contracting the aforementioned respiratory virus.

The rationales offered for the chemical weapons and other brutal tactics come in the form of gasps from the rich, comfortable, and powerful, horrified by the uncouth behaviors taken in the name of rage and grief. Oxygen that might have sustained life instead feeds fires, set by protestors or provocateurs or in all likelihood both (and maybe it doesn't matter).

Meanwhile, older and slower-burn crises collide with these new ones. The so-called lungs of the planet continue to asphyxiate, carbon dioxide overwhelms oceans, and regulations on polluting technologies are relaxed more and more in the name of a free market. Capitalism's invisible hand has terraformed the planet to better serve corporate personhood than actual life. There's anxiety over not just access to fossil fuels, but access to the minerals needed for technologies that might help the world transition away from fossil fuels. We trade oil fields for lithium fields, for fantasies of moon mining. People fight even over the name and date of this era of crisis (Anthropocene or Capitalocene or Chthulucene), trying to turn planetary trauma into a fixed point in rock.

Of course, all of the immediate crises are intertwined and part of the older, deeper crises. Even responding to the pandemic grimly enables the climate crisis by producing mountains upon mountains of unrecyclable hydrocarbon-derived biomedical waste (a curiously discarded detail of the **feel-good history**[1] of meltblown polypropylene face masks currently protecting doctors from the virus is that they exist, in part, thanks to the R&D work of the **Esso Corporation**[2]). The pandemic might not have been so devastating to generations of Black and brown populations had decades of environmental racism not polluted the air, creating asthmatic and immunocompromised neighborhoods. Those conditions might have been easier to mitigate if people didn't have to pay so much money for healthcare. It might have been easier to coordinate a response to the pandemic in some places had the atmosphere not been overwhelmed with carbon dioxide, producing weather patterns of increasingly intense disasters in already vulnerable areas. (Hurricane season has barely begun as I write this, so you may know how that plays out better than I do.)

1. THROUGHLINE, *The Mask*, NPR, May 14, 2020 https://www.npr.org/transcripts/855405132

2. L.S. Pinchuk, Vi.A. Goldade, A.V. Makarevich, V.N. Kestelman, Melt Blowing: Equipment, Technology, and Polymer Fibrous Materials, (Springer-Verlag, Berlin, Germany, 2002).

> The word "crisis" has largely come to be synonymous with chaos, but its etymological roots trace back to something far more pointed: choice.

Maybe if the come-to-climate moment of the early 21st century had centered on the people actually most directly harmed by environmental destruction instead of on an aw-shucksing former vice president, if mainstream actions proposed for responding to climate change had emphasized undoing settler-colonial violence as much as buying the right kind of lightbulbs, if modern environmental movements had not been so **deeply bound up in racism and xenophobia to begin with**,[3] maybe I would not have to emphasize here that the crisis that affords cops impunity for murdering

3. Susie Cagle, "Bees, not refugees: the environmentalist roots of anti-immigrant bigotry", *The Guardian*, August 2019 https://www.theguardian.com/environment/2019/aug/15/anti

Black people comes from the same lineage of crisis that affords oil companies impunity for **also murdering Black people**.[4] Without slave labor to toil in colonial mines and plantation farms, the Industrial Revolution would have had no raw material to turn into mass-produced commodities at such a rapid clip. Extraction would have still happened, surely, but not with the urgency and speed that comes with the convenience of dehumanization. (Oddly, few of the names offered up for this geologic era or the theory surrounding it accommodates this reality. Perhaps that will change.)

4. "Kiobel v. Royal Dutch Petroleum Co. (Amicus)", *Center for Constitutional Rights*, Sept 2002, https://ccrjustice.org/home/what-we-do/our-cases/kiobel-v-royal-dutch-petroleum-co-amicus

So the crises of right now are the crises of then, and maybe there's a name for my present in whichever future you are in. But for now I suppose I could call the crisis "white supremacy" or "capitalism" or "imperialism" or "America." Really, it's all of them at once because they are not discrete states but interdependent conditions. We could say that capitalism is a respiratory condition that punishes people for catching their breath. We could say America is a respiratory condition in which white people cannot breathe easy unless they are standing on someone else's neck (and further, a psychosomatic one in which white people insist that not only are they not standing on someone's neck, they are in fact somehow helping the person they're standing on).

This is not to suggest some kind of original-sin theory of crisis (such an approach suggests simplistic solutionism, fixes over ongoing process). Thinking of a crisis as something that ends or that can be fixed is itself part of the *problem*. Framing it even as a problem might be part of the problem. The word "crisis" has largely come to be synonymous with chaos, but its etymological roots trace back to something far more pointed: choice. Typically the choice was implicitly a decisive or significant one, a turning point of sorts. Still, a choice.

This is not an unusual linguistic drift from a root to a new shorthand. It's similarly casually ignored that an apocalypse reveals the world as it is rather than merely obliterates it, that the "absence of kings" implied by anarchy could be a gift rather than a disaster. Much like those etymological foreclosures of possibility, the denial of crisis as verb—crisis as choice—undermines how crisis both affords and demands agency and responsibility. It obscures how crisis is the state of oppressive systems working exactly as intended rather than an aberration to be repaired.

Ignoring crisis-as-choice also allows for the temporal trickery that turns an ongoing condition into an urgent present-tense, one that affords little space for long-term analysis or imagining. A crisis must be solved now because: Damn it, lives are at stake. No time to propose redesigning the systems that made that freefall, that global shortage, those needless deaths happen. No time to demand *time*.

But to cynically reduce the choice of crisis to mere disaster capitalism also erases how those systems can be brought down by the choices of people who are sick and tired of living within oppression, complicity, and someone else's choices about their futures. Crisis as choice is another way of understanding where and how power works, because power usually determines whether and for whom a choice (collective or individual) constitutes a crisis.

Take the crisis of the climate, for instance (the one that we already established is also the crisis of white supremacy and imperialism—that crisis). For years, politicians and corporations have framed it as a problem to be solved primarily via individual choices—choices around reducing consumption or limiting travel or buying the right products or investing in offsets. In this individual-choices frame, the choices to do things like drill for oil in the first place or design cities exclusively around automobile travel are taken as an unavoidable given, absent

agency. (Conveniently, this also takes as a given the colonizing and invasion of oil-rich Arab countries as well as the role of interstate and freeway planning in reinforcing segregation.)

As the crisis of the pandemic forced a slowdown in travel and the perpetual motion machine of global commerce, some pointed to a reduction in pollution and projected carbon emissions as good news. Instead, the drop in the bucket those reductions offered demonstrated the absurdity of trying to address climate change solely through consumer choice. The choices made by corporations—including the choice of a corporation to exist at all—are much more significant here because they actually perpetuate the climate crisis. But look, they say. We are beholden to our shareholders. We had to do it. We had no choice. (Reader, if history has not made this abundantly clear to you yet: they had a choice.)

INGRID BURRINGTON

People do have the choice to breathe otherwise, but learning new ways of breathing... can be terrifying and exhausting in its own way.

Breathing, of course, is not actually a choice. It's something that lifeforms simply do, simply have to do, can't simply stop doing. This is where the crisis-of-breath metaphor breaks—or at least reveals itself as slightly more complicated. These of-then and of-now cascading crises of breath insist that there is only one way to breathe and it is helplessly, desperately, viciously gulping for scarce air at the expense of anyone (though it's easier to rationalize by saying any*thing*) in your way.

People do have the choice to breathe otherwise, but learning new ways of breathing—and doing so in the long term, not as exercises to recuperate from exhaustion—can be terrifying and exhausting in its own way. It takes work, and we–you–I don't know what exists or

who I am on the other side. Anyone who has recovered from an addiction or left a toxic relationship knows that being open and vulnerable enough to walk away from and unlearn a miserable existence doesn't always sound better than a familiar form of suffocation and exhaustion. So the crises are both atmospheric and symptomatic. The fault lies not in our stars, etc.

Which brings us back to space—at last. The absence of atmosphere. The reassurance of the void, of believing that you can create an atmosphere—a world—entirely anew, entirely to your liking, dissipating generational trauma like cleaning dust off a surface, somatics be damned. This is the real promise of space colonies: that you can jettison guilt and harm out of an airlock, that you can reconstruct the normalcy you swear once existed. Has it happened? Did it work? Do you breathe easy in the void?

I doubt it, if only because if you did you wouldn't have gone looking for this (now-overdue, but what is time anymore?) essay. You would not have these questions. You might even still be on Earth. People might still be dreaming of and pouring money into going to space. It might be 2020 and you might be frustrated because why am I wasting my breath on an extended framing device about space colonialism when I'm really just talking to white people who want things to go back to normal? Am I actually just talking to myself here to reckon with my own desire to dissociate and relapse into the void some days? Am I going to give you something concrete to do to solve the thing I just said is not about solving?

Well: that future is as hollow and miserable as the present condition it's standing in for. And because I'm just as flawed and fucked-up and working on it as everyone else, why not hold myself accountable? And: look, don't hold your breath for easy answers. Don't stay suspended in the possibility of choices, in the suffocation of a crisis atmosphere. Pay attention to how you're breathing. Pay attention to what you think is innate and consider what's

actually a construct. Talk about this with others. Consider how you might all live otherwise. Live otherwise. Or don't. Make a choice.

"There's no magic bullet. Instead there are thousands of answers—at least. You can be one of them if you choose to be."
— **Octavia Butler**, *A Few Rules for Predicting the Future*

MARIANA BARREIRO

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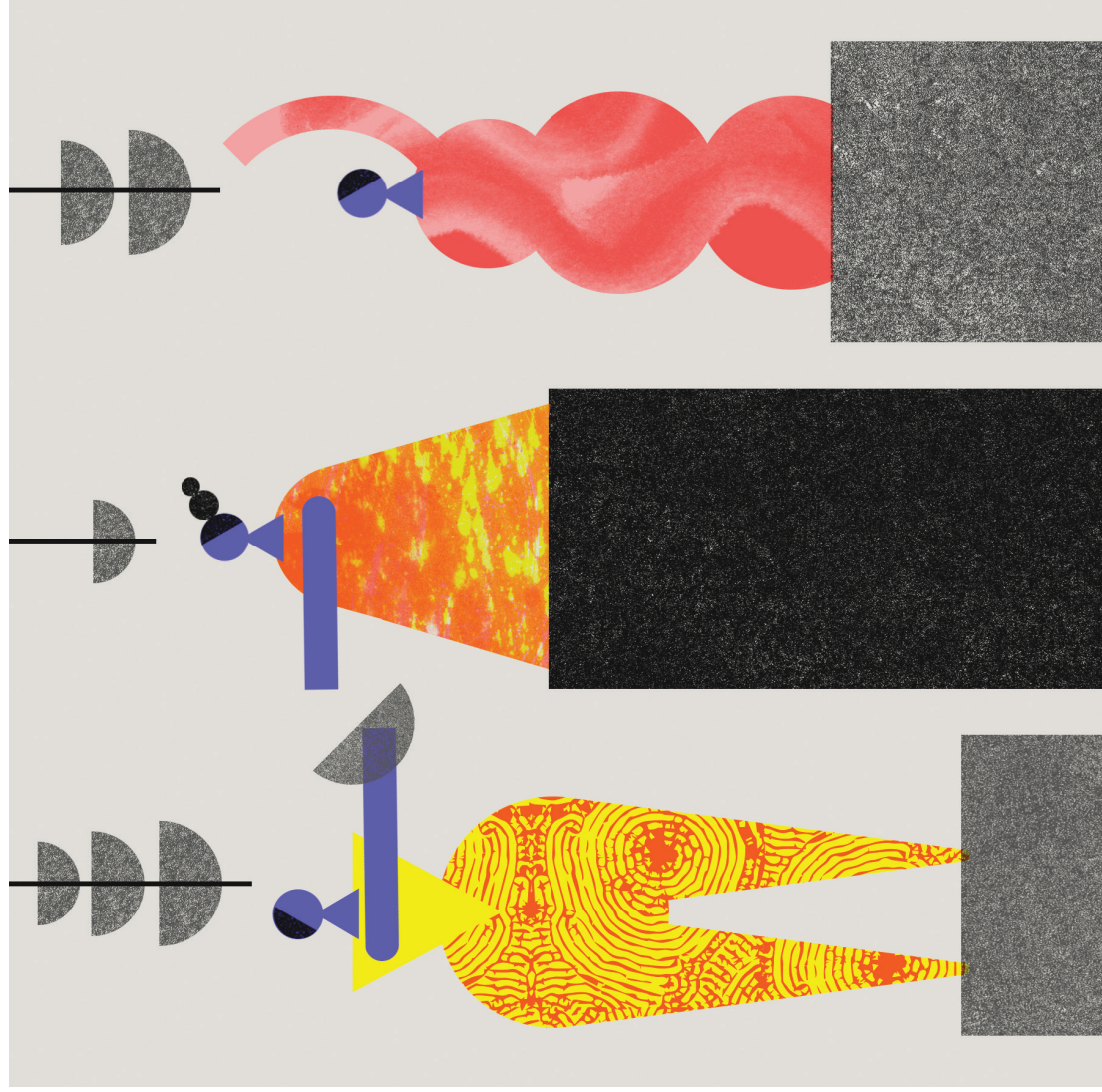
Mariana Barreiro
All of Us Together
Crisis & Capacity

COMPASS PAIRING
COMMONS & CAPITAL

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Guiding Details:
equality / equity, competition, economy, waste, distribution

Douglass Carmichael (PhD)
Strategy Consultant, Institute for New Economic Thinking

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We need a vision[1] for a better future. Consider expanding the Commons[2] while taming capital[3].

The Commons is where parts of the earth—land, water, air, schools, roads, health, factories and fields—are shared. Thinking about the Commons and other strong options for the future of society is now urgent. The slow breakdown that was occurring has become clear through the government's inability to meet the challenges of COVID, climate change, and fairness. Now what? Something will happen.

It is possible that big data operating through large corporations—with sensors in every part of the economy and private spaces, and managed by algorithms—could work. But that same technical capacity could be used for very effective local management with sensitivity to local conditions and guided by democratic participation. Much is afoot and we should want to participate.

We need a cooperative ethos, but the world is still Hobbesian—all against all. Food and habitat breakdowns will motivate local solutions. The Green Revolution proposes subsidies for green projects but no structural change in governance nor property. We must go further into causes and solutions. Imagine if food and family were the focus of social organization! As COVID fades, climate will loom, requiring us to think more structurally.

[1] There are many people probing in the directions explored in this essay. However, most present ideas in terms of policies and avoid 1) a vision of what kind of new world might emerge, and 2) what actions would help us get there.

[2] From Wikipedia: The use of "commons" for natural resources has its roots in European intellectual history, where it referred to shared agricultural fields, grazing lands and forests that were, over a period of several hundred years, enclosed, claimed as private property for private use. In European political texts, the common wealth was the totality of the material riches of the world, such as the air, the water, the soil and the seed, all nature's bounty regarded as the inheritance of humanity as a whole, to be shared together. In this context, one may go back further, to the Roman legal category res communis, applied to things common to all to be used and enjoyed by everyone, as opposed to res publica, applied to public property managed by the government. A person who has a right in, or over, common land jointly with another or others is called a commoner.

[3] Capital is surplus wealth that can be used for investing. The word comes from Latin, cap, head, as in new head of cattle. Very unequally distributed in modern society.

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A major goal of social development should be to cut poverty to zero. That doesn't mean equality, which is a problematic concept. (Who gets to live by the ocean? Who gets to marry the prom queen?) But it does mean that we lift the bottom up, not in terms of cash but rather living conditions. Each person should live a life that feels good to them and provides support for their development as a family member, citizen participant, and artist. I think it takes us toward what can be called Gardenworld and its politics.

Developing the Commons means cutting some of the concentration of assets at the top while vigorously creating better circumstances where most people actually try to live. But getting from cash to the Commons is not going to be easy (despite its attractiveness), requiring changes in regulations and, most importantly, in culture.

To understand the future for the Commons it is helpful if we have some background thinking on how all of the earth, once free for roaming, shrank to the ownership of a small percentage of people. This has been a slow process we may need to untangle carefully. Water and air used to be part of the Commons. Now, water is in bottles and good air at expensive resorts. Land has disappeared behind boundaries and titles. This started with nomads and their cattle, at first free to roam. But with increases in population—of people and cattle—grassland became scarce and conflictual until governing bodies stepped in to divide it up. Cattle were owned but the land was just nature. The concern shifted from cattle—the small herds—to grazing—the land itself. This huge shift caused reactions. The *nomoi* in the word *economy* comes from the Greek *nomos*, or law; in pre-platonic Greek the word meant equal distribution. But a law is not developed without a felt need, and that need was to maintain fairness of land division.

The first attempt at maintaining equality was to divide the land into equal portions. But not all acres of land are equal, so the

process moved on to meet the needs of rising populations while maintaining *nomoi*—but how? In early societies, nomads, hunter-gatherers and empires were mostly based on cattle. Food was harvested and brought to the administrative center, stored in large urns, and distributed on the basis of need. The pyramids were not built by slave labor, but by agricultural labor provided with feasts during off seasons.

Humans (based on the earliest traces) lived communally, just as earlier primates had. Human groups—from bands to tribes—shared food and danger. Within the group, no one starved; even today, "We are all communists in a family." The path of history has been for private property to cut into that shared community until it only remains in the kinship family. Yet even at home, many people on cell phones no longer share dinner.

Commons and cooperation replace consumerism and isolation.

The whole path of human history has been a struggle by elites to chip away at the Commons and take more for themselves, leading to a class-based society of the favored and the unfavored. It is this simple arc of elite wealth versus the poverty of the rest of us that forms the basis of the current situation, where elites dominate and everyone else is marginalized. The point is that a better future with a larger sense of the Commons is in conflict with existing institutions. There is no policy that can get us to that better world without people who are fully committed to that struggle.

Hunter-gatherers shared the kill in the group, but as society grew more complex and land was fenced, the idea of the sacrifice emerged as a way of maintaining the culture of sharing. If you read Homer, you will see how often cattle were sacrificed; the smoke went up to the gods and the people ate the shared meat. Athens in the

5th century BC was dependent on sacrificed cattle to feed the population (see the amazing book *Against the Grain* by James C. Scott). There was no process of buying or selling. These were cashless societies without markets.

Remnants of the old tradition still exist. When I was visiting a large estate outside of Edinburgh, I was surprised to see small groups of people walking around and spreading out blankets around lunchtime on a Saturday. The host explained that as townspeople they share the right to enjoy the land. In Scotland all land is considered open to people for walking and picnicking. This seems strange to Americans and others accustomed to notions of "private property."

The word "common" sounds a bit weak, but its history shows its depth. From the *Online Etymological Dictionary*,[4] *com*

4. "Common", *Online Etymological Dictionary*, https://www.etymonline.com/word/common

means "together" and the second element of the compound also

is the source of Latin *munia* or "duties, public duties, functions" and those related to *munia* "office." Perhaps reinforced in Old French by the Germanic form of PIE *ko-moin-i- (compare German *gemein*, Old English gemne "common, public, general, universal"). So the Commons points not just to use, but to co-responsibility.

The Commons extended into the 18th century in England. The idea is simple: elites by virtue of gifts from the king claimed much of the land, and what was left over was used by unlanded farmers and craft workers, grazing their own cattle and planting gardens.

Understanding these differences in the living realites around the world helps us see that other arrangements are possible. Alexander Hamilton, one of the founders of the American republic, spent months studying and reporting on the differences he found in different republics. We need to be that wise about the various possibilities for the Commons. Everyone had the right to use roads. It is unfair that roads

are being converted to tolls so that the wealthier can afford fast lanes.

What are Commons? We need to understand that they are part of a different way of experiencing the world. Just as in a dance you need to be aware of your partner, in a society with a strong Commons, cooperation emerges as a kind of dance with others, with plenty of intuition for others. Commons and cooperation replace consumerism and isolation. There is a major psychological difference between walking on land that is collectively ours and land that is owned by another, where we have to be continually on guard like in musical chairs. Hunting and camping lands used to be Commons until encroaching land grabs led to parks as designated zones free for regulated use and controlled by the state. Wilderness used to be a place without any presence of the state. An old Chinese saying notes: "The people are in the forest and the emperor is far away in his palace."

Two major problems for society are the feeding and housing (homing) of people, who tend to live in families with children and old people. Feeding and habitat, now under stress, are where new Commons may form—a food line now, shared housing tomorrow. Imagine that the government distributed food stamps to everyone at a quantity to meet their needs. If Mary wants company for dinner, she uses her stamps and her guests chip in and give her some of theirs. Such a system would be kind to surplus. Under capitalist conditions, the more a farm produces, the lower the prices and the lower the income of the farmer. Throughout history, cities have imposed this structure on farmers, lowering their portion of societal wealth. In the Commons, surplus is not a threat to anyone as farmers' needs are met by the same shared understanding of food and habitat.

We can imagine towns with new civic centers that combine schools, town offices, retirement homes, childcare centers, libraries, and modest medical help in the midst of a park. Perhaps there is also a

café, an all-purpose small general store, and maybe even an incubator facility for new business startups. Generations and interests mix.

Capitalism and democracy are two parallel systems for making decisions. It is important to see that major decisions are controlled by the owners of capital. In the Commons, such investment decisions are discussed by the entire community. The problem now is that capital can too easily buy the political process.

The result is a society that does not offer much to people in their quest for a full life. Legislation of many kinds has forced people out of families into acquisitions. Basic needs for curiosity, love, self-regard, friendship are shifted towards more for me, less for you. If we are not empathetic we have to cut off our own emotional sensibility, and this is at great cost. **David Hockney**[5] writes that, "If you see your surroundings as beautiful, thrilling, and mysterious, as I think I do, then you feel quite alive."

5. David Hockney and Martin Gayford, *A History of Pictures*, (Thames and Hudson, 2016).

Life is not met well with feedlot institutions. Humans need more. Creating the spectrum of conditions for a full human life for each person is potentially freed up in the Commons.

The Commons will not eliminate conflict, but is built on much more participation. The problem is society seems to need elites that coopt participation for themselves. This means conflict is always present and always needing resistance. Are elites needed to run society? Probably. Small group research shows that a leader always emerges. Take away that leader and a new one emerges.

A generation of elites breeds a next generation of lazier and less aware leaders who, from an elite position in the social structure protected by zoning and gated communities, lose contact with reality as lived by the rest of the population. This failure to understand the whole leads to

crisis. So, how are leaders chosen, educated, rewarded in the Commons?

In his essential book *The Collapse of Complex Societies*, Joseph Tainter argues that as nations evolve they become more complex, and as they grow more complex the maintenance cost increases more rapidly than the productive capacity of society. This continues until the curve of rising costs eats up all the surplus—and it keeps on going until things collapse. Moreover, the elites own the infrastructure and when problems emerge, instead of paying to repair the system they cut costs and take the savings for themselves.

A different form of governance occurred in Athens. Key roles were filled by lottery, drawn from all citizens. People had to be educated enough to fill those roles if chosen, and roles had to be understandable enough that chosen citizens could handle them. This is a very different kind of society than we know, but may be what the Commons requires.

Wikipedia[6] offers this summary of sortition:

6. "Sortition", *Wikipedia*, https://en.wikipedia.org/wiki/Sortition

"Athenian democracy developed in the 6th century BC out of what was then called isonomia (equality of law and political rights). Sortition (lottery) was then the principal way of achieving this fairness. It was utilized to pick most of the magistrates for their governing committees, and for their juries (typically of 501 men).

Aristotle relates equality and democracy:

"Democracy arose from the idea that those who are equal in any respect are equal absolutely. All are alike free, therefore they claim that all are free absolutely... The next is when the democrats, on the grounds that they are all equal, claim equal participation in everything. It is accepted as democratic when public offices are allocated by lot, and as oligarchic when they are filled by election.

In Athens "democracy" (literally meaning rule by the people) was in opposition to those supporting a system of oligarchy (rule by a few). Athenian democracy was run by the "many" (the ordinary people) who were allotted to the committees that ran the government. Thucydides has Pericles make this point in his Funeral Oration: "It is administered by the many instead of the few; that is why it is called a democracy."

I want you to take seriously that restructuring this society for the better is not just a question of policy but of actions to make things better—an effort that is with us for the duration of animal life.

We need a cooperative ethos, but the world is still Hobbesian—all against all.

Some societies have dealt with parts of this. A priestly society such as Teotihuacan in Mexico seems to have developed a living situation of great equality at the material level. As you move out from the religious center, houses seem to be all of the same size. They also seemed to have kept the population at a level equal to the capacity of agricultural production tied to the available acreage on the valley floor. This required managing two systems as one: birth and demographics with food production.

"Survival of the fittest." But who are the fittest? The competitors or the cooperators? Humans don't have to follow evolution. Jefferson's "We hold these truths to be self-evident, that all men are created equal" is clearly not scientific nor Darwinian, but we can hold to it because it sets the conditions for a less conflicting and more attractive society. Of course, we have not reached that goal. We're living in the arc of an uncompleted French Revolution. Fascism, Communism, and perhaps even American "free" enterprise were well meaning, wrong-headed attempts to follow through, leaving the task still incomplete.

The slow evolution from the shared Commons of the past to the current decaying state is filled with details we may need to undo. One such detail: the CO_2 in the atmosphere took cars—now about three billion—100 years to amass, pumping out burnt gas at 25 lbs of CO_2 per gallon. Since you can't run a car's engine in reverse, removing that existing CO_2 will be very difficult given current and proposed technologies. So, too, will the reversal of the reduction of the Commons from the whole of the earth—its air, water and sunlight—to a small part of the earth chopped into pieces generation by generation.

Garret Hardin's 1968 paper ***The Tragedy of the Commons***[7]—often used to discredit the idea of the Commons—was actually written to deal with nuclear disarmament. He argued that community-based farmers would overgraze their own cattle at the expense of the community. Historically, what ruined the Commons was not the overgrazing by "commoners," but rather the use of the legal process by large landholders to take land from the Commons, mostly for sheep. This process is known as "enclosure." (See E.P. Thompson, ***Customs in Common***.[8]

7. Brett Frischmann, 'The Tragedy of the Commons, Revisited' https://blogs.scientificamerican.com/observations/the-tragedy-of-the-commons-revisited/

8. E.P. Thompson, *Customs in Common*, (The New Press, 1993)

9. Elinor Ostrom, *Governing the Commons*, (Cambridge University Press, 2015)

For a positive view of the possibility of the Commons now, see Elinor Ostrom, ***Governing the Commons***.[9])

The old is held together by folk tradition. Habit is the enemy of change and the friend of stability. William James wrote: "Habit is the enormous flywheel of society, its most precious conservative agent. It alone is what keeps us all within the bounds of ordinance, and saves the children of fortune from the envious uprisings of the poor." Habits that preserved the Commons will also tend to preserve the current competitive society. Just as it took a long time for the Commons to give way to private property,

so too will habit hold on to rent, markets, and jobs. If we want to move toward less consumption and more craft, recreation, and family time, it will be hard, but oh so worthwhile.

For the Commons to succeed it will have to be attractive, building on the desires—explicit and vague, shared and private—across all generations and other differences that divide us. Black and white should be replaced with the beauty of tone. We should appreciate each other. Rich and poor should not be segregated as the resulting ignorance is stifling.

John Maynard Keynes wrote in a wonderful essay, frequently quoted: "Economic prospects improve for our grandchildren, based on the idea that we can produce the basics—food, housing, health, education—with fewer people as tech advances." But here's the rub. He suggests that the savings can go to leisure. Yet we are caught up in growth rather than rethinking what we want and how best to get it. Growth maintains the financial system, but we probably need that system to collapse. It has been fateful for society that we chose the path of constantly increasing consumption rather than the constant advance in the quality of human lives—including fairness for all. [10]

[10] Rethinking the logic of growth is essential since the meme in this society is that growth is essential. Essential for what? Basically to pay off the interest on debt and keep financial careers viable. The US economy at its best still was creating poverty. The argument for jobs is that only with growth can we have full employment. But this avoids the issue of what is work and time for? Back to Keynes and our grandchildren. This can be rethought, and many are now trying. Wealth can be increased by rearranging what we have without need for extraction from the environment nor workers. Aristotle writes in On Generation and Corruption, that we can have development without growth.

So how might a Commons emerge? We need ordinary people (who are never actually ordinary at all) to want to participate in the creation of a world that works for everyone—especially themselves. They need to realize that strong people require a strong community and a strong community requires strong people, and that it feels good to be working with others toward a new goal. The Commons can provide quality of life in terms of food,

habitat, attractiveness of surroundings, safety, and appreciation.

"Do you like living here?" "Sure. It should have always been like this." More relationships, less traffic. When Jefferson used the word "happiness" in the Declaration, he did not mean consumer bliss, but rather the number of roles each person played in society. The more roles, the more our talents are integrated with reality.

In Scotland, as part of what is called the Scottish Enlightenment—from which Jefferson got the idea of happiness—there was a general philosophical view about what was called "common sense," a view of the world and life and actions large and small shared by "all reasonable people."

Who might such reasonable people be? In *The Tempest* Shakespeare looks to the future: "Oh, wonder! How many goodly creatures are there here! How beauteous mankind is! Oh brave new world that has such people in it."

We need to think of terrarians as a positive identity. Earthlings? Perhaps. Words will play an important part, but we do not yet know which words. The Commons can span from local communities to watersheds to continents to the internet—which raises the question: What is the role of technology in the Commons? Currently, tech development is too linked to private monopolization. Should tech be broken up? Or perhaps better still, turned at maturity into Commons-owned utilities?

How might such a Commons be managed? First, it requires human connection. People isolated in consumerism and competition are not good at cooperation and co-creation. This decade will tell us about the current state of our decency and civic mindedness. I am optimistic that in the midst of legitimate and illegitimate violence, tolerance and empathy are stronger than fear, hatred, and opportunism.

Once we can gather, we can manage the Commons in Open Space, developed by Harrison Owen. It goes like this: In the morning we gather in a circle. People are invited to suggest things we need to do or think about. In the center of the circle is a pile of paper and some markers and a microphone. Each person who wants to lead comes to the center and writes the topic and announces it through the microphone. There are Post-its on the side of the wall with rooms and times, and each presenter picks one that identifies the when and where.

When the morning's ideas seem well-gathered, people sign up for the effort they want to join, and then they disperse into small groups around the leader. The group comes back at the end of the afternoon for thoughts about what happened. The process repeats the next day or perhaps a week later. In this way, the community—in shared cooperation with self-chosen tasks—deals with the issues at hand.

Note that in this system unattractive tasks can become necessary tasks, and some will volunteer for them for the sake of community. Obviously, if no one volunteers for the task maybe it should be forgotten. In modern society we pay low wages to the most disadvantaged to do terrible jobs, such as meat rendering. The psychic burden of such jobs is destructive. No one should do these jobs on more than a very part-time basis.

Commons means more human interaction. Confucius was asked what should be learned. He replied: "Know your fellow people." The psyche won't go away. Frustration, fear, guilt, disdain, and jealousy. Seven deadly sins: pride, envy, gluttony, lust, jealousy, greed, sloth. The virtues, less well known: charity, prudence, hope, humility, kindness, perseverance, courage, justice. All the stuff of the great operas. You will want to understand these, in yourself and in others. Critical self-inventory also includes understanding your historical and institutional background.

It's hard to imagine how the change from markets could be brought about. People are deeply controlled by their self-chosen habits. In the spaces created by a serious breakdown, their first and deepest impulse is to do what they know: to reestablish mine versus yours and set up boundaries and contracts and private property.

The whole path of human history has been a struggle by elites to chip away at the Commons and take more for themselves, leading to a class-based society of the favored and the unfavored.

The division into private property is the opposite of the Commons. But to show you how fluid even the most basic concepts are, private property is worth analyzing. "Property" comes from "proper" ("What is proper for a man of rank to show his status in society?"). We still use it this way ("Are you dressed properly for the party?"). In the community, what is a social sign—property—evolves into something that can be bought and sold.

"Private" is slightly more difficult. *The Etymological Dictionary* has: "The original Latin meant *remove from the public*. From Latin *prīvātus* ("bereaved; set apart from"), perfect passive participle of *prīvō* ("I bereave, deprive"), from *prīvus* ("single, peculiar"). That is, death from the group. What is private is a death and the state bereaved."

It's a long way to the modern meaning. This is worth some reflection. It implies that being removed from the community is to lose life. That is, life comes from being in the community. This is psychologically true, as we have seen in the COVID crisis. The implication for the Commons is clear.

These histories are important because they point to:

1. key concepts that evolve through culture and use, not decreed by god or nature.

2. issues that a new Commons will have to rethink over and over.

We seem stuck now, but we might see a quick reorganization of the need for community in space created by the breakdowns (such as 50 percent unemployment or actual starvation). Or maybe it requires a long multigenerational evolution (see *The Long Revolution* by Raymond Williams). Remember that the Commons is as much political, cultural, and experiential as it is concerned with material. People and institutions make up the Commons, where people's interactions with all others are fluid, changing, not static.

Social arrangements result from political struggle against overbearing elites, but in the struggle elites have been winning out, culminating in ungovernability, substituting market and poverty for political choice. The long arc is toward human fullness. The struggle—from uprisings in the old empires through the Europe of the Renaissance to the present—is incomplete. The effort for the Commons is part of continuing the arc. It will not be easy.

THE GIFT

Generous cultures are nearly extinct
You were young enough to believe
that they would flourish forever
I swear I saw this with my own eyes
Krum sautéed with crushed chilli
peppers, garlic and salt
fried potatoes for aloo dum*, mixed*
with Kashmiri achar
in your aunt and uncle's kitchen
Remember how they used
to remind us
that the most important things
in your life
took place in your absence

Generous cultures have become
suffocated from your toxic jealousy
that began arriving at all of our
doorsteps uninvited
My pain and suffering is more
important than yours
She gave birth for the first time
Her mother and father both dead
in Kashmir
But she wasn't alone, her brothers
standing around her
A temporary home is a gutted
basement
But still they greeted her with
balloons, handmade cards, trays
of jalebis
But still we began to plant seeds
ripping apart years of relationships
once thriving

— Jagdeep Raina
RISD MFA 16 / Painting
2020
Canada

JAGDEEP RAINA

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MORE THAN A CORNER STORE:
FOOD, STRUCTURAL VIOLENCE,
AND THE BLACK COMMUNITY
JONATHAN BISHOP HIGHFIELD

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Jonathan Bishop Highfield (PhD, MA, BA)
Professor, Rhode Island School of Design

"I took a bite, finding it as sweet and hot as any I'd ever had, and was overcome with such a surge of homesickness that I turned away to keep my control. I walked along, munching the yam, just as suddenly overcome by an intense feeling of freedom—simply because I was eating while walking along the street. It was exhilarating. I no longer had to worry about who saw me or what was proper. To hell with that, and as sweet as the yam actually was, it became like nectar with the thought."

—**Ralph Ellison**, *Invisible Man*

As Ralph Ellison poignantly points out in the epigraph from *Invisible Man*, food and foodways are among the most potent of cultural expressions. The food people eat and the way it is prepared speaks volumes about their relationship to their culture, their place in society, and their interaction with the environment. On a most basic level, though, food has the ability to suggest home, to reconstruct cultural memory from the integration of ingredients, seasonings, and preparations. Foodways act as a crucial tool of cultural self-definition, and the memories of those foodways serve as a connection between the lost identity of childhood and the inhabited adult identity.

Recently, former United States president Barack Obama wrote a Facebook post about the protests spreading across the US and around the world. The protests were prompted by the murder of George Floyd by a Minneapolis police officer, just the latest in a series of murders of African-Americans at the hands of law enforcement officers. Obama's post was articulate and compassionate, diametrically opposed to the tweets and rambling speeches by the current president, Donald Trump. At one point in the post, however, Obama completely missed the mark. He wrote:

I saw an elderly black woman being interviewed today in tears because the only grocery store in her neighborhood had been trashed. If history is any guide, that store may take years to come back. So let's not excuse violence, or rationalize it, or participate in it. If we want our criminal justice system, and American society at large, to operate on a higher ethical code, then we have to model that code ourselves.

While Obama's ethical sensibility is admirable, it completely overlooks the psychological impulses behind an attack on a neighborhood store. After his residency in the Blida-Joinville Psychiatric Hospital in Algeria during the Algerian war for independence, the **Martinican psychiatrist Frantz Fanon observed**[1] that violence in colonial Algeria was

1. Frantz Fanon, *The Wretched of the Earth*, (Grove Press, 2021)

mostly Algerian upon Algerian violence because the everyday frustrations a person faced mostly emerged from the local environment. Yes, the outrage over the killing of unarmed civilians by French troops was driving the revolutionary impulses of the resistance, but it was the corner grocery that charged too much for semolina and oil that is a likely target of violence emerging out of the pent-up frustrations of the ordinary Algerian. It was, as Fanon observed, like the pecking order of hens: "Every colony tends to turn into a huge farmyard, where the only law is that of the knife." What Obama fails to recognize in his post is that the corner store represents the traumas of underemployment, disenfranchisement, and lack of privilege. While its looting may ultimately be self-destructive, psychologically it brings temporary relief.

In *The Wretched of the Earth*, Fanon observed that "the relations of man with matter, with the world outside, and with history are in the colonial period simply relations with food." Fanon recognized that for the colonized subject existence itself is so threatened that every bit of food one can gain access to is "a victory felt as a triumph for life." Unmediated

access to food and the means to produce it are central tenets of Fanon's anticolonial project. His insistence on the "**Africa of everyday**"[2] places the emphasis on material conditions across Africa, both during the colonial period and afterwards. When he wrote that "independence is not a word which

2. Frantz Fanon, *Towards the African Revolution*, (Grove Press, 1969)

can be used as an exorcism, but an indispensable condition for the existence of men and women who are truly liberated, in other words who are truly masters of all the material means which make possible the radical transformation of society," it becomes clear that, for him, liberation is inextricably tied to people's control of their own means of sustenance.

African-Americans are still an internally colonized population, facing systemic injustice and state-sponsored violence and humiliation.

In ***Black Power***[3], Stokely Carmichael (now Kwame Ture) and Charles V. Hamilton defined institutional racism in the US as colonialism. *Black Power* was first published in 1967, but the segregation and

3. Charles V. Hamilton and Kwame Ture, *Black Power The Politics of Liberation*, (Penguin Random House, 1992)

differentiated opportunities they pointed out in the book remain in place in 2020. Legally-sanctioned lynchings of Black men and women based solely on phenotype continue, and the incarceration of African-Americans **has increased exponentially**.[4] **Currently in the US**[5], there is a $24,000 wage disparity between the median income of all families and Black families, 46% of all people incarcerated in American prisons are African-Americans while African-Americans **make up just 13.3%**[6] of the

4. "Criminal Justice Fact Sheet", *NAACP*, https://naacp.org/resources/criminal-justice-fact-sheet

5. "Black Population in US", *Black Demographics*, https://blackdemographics.com

6. "United States—Black Population Percentage by State", *Index Mundi*, https://www.indexmundi.com/facts/united-states/quick-facts/all-states/black-population-percentage#map

US population, 27% of all African-Americans live below the poverty level compared to just 11% of all Americans, and 38% of Black children live in poverty compared to 22% of all children in America. Carmichael's and Hamilton's observation of the conditions in Black America remain maddeningly relevant.

African-Americans are still an internally colonized population, facing systemic injustice and state-sponsored violence and humiliation.

Access to foodstuffs is also unequal. Food activist **Ron Finley points out that the lack**[7] of access to fresh food is commonplace in predominantly Black and brown areas of urban America:

7. Ron Finley, "A guerrilla gardener in South Central LA", *Ted Talks*, 2013, https://www.ted.com/talks/ron_finley_a_guerrilla_gardener_in_south_central_la/transcript

"Like 26.5 million other Americans, I live in a food desert: South Central Los Angeles— home of the drive-thru and the drive-by. Funny thing is the drive-thrus are killing more people than the drive-bys. People are dying of curable diseases in South Central Los Angeles."

This observation is even more powerful and poignant as the world deals with

8. Alex Wigglesworth, 'Institutional racism, inequity fuel high minority death toll from coronavirus', *Los Angeles Times*, May 11 2020, https://www.latimes.com/california/story/2020-05-11/institutional-racism-inequity-high-minority-death-toll-coronavirus

the coronavirus pandemic and **the disparity between infection rates**[8] in the Black community and the rest of the US population. Finley's solution to the health crisis was to plant the strip of land between the sidewalk and the street in front of his house with vegetables and fruit trees. He was returning to the concept of the Commons—shared space that nurtures the community.

The Commons, **Leigh Brownhill notes**[9], serve as a source of resistance and sustenance for colonized people. Through the collective action of creating and maintaining the Commons, people also build organizational strategies to resist systemic violence and institutional racism.

9. Leigh Brownhill, *LAND, FOOD, FREEDOM: Struggles for the Gendered Commons in Kenya, 1870 to 2007*, (Africa World Press Books, 2009)

The "gendered commons"… refer to places in the world where people live "in common" within elaborated subsistence relations. These "places" are sometimes understood legally as "commons," trust lands, state land or lands with other similar formal designations. But often the gendered commons are built on private land, such as slums and in rural farmlands, where occupants do not have secure rights. That is, though occupants may not own the land, they do their best to collectively organize their security, the common use of resources and access to basic requirements.

Finley understands this lack of secure rights to commons as he faced eviction from his rental property—along with the garden he had created in the yard and on the verge—because an investment company wanted to sell the house for a substantial profit. While he was eventually able to purchase the home for himself, many others in this country's African-American community live under the constant threat of displacement.

There is a common thread regarding land running through the history of African-Americans on this continent. In 1619 the first African slaves arrived at the Jamestown colony, captured by English privateers of a Portuguese ship that had been taking them to work on the plantations and in the mines in the Portuguese colony of Brazil. Instead, the Africans became indentured servants and slaves for the English colonists and worked in the fields of **Jamestown's commodity crop**[10] tobacco, instead of

10. 'African Americans at Jamestown', National Park Service, https://www.nps.gov/jame/learn/historyculture/african-americans-at-jamestown.htm

in Brazil's sugarcane fields. By mid century, slavery was the law of the land, and by the end of the century, anyone whose mother was Black was born into slavery, and **no one who was Black could own livestock or land**.[11]

11. National Park Service ibid.

The desire for African labor across the Eastern Seaboard of North, Central and South America was matched by the desire for African farming technologies. The connections between rice cultivation in the Low Country of South Carolina and the Senegambia region of West Africa have been well documented by Karen Hess in *The Carolina Rice Kitchen: The African Connection* (1992), Judith Carney in *Black Rice* (2001), Edda Fields-Black in *Deep Roots: Rice Farmers in West Africa and the African Diaspora* (2008), Carney and Richard Nicholas Rosomoff in *In the Shadow of Slavery: Africa's Botanical Legacy in the Atlantic World* (2009), and David S. Shield in *The Golden Seed* (2010). As **Judith Carney points out**[12], the technology for rice cultivation in South Carolina came from enslaved farmers who had lived in the rice cultivation region that is now shared by Senegal, Gambia, and Sierra Leone, who were brought to the Americas for the express purpose of expanding rice cultivation.

12. Judith A. Carney, *Black Rice: the African Origins of Rice Cultivation in the Americas*, (Harvard University Press, 2002)

Through food and foodways one can access forgotten histories and lost connections…. [and] map power and oppression.

African labor and technology created white wealth and white privilege. Slavery allowed for acts of philanthropy that resulted in the founding of institutions like Duke University and Rhode Island School of Design, which proceeded

to accentuate that white privilege in education, jurisprudence, and the arts. Meanwhile, following the Civil War and Emancipation, white planters across the agrarian South developed systems designed to replicate slave labor "through vulnerable land tenure arrangements, perpetual indebtedness, and coercive violence."[13]

[13] John J. Green, Eleanor M. Green, and Anna M. Kleiner, "From the Past to the Present: Agricultural Development and Black Farmers in the American South" in *Cultivating Food Justice: Race, Class, and Sustainability*, Alison Hope Alkon and Julian Ageyman, eds. Cambridge: MIT Press, 2011. 52.

African-American foodways were shaped by slavery and Jim Crow. In ***Building Houses of Chicken Legs: Black Women, Food, and Power***,[14] Psyche A. Williams-Forson explores the complicated relationship between Black women and the yard bird: "Some women used chicken for economic freedom and independence; others used it to show off their cooking skills. Still others used chicken to travel at times when their own movement was restricted. That is, they metaphorically traveled by sending packed shoe-box lunches filled with chicken and other "goodies" when it was impossible for them to go. And still others shunned chicken completely for one reason or another. Examining chicken makes it possible for these previously unacknowledged aspects of Black women's lives and creative work to be revealed."

14. Psyche A. Williams-Forson, *Building Houses out of Chicken Legs: Black Women, Food, and Power*, (Chapel Hill: Univ. of North Carolina Press, 2007)

Food and foodways are archives, and by exploring these archives one can follow the attempts of men and women to gain access to "**all the material means which make possible the radical transformation of society**."[15] These food archives are not official records housed with the sanction of authority, but rather what Anthony Bogues calls "**the archive of the ordinary**."[16] Through food and foodways one can access forgotten histories and lost

15. Fanon, ibid.

16. Anthony Bogues, *And What About the Human?: Freedom, Human Emancipation, and the Radical Imagination*, (Duke University Press, 2012)

connections. The etymology of "archive," **as Jacques Derrida reminds us**[17], contains both a sense of beginnings and the exercise of authority. Through foodways one can map power and oppression. Fried chicken is more than a food; it reflects the history both of enslavement and of innovation in the African-American community.

17. Jacques Derrida, *Archive Fever*, (The University of Chicago Press, 1996)

Paul Farmer writes that[18] "structural violence is violence exerted systematically—that is, indirectly—by everyone who belongs to a certain social order." The structures of violence exerted against the African-American community in the US have deep roots, stretching back to 1619. If we recognize those structures and study the ways they have often been entangled with the theft of the Commons and the lack of access to food, then the burning of a local corner store during an uprising of righteous anger against violence perpetrated by law enforcement on Black individuals—while still tragic—is understandable.

18. Paul Farmer, *An Anthropology of Structural Violence, Current Anthropology*, (The University of Chicago Press, 2004)

AN AGE OF UNCERTAINTY & SOCIETAL INNOVATION
INDY JOHAR

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The world is on the cusp of a global depression. The death toll directly attributable to COVID-19—while significant and still growing—could prove to be minuscule relative to the cascading effects of the disease and the impact on public health arising from social and economic deprivation. The pandemic has exposed the inadequacy of the current institutional infrastructures to deal with the emergence, escalation, and nature of such outbreaks. It has exposed a new class of risks and vulnerabilities—common vulnerabilities built on shared risks operating at a societal scale that cannot be effectively managed by individuals.

AN UNCERTAIN FUTURE
It is increasingly clear that our model of the future as linear, predictable, with a low probability of deviation from the course charted is being challenged by a world that is increasingly fragile, interdependent, complex, poised at tipping points, and significantly vulnerable to shocks and cascading risks. This is a world where the mission and destination can be fixated upon but the pathway certainly cannot.

This future requires us to operationalise in a new way.

Horizon 1: the known.
Current national responses to emerging shocks have surfaced a range of patterns that indicate the need for a fundamental reconfiguration of our governance systems, enabling us to deal more effectively with a new age of risk and to scaffold the rapid transition we are witnessing. Addressing the shocks we are facing requires a new collective capacity to respond with speed, scale, and agility in a prefactual environment.

Horizon 2: the knowable.
The cascading risks we see emerging require a new capacity for investment in prevention, strategic task shifting, and decentralised agency. The current crises of work, the social contract and trust, collective psychological

trauma, and food security and supply all call for a fundamental overhaul of public investment and financial management. We need to reduce future liabilities, make better risk provisions, and rethink our public revenue model.

Horizon 3: the unknowable.
Not only do we need to reconfigure our governance to deal with the risks and uncertainties—enabling us to withstand unexpected change—but we also need to be able to thrive on this uncertainty. This requires a new statecraft premised on a different institutional infrastructure, agile architecture for policy and regulation, new forms of legitimacy, and radical devolution of power and investment. A new framework for internationalism and global public interest is also necessary.

The scale and scope of the challenges our civilisation faces cannot be limited to incremental evolutionary risk management alone. We have to venture beyond the known, knowable, and unknowable horizons, redefining our relationship with the planet and each other as we redefine what it means to be human.

UNCERTAINTY AND INNOVATION AT A SOCIETAL SCALE
Beyond the horizons of risk and uncertainty, we are also starting to recognise the need to focus on another class of innovation crucial to our collective thriving—innovation at a societal level.

Whilst we have seen plenty of work, advocacy, and progress focused on advancing innovation in products, platforms, services, and even social enterprises, we have increasingly come to the conclusion that societal innovation is a different class of innovation with a different typology of outcomes, participation, investment cases, and institutional infrastructure.

Societal innovation is a class of innovation that functions in the interest of public good (as opposed to the good of

the community) at a societal scale and is essential to driving the development of society. It is not limited to the collective self-interest of a single community, but includes the interests of those who have not yet been born or haven't yet arrived or are beyond the boundaries of one specific community.

A few near-perfect examples of societal innovation are individual immunisation and vaccinations delivering herd immunity across a community; the use of urban big data to improve transportation offers like CityMapper; the unanticipated levels of connectedness afforded by platforms such as Facebook; the value of public health infrastructure, urban growth, and intensification strategies.

These large-scale interventions and societal innovations invite micro losses/trades of sovereignty at the individual level in exchange for statistical public benefits accrued at a societal level over the longer term. Think of the dramatic reduction of deaths from TB, the availability of transportation services at the precise point of need, the predictive management of crime, the possibility of (both regressive and positive) societal behavioural nudges, or the theoretical "collective" benefits of urban growth in terms of wages and value creation.

These innovations inherently rely on a progressive social contract where we all contribute to the development of shared public good—a social contract for innovation.

In many of these cases, individuals are required to offer up their personal and property sovereignty in exchange for public value creation. Take, for example, how neighbourhood urban development might invite a local resident to accept the personal loss of rights to light and experience additional civic infrastructure "congestion" in exchange for urban intensification and its contribution to the capacity of cities for wealth creation;[1] or individual

1. see theoretical physicist Geoffrey West's work at the Santa Fe Institute https://www.santafe.edu/people/profile/geoffrey-west

vaccination, a little prick of pain that provides the benefits of herd immunity to the most vulnerable in society; or how the "compromises" of "privacy in urban big data" can release a whole spectrum of new public health and social innovations, and so on! (One could argue that Facebook and Twitter are exactly these sorts of innovations, but we are failing due to an inadequate social contract.)

SOCIETAL INNOVATION
We have been witnessing the emergence of three distinct horizons of innovation. The first is focused on innovation at an individual level. User-value or consumer-centric, it manifests clear transactional gains for both parties exemplified by product and services innovation. The second horizon is focused on collective innovation models, which seek to deliver definable and bounded multi-stakeholder gains—as exemplified by **collective impact strategies**.[2]

2. John Kania and Mark Kramer, "Collective Impact", *Stanford Social Innovation Review*, Winter 2011 https://ssir.org/articles/entry/collective_impact

Innovation at a societal level produces ambient, diffuse but statistically relevant, intangible gains when individuals surrender aspects of their sovereign rights in exchange. In this class of innovation it is difficult to see evidence personally or to feel the impact at the point of intervention (therefore making it difficult to build easy political legitimacy around). Even with hindsight, the benefits are difficult to "feel" physiologically and personally ("I wouldn't have gotten TB anyway, so that vaccination was of no benefit to me.") and perhaps most significantly, even though they manifest on a measurable statistical level, they usually make more of a longitudinal and intergenerational impact.

The third horizon of innovation is built on our capacity to structure and utilise trust—our ability to account for and leverage future outcomes and the emergence of real-time, adaptable models of governance. This requires a fundamentally different mode of operating, with new

infrastructure and new understanding of institutions.

This reading and philosophical comprehension of public good as requiring individual sovereign losses is not new. In fact, it underpins **Rousseau's social contract**,[3] which called for people to relinquish individual rights in order to benefit from shared public good. But what is perhaps new is how we imagine the social contract for innovation. What are the rights, duties, and accountabilities for the innovation of shared public goods?

3. Jean-Jacques Rousseau, *The Social Contract*, (France, 1762)

We have to venture beyond the known, knowable, and unknowable horizons, redefining our relationship with the planet and each other as we redefine what it means to be human.

Although we need to acknowledge that this model of innovation has existed for many centuries, we consider this class of innovation crucial to the future of civilisation for multiple reasons:

1. We are becoming increasingly conscious and aware that no innovation is discrete or isolatable—that no product exists in isolation—and that all innovations change "the landscape of future possibilities." Furthermore, all innovations draw on public goods, produce known and unknown externalities for all of society (the illusion of the private and isolatable impact is just that, a convenient illusion—like the diesel cars exhaust scandal from a few years ago). Increasingly, in the age of the Internet of Things, this connected reality of "products" relies on massive interdependence at a societal level. This is an age where we are designing into systems and rely consciously on public and societal goods, from citizen-produced data to things.

2. Through the emergence of big data/data science, new preventative investment models such as social impact bonds, and the radical efficacy of organising large-scale interventions driven through such things as connected smart contracts, we have created the capacity to understand, democratically contract and intervene (beyond the state) with society itself as a "minimum viable unit" as opposed to the individual, the user, the consumer, etc.

3. We are rapidly heading towards an urban world in which some 70% of the global population lives in cities. This urban future is non-divisible, full entanglement, built on economies of agglomeration. This is a future fully reliant on societal innovation in which we are all participants.

4. Finally, and perhaps most critically, the increasing viability of societal innovation is matched by an equally increasing (and urgent) need for new models of intervention to tackle obstacles to us thriving as a civilisation—be it climate change, structural inequality, or the impacts of poverty and social injustice. This will require us all to trade our individual sovereignties and rights for shared societal returns, resilience, and renewal.

But whilst these needs have been evident for a while and the technical capabilities are already here, what is perhaps most urgent to grapple with is our lack of an enabling environment. A lack of institutional trust and source code errors are limiting this new age of innovation.

LEGITIMACY
Actually, in stark contrast to the emerging need and opportunity, we are witnessing the fundamental erosion of the conditions for this model of innovation in democracies across the world.

Institutional "trust" is in structural decline (and is continuing to decline rapidly through this COVID-19 crisis).

For the first time in 2017, the Edelman Trust Barometer study found "a decline in trust across all institutions. In almost two-thirds of the 28 countries surveyed, the general population did not trust the four [most basic] institutions to 'do what is right'—the average level of trust in all four institutions combined was below 50%."

This systemic decline in trust is perhaps reflective of a foundational failure of clear accountability and governance. Our bureaucracy has struggled to evolve beyond industrial mindsets, practices, and techniques to address our new network and systems economic reality, fairly attribute societal contribution, and preserve shared societal goods.

This reality is not just hampering the possibility of unleashing new innovations; it is unwinding existing societal goods, be it through the anti-vaccination movement, the rise of NIMBYism in reaction to urban development, the negative sentiment around the use of big data in health, or the increasing anti-Facebook/social media discourse. Whilst some of these interventions are rightly being challenged, what is central to their failure is the failure of governance, accountability, regulation, and institution design to create the legitimate societal conditions for citizens to trade sovereign rights and goods for the creation and innovation of new shared public goods.

SOCIETAL INNOVATION AND THE SOURCE CODE ERRORS
The scale and scope of the challenges our civilisation faces cannot be limited to incremental evolutionary risk management alone—beyond tinkering with the reality we have. We have to venture beyond the known, knowable, and unknowable horizons, redefining what it means to be human, as well as our relationship with the planet, technology, the future, and each other.

Even if leveraged by systems-orientated innovation, this is likely to prove insufficient to overcome the technological,

cultural, governance, emotional, and organisational leaps that are necessary.

We will need to move beyond the horizons, move upstream to address the systemic origin of the risks and uncertainty we face, and reconfigure the sources that generate them. Their foundations are defined by ideologies that shape our human relationships. We have made the future a slave to our immediate needs, nature a hostage to our economic exploitation and efficiencies, and technology an insufficiently understood mechanism for centralisation and control. Inequality and nepotism underpin how we conceive of our societal relationships and expose the broken social contract that leaves many exposed and vulnerable. In this context, the pandemic is a product of our relationship with nature, but a broader view of the cascading risks is also a function of our relationship with ourselves and our future.

A FOUNDATIONAL RISK TO DEMOCRACIES
In contrast, more centralised regimes are driving forward with these societal innovations and experiments. Consider China: its use of predictive policing and a social credit system is succeeding in pushing forward this class of innovation, and during the COVID crisis it has been systematically more effective in addressing health risks.

We are in no way arguing that democracies need to replicate this reality. Rather, democracies need to find new ways to create the conditions for societal-scale innovation. As this reality is upon us, we must realise and continue to show how Luddism is no solution. If we can create fertile democratic conditions, there are opportunities for real gains for civilisation driven by a new class of social economic justice.

SOCIETY AS THE MINIMUM VIABLE UNIT FOR THE FUTURE OF INNOVATION
It is increasingly evident that we have an opportunity and a need to unlock the

societal innovation capacity of AI, smart connect contracts, machine learning, big data, sustainable urban and rural development, peer2peer infrastructure, next generation welfare 2.0, and so forth. But to unlock this equitable future we need to build the shared accountability, trust, and democratised capacity to innovate.

To unlock this equitable future we need to build the shared accountability, trust, and democratised capacity to innovate.

This future is fundamentally reliant on us to:

– redesign governance, legitimacy, accountability fit for the fully code and systems age of uncertainty by reimagining accounting, provisions for risk, regulation, incentives, data rights, etc.

– develop democracy 2.0, a next generation of democracies beyond our current industrial, representative models

– democratize the capacity for innovation both in terms of production and its return of societal investment (to be structurally legitimate these futures cannot be the domain and reserve of the gilded few but rather imagined and made by the many)

– build new unions of innovation. We need to construct new institutions that recognize there can be no single owner or agent in this domain. This innovation unleashes our collective intelligence and collective responsibility to our shared tomorrow. This innovation invites us to transcend personal interest and enhance the public interest for all our futures.

– recognize that our globally interdependent lives are at the breaking point of this future. They present the convergence of our greatest challenges (climate adaptation, inclusive

economies, post-automation economics, etc.) and our greatest capacities to respond, with their increasingly devolved political, economic, and social legitimacy, agency, and power

This is a model of innovation in which the "I"—the individual, consumer, citizen—must become "us," an open and unbounded us. And we must all invest together and reap the rewards of a 21st-century civilisation.

In the foreground of the photograph sits a single guard rail accompanied by traffic drums employed to protect a traffic message board that reads BE SAFE AND STAY 6 FEET AWAY. This grouping of objects can often be found on roadsides, heightening driver awareness, and or communicating road hazards. Yet in this context, these objects have been swiftly promoted to a new role—that of communicating a new order driven by the pandemic. This "promotion" summarizes our society's approach to solving emerging systemic crises: utilizing existing solutions to existing problems to solve for newer problems we know little about. This approach can be seen as smart and nimble, but often limits our capacity for creative problem solving, lessens our ability to address problems strategically, and often leaves wounds exposed and left to rot as we've ripped off a band-aid to patch up a new wound.

As we continue to face new challenges, I ask: How might we address emerging crises in a strategic yet nimble manner, while remaining cognizant of the ripple effects of our decisions?

— Jonathan Melendez-Davidson

JONATHAN MELENDEZ-DAVIDSON

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Jonathan Melendez-Davidson
Be Safe Stay 6 Feet Away, April 6th 2020
Grand Army Plaza, Brooklyn, NY
photograph, 35mm film

COMPASS PAIRING
COMPASSES & CALIBRATIONS

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Guiding Details:
beyond measurement, efficiency, optimization
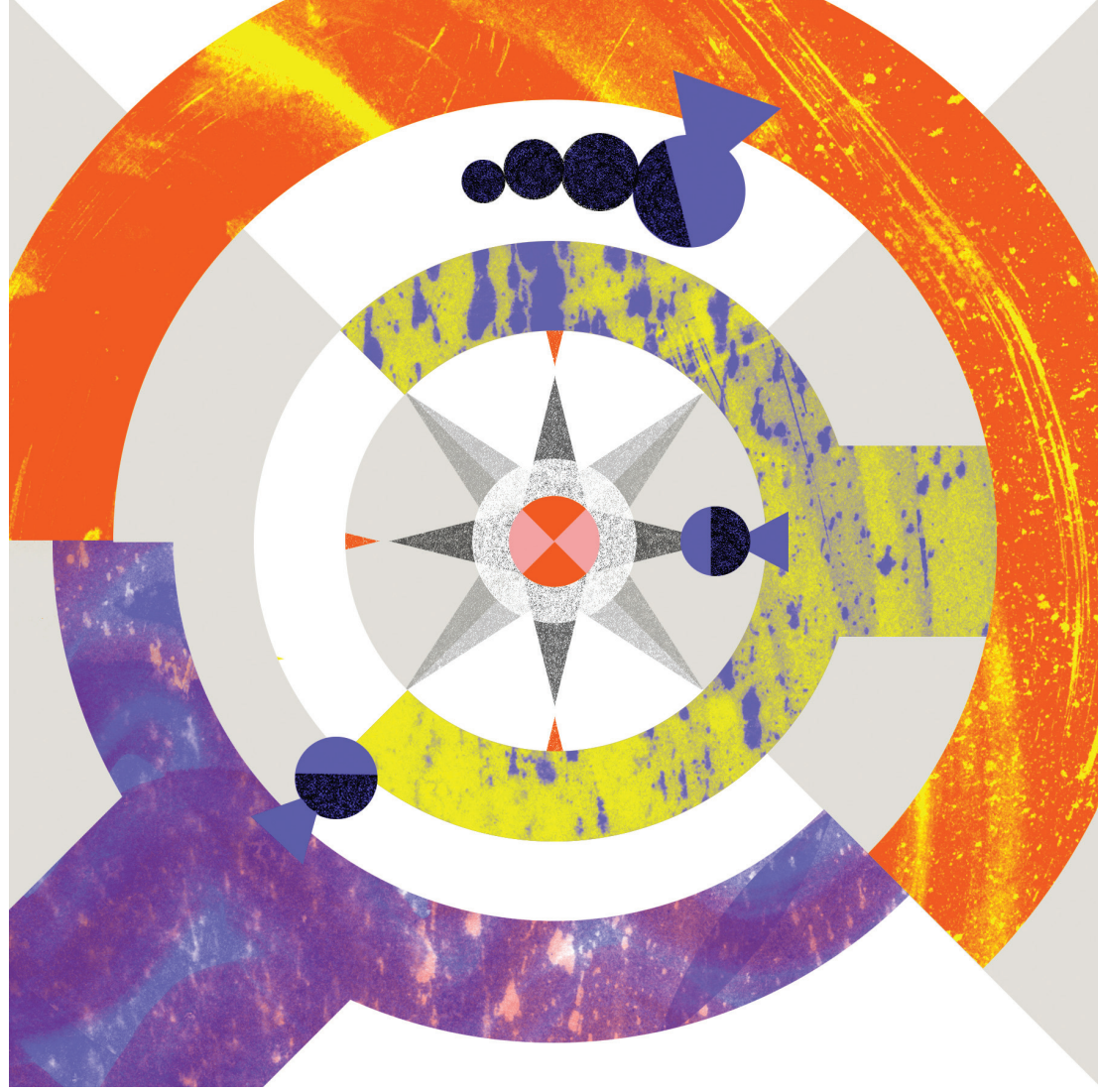
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Of the many reasons to be jealous of birds, the freedom of flight usually takes top billing. But the ease with which birds navigate should actually inspire more spite. Magnetoreception—the ability to detect magnetic forces—is powered by special Cry4 proteins in the eyes of birds that allow them to literally see the earth's magnetic fields. How nice it must be for migratory journeys to be simplified by following an innate path that's literally visible before your eyes.

As humans condemned to trod the Earth's crust, we make maps to cope with the fact that we're missing the proteins of our avian kin. Ask a child to make a map of their block or yard and you may find that smells and intangible memories mix with concrete places and landmarks. Unfurl a pirate's treasure map and what you see is a world of singular focus on the X that marks the spot. Pull up the map on the center console of a Tesla and you see the world through its ambulatory, electric eyes: highways in gray, charging stations in red—and little else. Walk into a government planning office and examine the view they have of the world to see what has been erased or is slated for erasure: wetlands set to become subdivisions or neighborhoods to become highways, all too often blackness becoming whiteness in ways both metaphorical and literal.

The worlds that maps give us are so reductive that the things left off are usually more telling than the items affirmatively indicated. The concept of externalities may be the original sin of economics, but mapmaking is the practice that converts externalities from tools of convenience to tools of exclusion—by choosing what's included and what's left off. At its best, this practice is conscientious and optimistic. More often the adoption of externalities is hastily naive, if not actively exploitative and conquering in the most vile ways. The history of modernist highways provides a place to dig in—including, naturally, in the Motor City.

Fueled by the exponential expansion of the automotive industry, Detroit grew rapidly from 1900 to the 1950s, with a curve that parallels America's fascination with the automobile as the vehicle of freedom. During these years Detroit's Black community was centered in the Black Bottom neighborhood just east of downtown, named for its fertile soil enriched by the waters of the nearby river. When the US government decided to double down on vehicular travel as the preferred mode of transportation in America, it made $25 billion in funding available from the Federal Aid Highway Act to build new interstate highways—including the Chrysler Freeway to connect the city of Detroit to its metropolitan region. The thing about highways is: They take up a lot of space, which means they need to be mapped.

Before gray concrete gored arcs through American cities, racial prejudice inscribed invisible boundaries—so-called "redlines"—across the same land to create areas where African-Americans could not receive mortgages or own homes. Redlining stymied the creation of Black wealth, which is problematic prima fascia but exponentially more so when lack of access to capital holds a community back from accumulating financial wealth and political power. When viewed through the lens of a federal highway planning map, that lack of wealth and power looked like "slums," which meant a void to be filled through "urban renewal" and an "opportunity" for locating a highway.

This "allowed" the powers that be to locate federal highways in places that would be "least disruptive" to existing pools of wealth without complicating the analysis. Since the map that was used to plan the Chrysler Freeway could not see Blackness, the heart of Detroit's African-American community was rent apart. Black homes and businesses were razed, the freeway was built, and for decades Detroit has been encircled—strangled really—by a moat of highways. Detroit

isn't the only place where being left off the map led to disastrous consequences for a thriving community.

The "scare quotes" used above are indeed scary because this was not the act of individual racists operating in secret, but of systemic bias enacted through myriad small decisions and acts. It would be nice to have a grand conspiracy or singular bad actor to blame for this history, but instead we have systemic racist bias converted into externalities that need not be considered, those biases inscribed on maps, maps used to inform policy, and policy decisions eventually carved into the earth by bulldozers.

The maps that preceded Detroit's Chrysler Freeway were blind to the realities of culture, community, and humanity (all inconveniently difficult to draw as reductive symbols, it should be noted). With those externalities rendered invisible—off the page like some lost explorer falling off the edge of an ancient, cartographically flat earth—the maps used to plan Detroit's highways were incomplete in the most basic ways, and the people utilizing them were overconfident. Had the human factors been factored in more humanely from the start, Black Bottom would likely still be Black and Detroit would have had more subways and buses. But that's a different story.

Living in the shadow of oppressive policy decisions for some decades now, activists and organizers in Detroit have made efforts to put the invisibles back on the map—as an act of uncovering the history of the city and as a protection against future harms. Geographer William Bunge called his efforts "oughtness maps," made to indicate how the city ought to be. Bunge and Gwendolyn Warren ran the Detroit Geographic Expedition and Institute, which focused on the racial disparities of the city in the 1960s by collecting qualitative and quantitative data about Detroit and presenting it in legitimizing formats such as technical maps and charts. In effect, they used the repurposing tools of oppression to center

the lives of the oppressed. If poor decisions stem from poor maps, the question then is: How do we make it impossible to have such shoddy maps?

Thermonuclear war is among the worst reasons to inspire careful mapmaking, but nonetheless it mobilized brigades of cartographers. During the Cold War, the Soviet Union applied its substantial resources to map the world so that it could be ready for the eventuality of invading foreign territory. Compiled through aerial photography and accounts from on-the-ground spies, these maps represent enemy territory down to the scale of 1:10,000 in some cases, which is large enough to identify individual buildings and roads. They're filtered through the lens of important and necessary information for invaders, locating such critical features as airstrips, oil refineries, and bridges that will support tank crossings.

In effect, they used the repurposing tools of oppression to center the lives of the oppressed.

Though beautiful as artifacts, these maps are factually incorrect, showing towns that don't exist and other misplaced elements. These errors are not the result of discriminatory simplifications (as in the planning that preceded Detroit's Chrysler Freeway), but rather are evidence of the Soviet mapping effort struggling to deal with the weight of its own complexity. What they tell us is that even under the threat of potential nuclear annihilation—and with a global superpower's resources behind them—the best maps are still poor representations of the world.

Jorge Luis Borges wrote of this constant cartographic frustration in his story *Of Exactitude in Science*, describing an Empire where: "...the craft of Cartography attained such Perfection that the Map of a Single province covered the space of an entire City, and the Map of the Empire itself an entire Province. In the course of

Time, these Extensive maps were found somehow wanting, and so the College of Cartographers evolved a Map of the Empire that was of the same Scale as the Empire and that coincided with it point for point."[1]

1. Jorge Luis Borges, Of Exactitude in Science. 1946. Los Anales de Buenos Aires, año 1, no. 3.

A map the same size as the country is one paltry attempt to make a map without simplifications, errors, or externalities—and Borges teaches us that this level of exactitude is an asymptote, not an obtainable goal. Nevertheless, since not everyone reads Borges, today's version of the perfect map he wrote about is called a "digital twin," which is a highly detailed 3D model used to understand a city.

With a digital twin, cities can run virtual simulations of new policy or urban planning efforts, such as exploring what would happen when a development is brought downtown or how mobility would be affected by adding a new bike lane. In the 20th century, planners used static maps to make decisions about the highways in Detroit that were bereft of important dimensions; could the next generation lean on digital twins to avoid the same mistakes?

Maps...continue to frustrate human attempts to truly grasp the world around us.

Singapore has had its own "Virtual Singapore" under development since 2015. Though admirable, this digital twin is still primarily concerned with physical behaviors such as changes in sun and wind patterns around a proposed new building. Despite the fact that Dassault Systems, the company building Singapore's model, is in the business of "lifecycle management" software, the representation of life in digital twin models is still far from satisfying. Somewhere right now in the physical city-state of Singapore there's an act of protest that's

missing from its digital twin. Maps—even extremely detailed, real-time updated digital ones—continue to frustrate human attempts to truly grasp the world around us. Even a map the same size as the territory has only a limited nomenclature to record the highest moments of human culture, let alone the anguish of its lowest. And remember that this is the point of maps: the mapmaker simplifies the world by leaving most of it out. That puts the onus on the map reader to act accordingly, which is anything but guaranteed.

Despite the fact that maps are always constructed with externalities or simplifications, and despite the fact that those externalities can so easily be weaponized, the level of mapping activity underway today is greater than ever before. GPS-powered location services underpin a vast array of digital services now—from restaurant reviews, to ride-hail apps, to 911 phone calls. Numerous companies are compiling digital mapping infrastructure, both geographically such as Open Street Maps and more abstractly in the form of tools like D3 (Data Driven Documents), which is a code library used to build simple visualizations of large data sets.

Here it would seem that the relationship between maps and complexity is akin to that between highways and traffic: the former should lead to a cessation of the latter, but is almost always an inducement instead. Whereas activist designers of the 1960s crafted beautiful maps and graphs of the extent to which human behavior was straining the health of planet Earth, today's activists code similar maps and visualizations that are now interactive, far more detailed, and translated into scores of languages.

In that sense, the Center for Complexity is not just an institute at RISD but a description of the human condition in 2020: You are the center of your complex world, just as I am the center of mine. Seeking to conquer the intricacy around us, we reach for ever more precise, even more nimble tools—and we should probably be excused

for doing so given that more and stronger was the formulation of choice throughout the modern era.

If life is nasty, brutish, and short, is it surprising that the instinct is to brute-force our way to "solutions," even if that means Borgesian mapping of the entire world inch by inch? "Solutions" earns scare quotes here as well because ours is one species whose imminent extinction we can happily celebrate. "Solutions" per se are the simplified form of vigilance in the way that maps are the simplified form of understanding. Both are dangerously incomplete.

In June 2020 society is beset by systemic racial injustice, faltering democratic institutions, a global pandemic, and a climate catastrophe that is still in its infancy. Humanity has obtained the ability to see and understand the impact of these multiple, intersecting challenges, but we still grasp for ways to collectively make sense of them and take action. If there were a way to reliably map these issues, we would surely do it—and it's admirable that folks are trying. But if maps are not the answer, what could be?

If you thought this essay would resolve into a neat answer to that question, you've been looking at a faulty map yourself. But there are promising tremors coming from the streets at this very moment. The protests across America that have grown in scale over the past two weeks are a beautiful example of the ability of the people to confront oversimplified and harmful depictions of the world. Black Lives Matter has to be a rallying cry in 2020 because America has collectively ignored that fact, choosing to externalize the suffering of people of color just as the industrial economy has externalized the cost of carbon. Both kill people and both are perpetuated by overconfident decisions based on dangerously oversimplified conceptions of the world.

To find a way forward, it's useful to think again about what maps do for humans.

A map as an object is a piece of paper—usually flimsy, and more often than not susceptible to getting soaked in the rain. Despite its fragility as an object, a map is also a deceptively capable comfort blanket. Maps symbolize a surety. They are confidence flattened on paper, and that confidence is exactly the problem. So if we find ourselves unable to make use of maps—both literal and conceptual—because of their implicit biases and incompleteness, we need to replace them as a tool that not only helps us navigate the complex world, but helps us do so with some modicum of confidence.

Wiping racist actions and systems off the map will entail centering centuries of accumulated suffering attached to—and shame stemming from—discriminatory practices (including those of redlining described above). Clearly, the experiences of individuals and societies continuing the work of processing the past, exciting the present, and hastening the future is going to be deeply emotional labor. The goal while working through these challenges must be nothing short of a just society, as the Black Lives Matter protests are demanding. I suspect that victory in that effort will entail working more deeply on the conceptual models that underpin current institutions and systems. And that starts with collaboration.

When one receives the convenient confidence of a map, it's as if one is collaborating with an invisible group of predecessors to understand the world. They struggled here first so that I may pass with ease. This invisible collaboration is what makes maps conceptually similar to another feature of the contemporary world: silos of knowledge and effort.

In a world of silos, collaboration happens by trusting others enough to build on their work. The ability to exclude some aspects of the world from your decision-making is what allows you to focus on a few things in your silo while trusting that others are focusing on different things in theirs. Without the ability to

trust others, specialization is impeded and silos are duplicative.

So when we gather together as flocks of strategic designers, thoughtful scientists, and concerned policymakers bemoaning the stifling role of silos, we must also confront the fact that we are broadcasting our hesitations about trusting others who are not present as well as decisions and realizations that have been made in our absence. Workshops or studios that attempt to "get the system in the room" and seek to work from "first principles" exhibit these characteristics—worthy goals, yes, but limited in scale to relatively small numbers of people. If silos are clusters of adjacent vertical efforts, more horizontal organizational alternatives favored by the design community are akin to rafts: lashed together provisionally and better at riding waves of complexity, but only large enough for a few people at a time.

The frightening optimism of moments when there's no truth to be had is that we face the future unburdened by lazy assumptions or half-baked answers.

That works counter to much of what we know about scale in 2020. Pick a statistic, plot it against time, and wait for the "hockey stick" to appear with the dots on plotting up and to the right exponentially. The plot of COVID-19, carbon, computing power, and countless other statistics shows a similar curve. The figure of the exponential is so familiar now as to feel haunting, but one condition continues to resist: trust. In a moment when compound increases feel normal—for good and bad alike—trust evades this pattern by refusing to scale any which way but linearly, built in small atomic bonds between individuals. Managerial structures and their silos offer a way to stretch circles of trust, but anyone who has worked inside a large organization knows that trust can only be stretched so far. No matter what

kind of fancy technology or organizational schemes are used, trust is ultimately held (like hands) between people.

Stories are grandiose and compelling, but myopic and parallel; to excel is out of the question; science is a belief system among many; history is written by the winners; and maps are drawn with the invisible ink of exclusion. No gods can be found to weigh in on unresolvable matters, and the king's throne has been sawed apart, burnt to ash, and pummeled into warpaint. Though this may not be understood as a paragraph brimming with optimism, it should nevertheless be read as such. The frightening optimism of moments when there's no truth to be had is that we face the future unburdened by lazy assumptions or half-baked answers. In 2020 we are good at acknowledging the volatile, uncertain, complex, and ambiguous reality around us—but are we any better at taking action with VUCA eyes wide open?

Yes. The evidence is in the streets right now, championing intersectionality in the intersections and anti-racism on the roadways. This is a society recalibrating itself through emergent protest actions arriving after too many years of accrued police violence and systemic racism. The events of today are being compared to the civil rights era, but those historic moments provide a moral compass rather than a map. What we're seeing under the banner of Black Lives Matter is that painstakingly bringing previously-ignored activities like police violence into the daylight can catalyze collective anguish into political change.

It is important to note that this is not the work of widely known leaders but rather of countless organizers who maintain an abiding sense of true north. None of the people involved in this fight have the convenient confidence of a map showing the path forward. And there's no way to make systemic racism simple. On the contrary, it is not simplicity that the movement has but a meaningful and potent simplifier: Black Lives Matters.

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PANDEMICS, DECISION-MAKING AND EVIDENCE-BASED MEDICINE

As stewards of medical care, clinicians are often faced with making medical decisions absent adequate information. Indeed, uncertainty is a clinician's constant companion. An uneasy relationship, uncertainty can manifest as indecision, trepidation, delay, or as the unyielding pursuit of its inverse: certainty. In the context of COVID-19, uncertainty abounds and, as is often the case, our response has been to seek greater certainty.

In seminal work on the topic of **uncertainty in medical care**,[1] Renée C. Fox describes three types of uncertainty. The first derives from an incomplete or imperfect mastery of available knowledge, the second depends on the limitations of current medical knowledge and the third "… **consists of difficulty in distinguishing between personal ignorance or ineptitude and the limitations of present medical knowledge**."[2]

1. Renee C. Fox, "The Evolution of Medical Uncertainty," *Milbank Memorial Fund Quarterly/Health and Society*, Vol. 58, No. 1, 1980

2. Robert K. Merton, Reader, G., Patricia L. Kendall, *The Student Physician: Introductory Studies in the Sociology of Medical Education*, (Harvard Univer. Press, 1957)

In medicine and public health, we use research to fill gaps in knowledge. Evidence-based medicine (EBM) attempts to bridge the distance between medical research and clinical practice. **EBM is the contentious, explicit, and judicious use of current best evidence**[3] in making decisions about the care of individual patients by integrating the best available evidence, clinical expertise, and patient values. EBM prioritizes **three epistemological principles**[4]:

3. David L Sackett, William M C Rosenberg, J A Muir Gray, R Brian Haynes, W Scott Richardson,"Evidence based medicine: what it is and what it isn't", *The BMJ*, 1996, https://www.bmj.com/content/312/7023/71

4. Benjamin Djulbegovic and Gordon H Guyatt, "Progress in evidence-based medicine: a quarter century on." *Lancet (London, England)* vol. 390,10092 (2017): 415-423. doi:10.1016/S0140-6736(16)31592-6

– the practice of medicine should employ the best available evidence, while acknowledging that not all evidence is created equal (e.g., the hierarchy of evidence, where randomized controlled trials are considered better than case studies, for instance)

– the totality of evidence must be examined (without selecting evidence that favors a particular outcome or claim)

– clinical decision-making must include the patient's values and preferences

Perhaps now is the time to finally accept uncertainty as a constant companion in clinical practice and public health decision-making and not in conflict with our notions of evidence-based medicine.

In response to the COVID-19 pandemic, clinicians and public health decision-makers called for best evidence to inform the decisions at hand, leading to recommendations on social distancing mandates, use of personal protective equipment, the implementation of effective treatments for the novel pathogen, and allocating ventilators to patients unable to breathe on their own.

During a pandemic, the discrete disciplinary lines between clinical practice and public health blur, and all sources of data—both individual-level and population-level—begin to drive decisions.

As a researcher, I am interested in how evidence is generated and prioritized for use in decision-making. What intrigues me most as a public health scientist is the role of "evidence" at this critical moment—what we can learn from it, and what is next as we move through the immediate aftermath of the onset of COVID in the United States.

BEST EVIDENCE AND PANDEMIC EXCEPTIONALISM: A CASE STUDY

In March 2020 a study was initiated of azithromycin and hydroxychloroquine, drugs currently used to treat patients with rheumatoid arthritis and systemic lupus erythematosus, in order to assess efficacy to treat COVID-19. The authors **published interim findings in late March**,[5] reporting that "hydroxychloroquine treatment is significantly associated with viral load reduction/disappearance in COVID-19 patients and its effect is reinforced by azithromycin."The study was quickly picked up by media outlets and disseminated widely.

5. Philippe Gautret, Jean-Christophe Lagier, Philippe Parola et.al, "Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label non-randomized clinical trial." *International journal of antimicrobial agents* vol. 56,1 (2020): 105949. doi:10.1016/j.ijantimicag.2020.105949

A subsequent commentary on the study by **a group of rheumatologists stated**[6]: "Given the urgency of the situation, some limitations of this study may be acceptable, including the small sample size, use of an unvalidated surrogate endpoint, and lack of randomization or blinding. However, other methodological flaws also noted by others may affect the validity of the findings, even in the current setting, where an efficacious treatment is desperately needed."

6. Alfred H J. Kim, et al. "A Rush to Judgment? Rapid Reporting and Dissemination of Results and Its Consequences Regarding the Use of Hydroxychloroquine for COVID-19." *Annals of Internal Medicine*, vol. 172, no. 12, 2020, pp. 819-821.

In the immediate aftermath of COVID, we have an opportunity to reframe and reimagine how evidence is used to inform decision-making to improve health.

The extraordinary speed with which this study was conducted and reported (under one month) is atypical for clinical research. Although the publication of a study with such significant methodological flaws is not necessarily atypical, the rationale for the permissibility of such flaws is of concern. The research team and commentary authors seem to "exceptionalize" pandemic research, indicating that some shortcuts are necessary given the circumstances.

London and Kimmelman[7] advance an argument against pandemic research exceptionalism, advocating for the maintenance of rigorous scientific and ethical standards in the context of the pandemic. Their analysis of data from clinical trials indicates that within six weeks of the study publication, ~75,000 patients had been registered for testing various hydroxychloroquine regimens for COVID-19. "This massive commitment concentrates resources on nearly identical clinical hypotheses, creates competition for recruitment, and neglects opportunities to test other clinical hypotheses."

7. Alex John London, Jonathan Kimmelman, "Against pandemic research exceptionalism", *Science*, 1 May 2020, vol 368, Issue 6490, pp. 476-477, DOI: 10.1126/science.abc1731

In addition to **the opportunity cost**[8] associated with choosing to study this hypothesis over others—and the exposure of ~75,000 subjects to a drug with potential risks and harms—**the attention to this line of inquiry has led to increased demand for hydroxychloroquine**.[9] As of March 31, 2020, the drug was designated as "currently in shortage" by the Food and Drug Administration. It is fair to ask whether the attention paid to this drug has secondary impacts on the delivery of care to lupus and rheumatoid arthritis patients who depend on it.

8. Kim, et al. ibid.

9. Christopher Rowland, "Hospitals and Doctors are Wiping Out Supplies of an Unproven Coronavirus Treatment", *The Washington Post*, March 23 2020, https://www.washingtonpost.com/business/2020/03/20/hospitals-doctors-are-wiping-out-supplies-an-unproven-coronavirus-treatment/

REFRAMING EVIDENCE AND UNCERTAINTY

In an effort to provide evidence to inform decision-making, we cannot forget why it is we pursue evidence: to inform. The hydroxychloroquine case study illustrates the need for enduring commitment to the epistemological principles that underlie EBM and to rigorous, replicable research to inform policy and practice.

This case study also reaffirms a persistent truth—**affirmed by the Institute of Medicine**[10] in 2011—that "clinicians must accept uncertainty and the notion that clinical decisions are often made with scant knowledge of their true impact."EBM concedes that despite our rigorous tools of evaluation and methodical approach to synthesizing evidence, **we cannot ever be certain**[11] of the effects of a given treatment or the power of a diagnostic test. This is especially painful to hear in the midst of a pandemic that relies so heavily on diagnostic testing. Yet this notion of never being completely certain comports with our understanding and acceptance that **scientific knowledge is never complete**[12] and ultimately fallible. Thus, uncertainty is embedded—though not always prominently featured—in our approaches to evidence-based medicine.

10. Robin Graham, Michelle Mancher, Dianne Miller Wolman et.al, *Clinical Practice Guidelines We Can Trust*, (Washington DC: National Academies Press (US), 2011)

11. Benjamin Djulbegovic, Gordon H Guyatt, Richard E Ashcroft, "Epistemologic inquiries in evidence-based medicine." *Cancer control : journal of the Moffitt Cancer Centervol.* 16,2 (2009): 158-68. doi:10.1177/107327480901600208

12. Djulbegovic, et al. ibid.

In the current healthcare research paradigm, we often have the right answers to the wrong questions.

Perhaps now is the time to finally accept uncertainty as a constant companion in clinical practice and public health decision-making and not in conflict with our notions of evidence-based medicine. Perhaps it's time to consider EBM among a complement of modes of acknowledging, managing, and effectively handling uncertainty *with* patients and communities as opposed to for them.

COMPLEX SYSTEMS APPROACH AND THE ROLE OF EVIDENCE SYNTHESIS

Increasingly, there have been calls for public health to **shift toward a "fifth wave"**[13] acknowledging that "the public health community is dealing not with simple systems that can be predicted and controlled, but complex adaptive systems with multiple points of equilibrium that are unpredictably sensitive to small changes within the system."

13. P. Hanlon, S. Carlisle, M. Hannah, D. Reilly, A. Lyon, Making the case for a 'fifth wave' in public Health, *Public Health*, Volume 125, Issue 1, 2011, Pages 30-36, https://doi.org/10.1016/j.puhe.2010.09.004

EBM relies on a complement of tools **predominantly focused on pursuing comparative effectiveness questions**[14]—that is, whether a particular treatment works for a particular population. These include familiar research tools such as systematic reviews with or without meta-analyses that are grounded in linear models of causality, **pursuing goals of certainty and predictability**.[15]

14. Trisha Greenhalgh, 'Will Evidence-Based Medicine Survive COVID-19?' *Boston Review*, May 29 2020, https://bostonreview.net/science-nature/trisha-greenhalgh-will-evidence-based-medicine-survive-covid-19

15. Ketevan Glonti, MSc, Jo Bibby, PhD, Steven Cummins, PhD, et al., 'The need for a complex systems model of evidence for public health,' *The Lancet*, June 13 2017, doi:10.1016/S0140-6736(17)31267-9

In these ways, EBM is particularly good at ameliorating the second type of uncertainty described by Fox—the limitations of current medical knowledge—since it's a means of correcting the deficit in medical knowledge. However, **in the current healthcare research paradigm**[16] we often have the right answers to the wrong questions. **Complex systems approaches**[17] ask us to reframe research questions to interrogate whether and how interventions interact with and impact the healthcare system rather than simply whether a particular intervention works.

16. Margaret Whitehead, Mark Petticrew, Hilary Graham et.al, "Evidence for public health policy on inequalities: 2: assembling the evidence jigsaw." *Journal of epidemiology and community health*, vol. 58,10 (2004): 817-21. doi:10.1136/jech.2003.015297

17. Glonti, et al., ibid.

So, if we adopt a complex systems approach to public health, must we shed our alignment with EBM? Not necessarily.

The process underlying the identification of best evidence often provides a richer yield than simply discerning which among the studied interventions is most effective. These processes of reviewing the evidence are formalized as the methods underpinning evidence synthesis—the compilation and integration of data derived from various sources to summarize and interpret existing knowledge, distribution, and gaps in evidence along with the contextualization of evidence.

Evidence synthesis **has the potential**[18] to support discerning between meta-cognition (knowing what we don't know) and meta-ignorance (not knowing what we don't know), which is at the heart of Fox's third type of uncertainty—the difficulty of distinguishing personal limitations from those of present medical knowledge. Evidence synthesis reviews document the availability and distribution of evidence in a particular field, revealing which interventions and comparators have been studied in a particular population, and which outcomes have been measured to assess these interventions. Evidence reviews often include an assessment of the quality and rigor of the existing evidence. Thus, we can document what has been studied and whether these studies are applicable to the current decision and are of sufficient quality to implement. The elucidation of gaps in evidence, where no studies exist or where studies do exist but are of insufficient quality to implement, can prioritize research agenda-setting and funding. Evidence mapping techniques, rapid reviews, and scoping reviews are particularly important for this purpose.

18. Michael Smithson, *Ignorance and Uncertainty: Emerging Paradigms*, (Springer-Verlag New York, 1989)

Complex systems approach[19] engages interdisciplinary expertise and cross-sector collaboration to identify methods to design, implement, and

19. Glonti, et al., ibid.

evaluate interventions for changing these systems to improve public health.

As we seek evidence to guide decision-making, perhaps we must reconsider what we ask of it, and critically consider what it does for us.

We often think of translating research into practice as a sequential process, each discrete phase building on the next until it ultimately culminates in a patient care intervention, vetted and ready for use in the clinician's toolbox. The COVID-19 crisis demanded simultaneous—not sequential—action across scientific disciplines; basic scientists were asked to elucidate the genetic signature of the disease, clinical researchers were asked to move old and new pharmacotherapies and biological agents into early phase clinical trials, and public health researchers were asked to provide epidemiologic and modeling data on the spread of disease and predict mortality in our communities.

Now, this would be considered interdisciplinary since we had different disciplines within medicine represented. But if we intend to create systems change, we must do better than check boxes on interdisciplinarity. The COVID-19 response required more of us. We called on engineers and manufacturing sectors within and outside of academia to design and deliver ventilators and PPE. We called on artists to leverage their talents and skills to facilitate health communication and reduce social isolation for quarantined populations.

When evidence synthesis is implemented by a truly (some may call it wildly) interdisciplinary team that includes robust and meaningful community engagement, it can also facilitate "meaning-making" at the nexus of a critical and complex public health issue. Through the lens of evidence synthesis—identifying, selecting, analyzing, and synthesizing the academic literature—groups can negotiate

the interpretation of this literature and generate co-created narratives. We can better understand how evidence fits or fails within systems.

In the immediate aftermath of COVID, we have an opportunity to reframe and reimagine how evidence is used to inform decision-making to improve health. I would be remiss if I did not properly contextualize the magnitude of the moment. The COVID-19 crisis is juxtaposed with another co-occurring crisis within the US healthcare system: systemic racism. Structural, systemic, cultural, and interpersonal racism persist in our country and have been **identified as root causes of many health disparities**.[20]

20. Jill Sonke, Tasha Golden, Samantha Francois et.al, 'Creating Healthy Communities through Cross-sector Collaboration,' *University of Florida Center for Arts and Medicine / Artplace America, LLC.*, 2019 https://arts.ufl.edu/site/assets/files/174533/uf_chc_whitepaper_2019.pdf

Golden and Wendel point out that "the entrenchment of conventional, biomedical approaches leads to limited innovation of new methods, and continued use of inadequate practices. These practices generate multiple obstacles to health equity, including continued individual-level foci, culturally inappropriate practices, deficits-based interventions, under-representation, and failures to generate systems-level change."[21] Foucault acknowledged the interdependency of **power and knowledge**,[22] which in turn generate theory and practice. We must remain cognizant and observant of the primary studies we design so that they become the evidence we select and implement to inform practice and generate theory. We must remain vigilant, especially since the hierarchical model of EBM **may be complicit in perpetuating systems of inequity**.[23]

21. Tasha L. Golden, Monica L. Wendel, "Public Health's Next Step in Advancing Equity: Re-evaluating Epistemological Assumptions to Move Social Determinants From Theory to Practice", *Frontiers in Public Health*, vol. 8 (2020): 131 https://www.frontiersin.org/article/10.3389/fpubh.2020.00131

22. "Foucault: Power is Everywhere", *Powercube* https://www.powercube.net/other-forms-of-power/foucault-power-is-everywhere/

23. Carol A. Isaac, Amy Franceschi, "EBM: evidence to practice and practice to evidence." *Journal of evaluation in clinical practice* vol. 14,5 (2008): 656-9. doi:10.1111/j.1365-2753.2008.01043.x

EBM and evidence synthesis can contextualize uncertainty and support decision-making in these areas, but we will only reduce uncertainty if there is deep consideration of what constitutes evidence, what that evidence represents and what—and importantly who—it leaves out.

CONCLUDING REMARKS

Clinicians and public health practitioners will always struggle with uncertainty. The reference point has long been the decision—and making the right one. However, COVID-19 has in some ways forced us to accept that decisions are made in a complex system, where each element is inextricably connected to another and where actions and reactions reverberate in unexpected ways. As we seek evidence to guide decision-making, perhaps we must reconsider what we ask of it, and critically consider what it does for us.

I've been making mandalas during the pandemic. I am on number 79, and I'm planning on making 100. My work is inherently meditative. I feel the meditative effects while making the work, and hope the viewer can feel a sense of calm or a respite when looking at it. Since I often use repeating shapes and patterns, the work becomes tedious, but worth it. There is a lot of control in my work; my shapes are clean, and my lines are straight. I work with a set of rules and a specific set of colors. But while making the work I invite my intuition to guide me in creating the actual shapes and lines, along with the placement of each mark. I am no longer in control, but in a state somewhere between chaos and control.

— Jordann Wine

JORDANN WINE

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Jordann Wine
Untitled
gel pen and marker on paper

THURSDAY, JUNE 18, 2020

Jordann Wine
Untitled
gel pen and marker on paper

LIVE CONVERSATION WITH
COMPASS CONTRIBUTOR

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Recorded live dialogue with Judah Armani

If you boil down the learnings I have come to about interdependence, I'm left with principles for a conversation: Accountability, Communication, and Adaptability.

Accountability: how am I responsible not just for my own life, but for my practice, for my work, for how I conduct myself, and the people that I'm working with?

Communication: how do I communicate not just with others, but how do I communicate with myself? How am I honest with myself and how do I listen to myself?

Adaptability: apart from how I deal with change, how do I create the space for me to continue to be a lifelong learner?

These principles help me do conversation with myself better but also the practice of being able to do conversation better with others. And if we can increase the relationships we have with others—then of course we can be better designers, but also better fathers, husbands, wives, partners, friends, and members of community.

What is it that connects us as human beings and connects us to ourselves? If we can begin to connect ourselves to ourselves, and ourselves to each other, we can form tighter relationships that can then create better networks and ultimately create opportunities to reduce inequality—which is what good networks do when they are diverse.

— JUDAH ARMANI
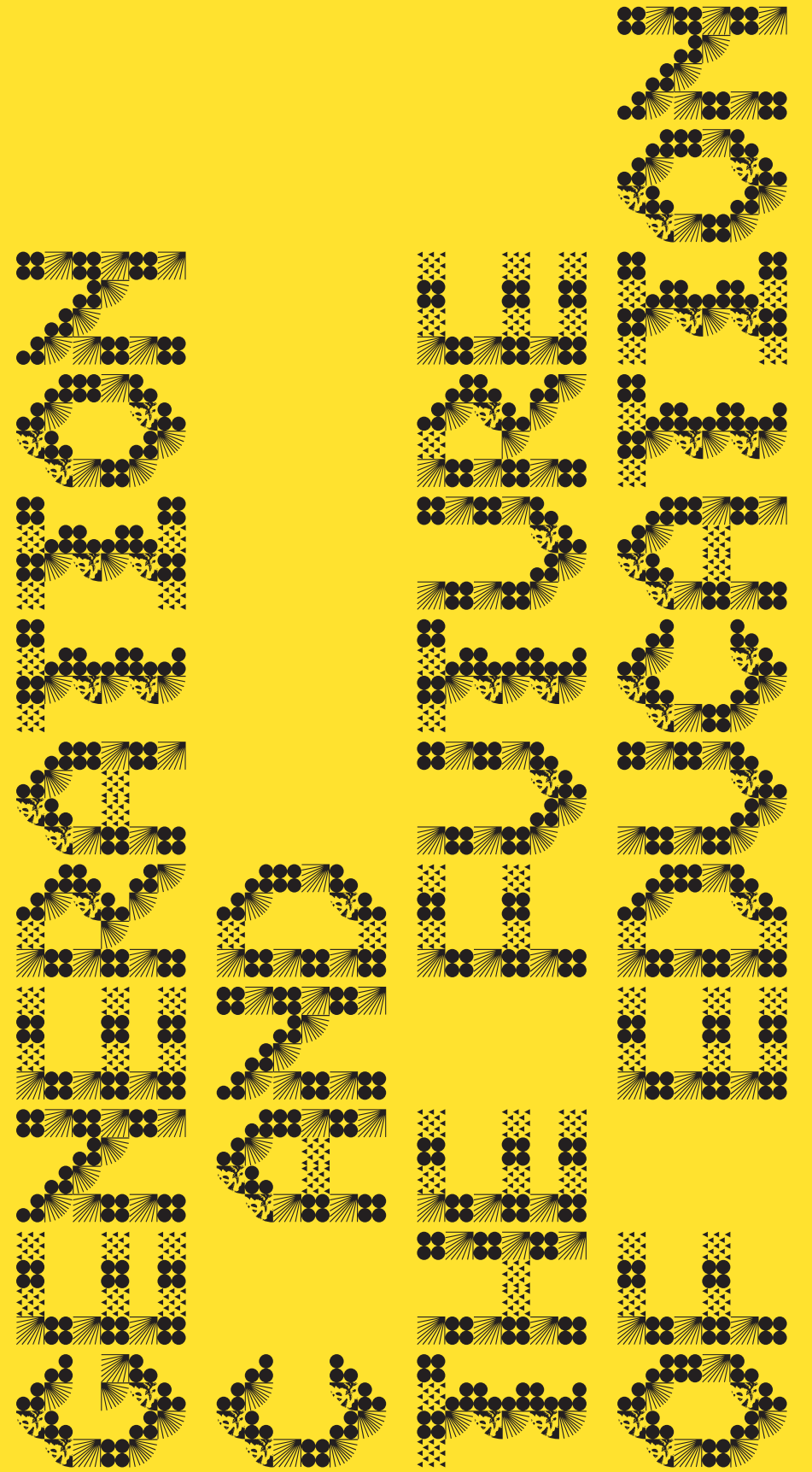
YOUTH CONTRIBUTORS
Michellet (Michy) Brand
David Amir Carrizosa
Joseph Grajales
Kevin Nguyen
Melvin Shaw, Jr.
Rubi Perez Vazquez
Jayda Williams
Dalex Zenteno

DISCUSSION WEAVERS
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Executive Director
Providence Student Union

Alvaro M. Morales
Mixed Media Documentarian
Sumak Productions

Sahib Singh
Strategic Design Lead
Center for Complexity

Julie Woods
Program Coordinator
Center for Complexity

Working with the Providence Student Union, CfC brought together students from Rhode Island, Arizona, North Carolina, Missouri, and Texas via Zoom to share their insights and experiences in order to reimagine the future of education. The young people contributing to the symposium have been shaped by their experiences in a variety of schools, and through the remote learning necessitated by the pandemic, along with the renewed civic activism in response to accelerating police violence against Black people. They have been invited to voice their opinions on how education needs to shift in order to be relevant, meaningful, and equitable. There are many actors and decision-makers working towards systems change in education. For us at CfC, our practice focuses on seeing, questioning, and developing pathways for integrating many parts into wholes to improve outcomes. Students are core decision-makers and change agents for building systems that support them.

Author, poet and scholar Clint Smith has written: "Do not for one moment think you cannot change what exists. This world is a social construction; it can be reconstructed. This world was built; it can be rebuilt. Use everything that you accrue to reimagine the world."

CfC is pleased to be able to provide an opportunity for students from across the US to come together to reimagine education, and through this symposium, to offer a platform for their voices and ideas.

Cornel West has observed that education "is about the formation of attention. So you attend to the things that matter." The adults involved in this project provided a youth-led virtual space with "just enough scaffolding." Through three sessions, students' ideas were developed through creative practice in order to publish outcomes we hope will resonate. Students applied their understanding and imagination to urge us all to attend to the things that matter.
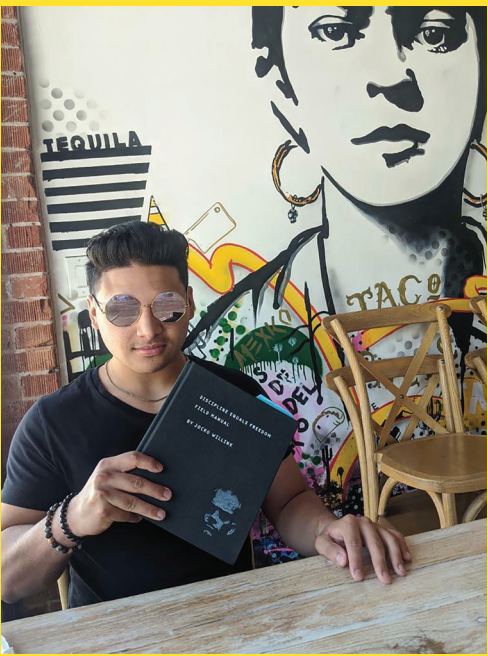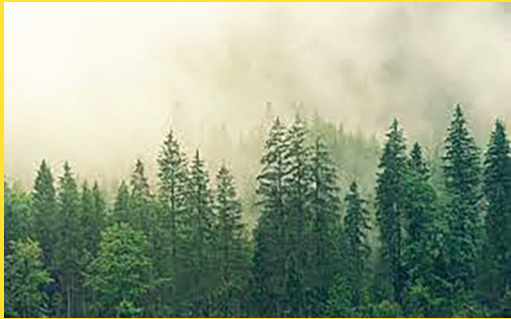
The following content is the collaborative creation of the young people who met with CfC and PSU as part of our virtual symposium. Developed during and between three separate Zoom sessions, these ideas and proposals are the result of spirited and thoughtful consideration. The cohort has titled their work *Ingredients for a Utopian School.*

#ingredientsforautopianschool

REMOVE THE LETTER GRADING SYSTEM AND INCOPERATE PERSONALIZES TRANSCRIPTS

SRO Removal

THEY SAY THE WORLD IS YOUR CLASSROOM, SO LET US EXPLORE IT!

LET US HAVE EDUCATIONAL OPPORTUNITIES DURING CLASS

INCLUDE INTERNSHIP DAYS INTO THE SCHOOL WEEK

HIRE MORE TEACHERS OF COLOR
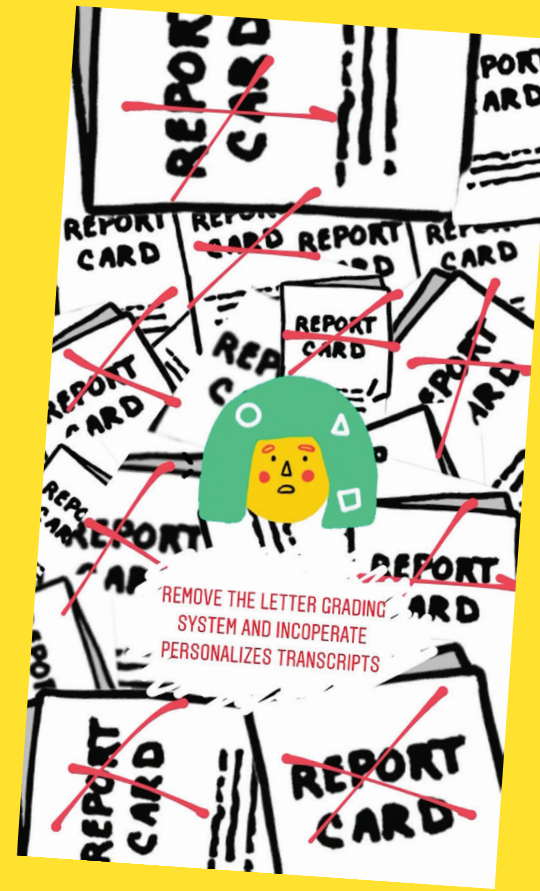
Infrastructure

- skylights:

for exposure to natural light and other benefits of sun exposure
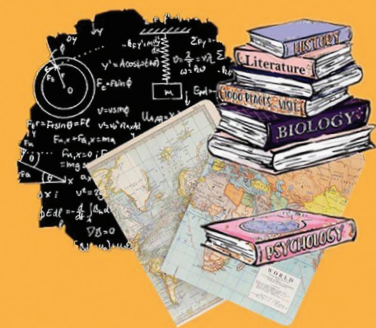
Civic Engagement

- updated / more equitable history curriculum

Curriculum

- an open curriculum so that students can explore their own personal academic interests

Parental and Community Involvement

- Parental Action Committees

- Community Action Committees
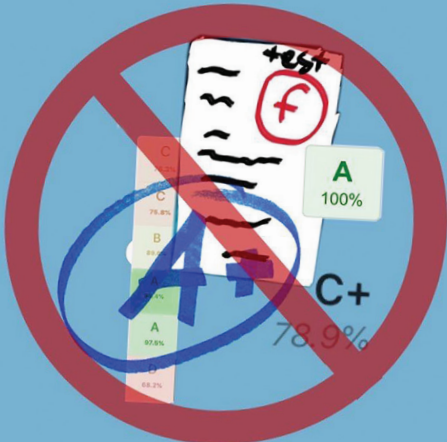
Student Mental Health

- appropriate counselor to student ratio

- more counselors, no cops

Student Evaluation

- no letter grading system

Beyond Highschool Preparation

- Home Economic classes

*My sisters' flat in London sits right
on the Thames Path, a main artery
for daily strolls. The movement on
the walking path roughly correlates
with adherence to lockdown rules,
and provides clues about British
society's attitudes towards lockdown.
I sat by the river on my favourite
stretch of the bank, right at the vital
hour—the day after lockdown was
announced—and reflected on the
silence. In combination with that, a
few days earlier I was walking by an
advertisement/PSA from Transport
for London that profoundly struck
me. TfL is the government body that
has introduced progressive taxes to
reduce vehicle traffic in London, and
they quite graphically and directly
stated that idling your engine—mainly
aimed at delivery drivers and agents
of capital—was poisoning children. It
raised for me wider questions about
individual responsibility in systems
of environmental oppression, public
health, and the fixity of industry. My
greatest concern is that in thinking
that change will inevitably come out
of this pandemic, we will only further
cement historic patterns of behaviour.*

— Silas Gibbins

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SILAS GIBBINS

Silas Gibbins
Tower Hill Wharf, London
March 24, 2020

FROM MY QUARANTINE TO YOURS,
WITH LOVE

Quarantine arguments
        hang in the air
like slammed doors
feeling the vacated
        void of open sound
creeping into the space
        of shouting workmen,
        and horns,
        and idling engines
that once
choked our children with poison

Just as commerce
in this familial hour
sits
Choked
Idle
This is no Blitz blackout
the lights of candles burn bright
into the night
the windows of the city
lit by a new source of a flame
togetherness
human decency
tender, fraught intuitions
as it could have been?
What are the decisions we have bound ourselves to?
Just as choices were once made by circumstance
how will this Circumstance
        assert itself
imprinted onto collective conscience
How will we touch again
with this codex of mimetic dread
        lingering—
solidifying
a harder stubbornness
to return to how it was?

THURSDAY, JUNE 18, 2020

JUNETEENTH
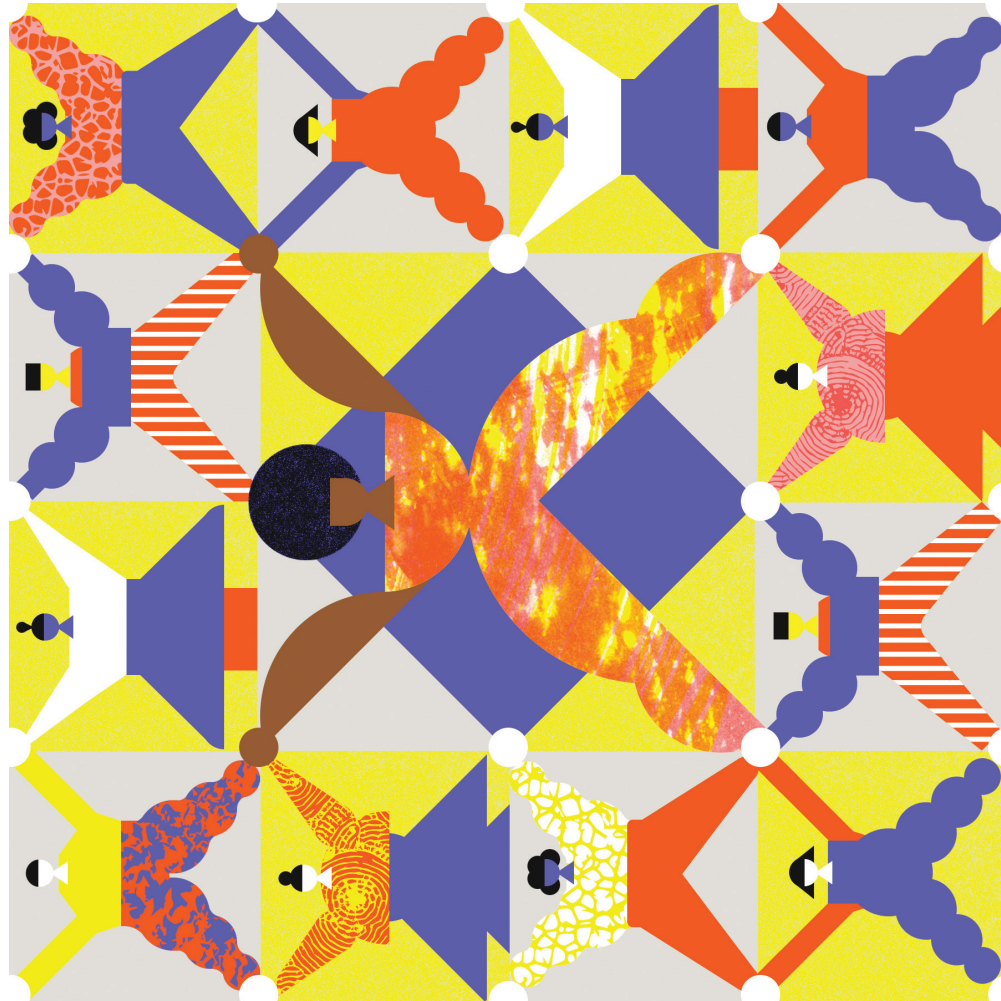
FRIDAY, JUNE 19, 2020

On June 19, 2020, Rhode Island School of Design observed Juneteenth for the first time in its 144-year history. In a letter to the RISD community sent on June 15, 2020, President Rosanne Somerson wrote:

"Today we are committing to a new set of actions to inspire a better RISD—a RISD where students, faculty and staff of all races, ethnicities and cultures are supported, nourished and honored without the impediments of systemic racism. RISD must reflect the complexity of the world and demonstrate the critical role of artists and designers in advancing change."[1]

January 1, 2020 marked 157 years since President Abraham Lincoln issued the Emancipation Proclamation. Juneteenth celebrates June 19, 1865—the day when federal troops arrived in Galveston, Texas (two and a half years after President Lincoln issued the Proclamation) to inform enslaved Black Americans of emancipation and enforce their freedom. The late civil rights leader and Texas Representative Al Edwards wrote: "Every year we must remind successive generations that this event triggered a series of events that one by one defines the challenges and responsibilities of successive generations. That's why we need this holiday."

Federal holidays like this commemorate culturally significant events and turning points. In 1865 the significance of that day in Galveston was memorialized by the African-American community through the celebration of Juneteenth. In her announcement establishing Juneteenth as an annual day of remembrance for the college, President Somerson enjoined the RISD community to make a commitment to advance equity by embedding "anti-racist and anti-discriminatory infrastructures across the college."

In support of this, CfC observed June 19, 2020 by ending our symposium activities

1. President Somerson's full statement to the RISD community at https://www.risd.edu/news/for-press/press-releases/president-somerson-announces-actions-advance-social-equity-risd https://www.risd.edu/about/sei-accountability

earlier than planned. Inspired in part by the American novelist Ralph Ellison, we recommit ourselves and our work to supporting the creative momentum necessary to advance and achieve equity.

"We shall demonstrate once again that in this great, inventive land man's idlest dreams are but the blueprints and mockups of emerging realities, technologies and poems. Here in the fashion of our pioneer forefathers, who confronted the mysteries of wilderness, mountain and prairie with crude tools and a self-generating imagination, we are committed to facing with courage the enormous task of imposing an ever more humane order upon this bewilderingly diversified and constantly changing society. Committed we are to maintaining its creative momentum."[2]

2. Ralph Ellison, *Juneteenth*, (Modern Library, 2011)

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Center for Complexity Team

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Dear friends and colleagues,

Our 2020 symposium was realized through the hard work of contributors and collaborators who engaged with us and one another across a variety of platforms. More than 2,100 unique visitors hailing from over 65 countries accessed **www.generationc.xyz**. We are grateful for your attention and hope you found the event to be intellectually challenging and creatively inspiring.

After working remotely for three months, we are still grieving the loss of the in-person connections that make work and life so enriching. We had been building our simple studio at RISD into a gathering place for collaborators, faculty, students, and staff. From workshops to our Complexity Coffee hours, we had offered new ways to engage and felt even more integral to the RISD community in our second year. We hope that the online community space created through this symposium has lasting benefit.

Initially, the need to host the symposium virtually felt like another loss. But as our contributors attempted to answer questions on what will stay and what will go as the threat of COVID-19 wanes, we discovered benefits to this way of convening. The opportunity for sustained thought and collaboration has yielded powerful insights. We will hold on to elements of this virtual format for our 2021 symposium.

In early 2020 portions of our lives came to a standstill due to the pandemic. In fact, in some ways, time stood still. This provided the space to pay close attention to our ideas, to one another, to colliding crises beyond COVID—including police violence and systemic racism. But this pause also focused our attention on the need for connection and care—for ourselves and one another—in our homes, through our Zoom calls, on the streets. Connection and care are basic necessities to help navigate in times of crisis.

The landscape of ideas and observations that we collectively explored over the week was vast—from New Zealand's promising experiments in new forms of democracy, to the awful ramifications of systemic racism in the US, to the ways COVID-19 will likely deepen generational divides in wealth, culture, and politics. CfC will continue to explore these topics and more on our website in the months to come.

To close the symposium, we would like to consider a somewhat unexpected recurring theme: time. Time has taken on an especially unusual nature of late. Rather than advancing predictably, it seems to exhibit behaviors similar to wave-particle duality. That is, time has been both fixed and fluid, slow and fast, precise and blurred simultaneously. Maybe time has always been this way, but the pandemic has reminded us that it is a construct that flows unevenly through our lives. It is critical now that we reexamine our relationship with time in order to both better understand our complex world and advance meaningful societal changes.

NOTES ON TIME
Several symposium contributors considered time through the familiar lenses of past, present, and future, arriving at compelling insights.

Past
In his meditation on maps, **Bryan Boyer points to** our ongoing collaboration with the past:

"When one receives the convenient confidence of a map, it's as if one is collaborating with an invisible group of predecessors to understand the world. They struggled here first so that I may pass with ease. This invisible collaboration is what makes maps conceptually similar to another feature of the contemporary world: silos of knowledge and effort."

But this form of collaboration requires trust and a willingness to "build your work upon theirs." It also demands circumspection as we look for the errors that our predecessors have inevitably made in the process of constructing knowledge of the world.

Ignacio Garnham's response to the *Imagination* essay reminds us that the past (and present) is directly tied to how the future can be accessed. For many of us, the right to imagine is curtailed by historical inequities. For Garnham, the stories we tell about the past will shape the future:

"Humans imagine futures using their memories. It is undeniable, therefore, that digging deeper into issues of collective memory will shed light on pervasive practices deeply buried in procedural memory. Yes, the past can be retold, but as Eyal Weizman, Fred Martins, and others have shown, it can also be redesigned. Insofar as temporality is a commodity, being strategic in reimagining how we speak about the past can provide currency to swim ahead in the tides of temporality. HeLa, the mother of modern medicine or Henrietta Lacks, the Black woman stripped from her cell line? Rosa Parks, a fragile old lady on the wrong side of the bus, or Rosa Parks, the determined activist? How we communicate historic events that fuel future change matters."

Present
In this historic moment, the present looms large in the experiences and imaginations of all of our contributors. From the killing of George Floyd, Breonna Taylor, and Ahmaud Arbery to the hundreds of thousands of COVID-related deaths, to the unmistakable present-day impacts of climate change, this moment weighs heavily on all of us.

Ingrid Burrington's acerbic reaction to this moment, *Don't Hold Your Breath*, eviscerates the present with breathtaking clarity. She writes:

"Of course, all of the immediate crises are intertwined and part of the older, deeper crises. Even responding to the pandemic grimly enables the climate crisis by producing mountains upon mountains of unrecyclable hydrocarbon-derived biomedical waste (a curiously discarded detail of the feel-good history of meltblown polypropylene face masks currently protecting doctors from the virus is that they exist, in part, thanks to the R&D work of the Esso Corporation)."

Burrington collapses the future into the present. "Don't stay suspended in the possibility of choices..." she writes. "Consider how you might all live otherwise. Live otherwise. Or don't. Make a choice." Decisions must be made now.

Future
The future provides a bit of relief from the present, perhaps, because it suggests that there are still options. But we feel an intense responsibility to prevent relief from becoming complacency—again.

As Dan Hill discusses, would the proposition of "slowdown"—in our daily lives, in our work culture, as a newly and widely accepted mental construct—help us address systemic challenges by granting us a different expected speed at which to operate?

Damian White questions responsibility over time, writing, "the use of generational thinking and categories to understand, explain, and ultimately assign responsibility for phenomena can quickly hit its upper limits."

Nora N. Khan offers some immediate places to begin looking, through close

readings of the simulations and interfaces that define our COVID-19 lives.

"Our interventions can take place in precisely the spaces of no contact that ultimately determine how we will be in contact in the future. I encourage designers to deploy a vigorous social critique of technology, to recalibrate the metrics of technological fronts that directly shape how we imagine contact and proximity, inclusion and exclusion."

WHAT'S NEXT
As a platform for transdisciplinary collaboration and innovation—informed by creative practice applied to global and local events—we have much to do. We will connect the insights developed here with our growing network of scholars, practitioners, partners, and the RISD community.

As we wrap up our symposium and return to the work at hand, we take inspiration from all of our contributors and end with this **final reminder from Dr. Gina Siddiqui**: "You are what you do every day." We recommit ourselves to projects and collaborations that advance social justice and to improving complex systems that impact the lives of people around the world. We are fortunate to apply ourselves to this work every day.

CfC aspires to be a bridge between the development of new insights and knowledge in complex systems and people able to apply that knowledge in their practice. In the weeks ahead we will reflect on the content presented at this symposium in order to find signals and gain insights for meaningful projects that work towards systems change.

Taking another step along an extended journey, we have created this publication as a free download. We also hope that many of our symposium contributors and attendees will continue to walk with us.

WITH THANKS
We would like to thank everyone who dedicated time, skill, and expertise to making this symposium enlightening and worthwhile.

All of our contributors
Without our Compass essayists, respondents, panelists, and illustrator Cecilia Ruiz, none of this would have come to fruition. We want to acknowledge the time and care you dedicated to this project during a period of intense uncertainty. We appreciate your feedback on our early framing, all the work you put into refining drafts, your participation in the live events—and everything else you did to make this endeavor memorable.

To all those who submitted work to the Open Call, thank you for adding your words—and imagery—to enrich the conversation in wonderfully unexpected ways.

Ingredients for a Utopian School
Many thanks to Javier Juarez, Executive Director of the Providence Student Union, and Alvaro Morales, award-winning documentarian and VR developer, who stewarded the perfect balance between organization and creativity crucial to this project. And of course, thanks and congratulations to the **young people** who took time from your already demanding schedules to work with one another and with us to produce moving and timely content. We wish you all bright, empowered futures.

Strategic Programs Team
Daniel Hewett, Katie Edmonds, Charlene Sequeira, and Maria Gerdyman, you took the lead on organizing our collaborative conversations. But beyond that you contributed in countless ways behind the scenes, from editing and bug-hunting to pushing us to clarify our goals for the symposium as a whole. And though recently departed, we are grateful to Sudhir Desai for all your collegial critique.

LAND ACKNOWLEDGEMENT

Rhode Island School of Design is built on what is now called College Hill, part of the ancestral homelands of the Narragansett Nation, the only federally recognized tribe in Rhode Island. Indigenous people from many nations— near and far—live, study and work in Providence today. RISD community members are committed to actively addressing the many violent legacies of colonialism in our daily work. The amplification of Native voices and histories is crucial to rectifying the destructive past, and we gratefully acknowledge the ongoing critical contributions of Indigenous people across our state, region and nation.

This statement has been developed in consultation with Narragansett community members.