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## “Shovel-Ready”: The Commons and the Climate Crisis

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I jab with my cursor at the little blue hand next to my name on the list of Zoom participants, but the icon won't go away. I've got cold feet, and I want to back out of making a comment, but I can't seem to erase the signal of my intention. Next thing I know, the Executive Vice President of the University of California, who is facilitating the meeting with exquisite courtesy, runs through the names of the next few people to speak. I'm second on her list. There's no going back. My heart starts to pound. Will I be able to articulate my frustration with coolness and clarity? What if I swear inadvertently, as sometimes happens when I lecture? What *is* a polite synonym for bullshit?

This meeting—between the higher administration of the University of California and my activist organization, Green New Deal (GND) at UC San Diego (UCSD)—was months in the making. In August, a small group of us drafted a petition calling on the University to take responsibility for the million-plus tons of CO<sub>2</sub> it emits every year. Because these are difficult financial times, our request was deliberately inexpensive. We did not ask for infrastructure investments, but simply for *plans* to be drawn up for the electrification of the campus energy systems, most of which currently run on gas obtained by hydraulic fracking. Our pitch was that the university needs to be “shovel ready” for any federal green stimulus money that might be forthcoming.

By October, we had garnered more than three and a half thousand signatures, plus endorsements from unions and student groups representing tens of

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The following abbreviations are used: CNI, Carbon Neutrality Initiative; GND, Green New Deal; UCSD, University of California San Diego.

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thousands more. We closed the petition and sent it to the powers that be, some of whom granted us meetings. This one with the Office of the President, where my digital hand was hovering in the digital air, was our biggest yet.

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The University of California prides itself on being a leader on climate, but we were asking it to admit that its current plan, dubbed the Carbon Neutrality Initiative (CNI), lagged behind any reasonable definition of leadership. An unfunded mandate handed down in 2013 to all campuses by then-president Janet Napolitano, the CNI promised “carbon neutrality” across the system by 2025. Although ambitious at the time of its inauguration, over the years since, the initiative has congealed into compromise and obfuscation, with the result that the UC emissions needle has barely budged.

As the 2025 deadline for carbon neutrality approaches, it has become clear what the initiative amounts to. “Carbon neutral” means that the UC system will continue to rely on fracking, the emissions of which will be “neutralized” through carbon offsets. Such offsets are certification schemes under which rich polluters pay for people elsewhere—usually in low-income countries—to sequester greenhouse gases. Two examples of the proposed offset schemes are paying people in Ecuador to plant trees and paying people in Rwanda to use more efficient cook stoves.

There are so many problems with this. Even if you can stomach the neo-colonial premise, offsets do not *begin* to work as promised. Take reforestation. The assumption of such schemes is that every tree planted will grow to maturity. Every tree has to be one that would not have grown otherwise. Moreover, for such an initiative to sequester enough carbon to “cancel out” emissions elsewhere, these mature forests would have to cover a vast area for a thousand years (the amount of time that the carbon dioxide we emit by burning fossil fuels stays in the atmosphere). It simply does not compute. Corruption and double-counting are rampant. Worst of all, offset payments often generate perverse incentives that damage local biodiversity and harm Indigenous peoples.<sup>1</sup> The false promise of carbon neutrality also fosters complacency. As we circulated the petition, we kept hearing back that what we were doing was unnecessary because the UC was already taking care of the problem.

1. Lisa Song with Paula Moura, “An Even More Inconvenient Truth: Why Carbon Credits for Forest Preservation May Be Worse Than Nothing,” *ProPublica* (22 May 2019), <https://features.propublica.org/brazil-carbon-offsets/inconvenient-truth-carbon-credits-dont-work-deforestation-redd-acre-cambodia/> (accessed Jul 2021).

Which is why my little blue hand was raised. Our demands had been laid out; a graduate student in marine biology had reviewed the climate emergency, two distinguished climate scientists had called for drafts of an electrification plan, and three undergraduates had urged the university to pivot away from the language of carbon neutrality and toward an honest presentation of its direct emissions. The first member of the administration to respond missed the point completely. He seemed to think we were asking for *more* information about the CNI, not a new path. When it was my turn to speak, I clarified our request. No more offsets. No more dodgy accounting. No declaration of victory in 2025, while continuing to pump greenhouse gas into the atmosphere. In the heat of the moment, I found that my polite synonym for bullshit was “green-washing.”

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Hundreds of hours of organizing got us that meeting. At best, it will take hundreds if not thousands more to push the university to real action on emissions. It was hard not to come away with a sense of futility. And indeed, alongside the objection that there was “no need” for our petition, there came another repeated challenge on the theme of “why bother?” A professor of political science replied that if China and India did not curb their emissions, there was no point even pressuring the *United States* to do the right thing, let alone California, let alone the UC system. Why on earth would anyone work on a massive global problem at the level of a single institution? Surely these issues have to be resolved at a much higher level?

Against the “why bother” objection, the present essay draws inspiration from our discipline to argue for environmental organizing at this smaller scale. Historians of science often celebrate the unsung protagonists of knowledge-making—the artisans, patients, farmers, technicians, and secretaries whose contributions do not tend to make it into heroic narratives of individual genius. The field attends to the way that universal claims originate in local contexts, documenting the material work that allows a supposedly universal truth to migrate from one place to another, often traveling along the supply lines of extractivist empires. There is something very *grassroots* about the whole approach. We try to see the world from the bottom up.

When it comes to political organizing, there exists an analog to our bottom-up epistemology: the theory and practice of “the commons.” The commons are property relations that defy the usual dichotomy of the private versus the public sector. Private property is owned by individuals and public property is

owned by the state, but *common* property is owned and managed collectively by those who use it. In their book *Free, Fair and Alive: the Insurgent Power of the Commons*, the activist-scholars David Bollier and Silke Helfrich suggest that the existence of common property regimes makes it “plausible to imagine a stable, supportive, post-capitalist order.”<sup>2</sup> For those of us who have found it easier to imagine the end of the world than the end of capitalism, as the oft-quoted aphorism has it, such imaginative plausibility is extremely compelling. The book is far from perfect, opening with a utopian set-up that should be headed off for the health of the whole movement. But as soon as I reached Part II and the treasury of examples, *Free, Fair and Alive* leapt into focus as a wise, hopeful, and pragmatic primer for environmental action.

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Some background is in order. No account of the commons can escape the long shadow of the figure who reintroduced the concept into twentieth-century political philosophy, the ecologist Garrett Hardin. In 1968, Hardin published a six-page paper in *Science* called “The Tragedy of the Commons” that is still the most-cited article in the journal’s history. He was a committed Malthusian environmentalist, and the article was a rallying cry for global population control. In the course of denouncing the freedom to breed, he likened our fragile, finite planet to a communally owned pastureland, and declared that common ownership leads remorselessly to environmental degradation. Without a single owner invested in stewarding any given natural resource for the long term, he claimed, it would be over-exploited by its users, all of whom would engage in an unseemly rush to grab as much of it as possible without any thought to the future. Hence the tragedy of his title: the rush to ecological degradation in a commons was as remorseless and unstoppable as anything in Sophocles.<sup>3</sup>

Hardin’s degraded pasture was an analogy with a simple point: the freedom to breed leads to ecological overshoot in the same way as common grazing rights lead to overgrazing. But once the article was published, his message about population control was buried under an avalanche of commentary triggered by his thought experiment about cows. Only in China was the population angle taken up, resulting in the notorious “one child” policy. Everywhere else, the tragedy of the commons became a world-altering meme,

2. David Bollier and Silke Helfrich, *Free, Fair, and Alive: The Insurgent Power of the Commons* (Gabriola Island, Canada: New Society Publishers, 2019), 15.

3. Garrett Hardin, “The Tragedy of the Commons,” *Science* 162, no. 3859 (1968): 1243–48.

a global framework for rethinking the relationship between psychology, property, and the environment.

Predictably enough, the greatest enthusiasm for Hardin's argument was on the part of neoliberal ideologues, who seized on the tragedy of the commons as a philosophical justification for their free-market fundamentalism. Blaming all environmental problems on the *failure* to enclose nature, a new breed of libertarian environmentalists proposed solutions such as cap-and-trade, privatized water supplies, and selling off national utilities in their crusade to prescribe laissez-faire therapies for every social ill. The results speak for themselves: from plastic pollution to climate chaos, I think it is fair to say that globalized neoliberalism has done more damage to the environment in the last forty years than any human-made system in history. This makes the tragedy of the commons an inauspicious remedy for climate change, to say the least.

But Hardin did not languish unchallenged. The second person always invoked in the commons literature is the political scientist Elinor Ostrom who, with her husband, co-founded an institute devoted to the study of real-world examples of the commons. With the Ostroms, a new approach to environmental problems came into focus. The team analyzed scores of real-world common property regimes, including communally managed forests, fisheries, and watersheds. They pointed out that these did not, in fact, lead to the tragic outcomes predicted by Hardin. On the contrary, common-property regimes were often successful in conserving natural resources. With Elinor Ostrom's 1990 book *Governing the Commons*, a movement gathered force, dedicated to describing, analyzing, and celebrating successful examples of common ownership, with a view to expanding and multiplying them. It was for this work that, in 2009, Ostrom was awarded the Nobel Memorial Prize in Economics. There are now countless journals, conferences, institutes, and edited volumes devoted to the cause.

Although the Ostroms challenged Hardin's pessimism about the inevitable *consequences* of human selfishness, they held a similar set of psychological assumptions. Like Hardin, they used game theory to model collective action problems. And like him, they assumed that all the players were fundamentally self-interested. Their point was that self-interested beings can, in fact, achieve collective goals and conserve essential resources, given the right conditions. For some on the left, this assumption of self-interest was enough to condemn the whole approach. For me, it was refreshing to encounter a literature on collective action that did not assume that capitalism has somehow conspired to repress our inherent niceness.

Unfortunately, Helfrich and Bollier are squarely in the inherent niceness camp. *Free, Fair and Alive* opens with some research on helpful toddlers, from which they conclude that “human beings instinctively want to help others.”<sup>4</sup> Unscientific observation of the behavior of a couple of two-year-olds the other day led me to the contrary conclusion that human beings instinctively want to grab anything being enjoyed by their peers. Can we not at least agree that selfishness vies with generosity in the human breast?

Grounded in a bracingly anti-utopian psychology, the Ostroms’ work explores how to overcome the problems that arise when *fallible* humans attempt to share. Their resulting “design rules” for the commons are derived from a game-theoretical analysis of scores of real examples, and include transparent communication, participation by all affected parties in setting the rules, clear boundaries around the resource in question, clarity about who has rights to use it, good monitoring mechanisms, graduated sanctions for violations, and robust conflict-resolution procedures. The assumption of individual self-interest allows them not just to understand collective action problems, but also to suggest how to solve them.

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To the usual pair of Hardin and the Ostroms, I would like to add a third protagonist: legal scholar Carol Rose. In 1986, Rose published a paper entitled “The Comedy of the Commons: Custom, Commerce and Inherently Public Property.” Intrigued by a series of court cases in the late sixties and early seventies that turned over California’s beaches to the people, Rose began to investigate the place of the commons in common law. Perceiving that some resources, such as the shoreline, were legally understood as “inherently public property,” she wanted to work out why. Of all the precedents she uncovered for the common ownership of California’s beaches, the best-established was the transport infrastructure used in commerce. Unnoticed and uncelebrated as commons, streets, roads, and navigable waterways are owned by all who use them.<sup>5</sup>

Rose’s streets represented a third twist in the debate over the commons. The opening salvo in the exchange was Hardin’s abstract model of an overgrazed meadow, which described an *unmanaged* commons plundered by atomized individuals who did not communicate with one another. Its open-access nature

4. Bollier and Helfrich, *Free, Fair, and Alive* (ref. 2), 13.

5. Carol M. Rose, “The Comedy of the Commons: Custom, Commerce, and Inherently Public Property,” *The University of Chicago Law Review* 53, no. 3 (1986): 711–81.

was the source of its tragedy. Challenging Hardin's model, the Ostroms pointed out that successful commons tend to be carefully controlled by tight-knit communities who make their own rules about how much of a natural resource its members may extract—how much catch, how many grazing animals, how much water, etc. Carol Rose, in her turn, suggested that public ownership of the street produces a third kind of commons, one that is *open access but nevertheless managed*. The street commons is managed not by a small community, but by an ever-changing populace—neighbors, strangers, or both. Its existence implies what Rose calls an “organized public,” possessed of sufficiently internalized standards of consideration for others that its members can share the resource freely to everyone's benefit.

Carol Rose published “The Comedy of the Commons” ten years before the launch of the Internet, but her work was later rediscovered by avatars of the so-called digital commons. The open access movement is now one of the most vibrant frontiers of “commoning,” to use the clunky but indispensable verb form. As self-organizing systems that resist capitalist enclosure, the traditional commons, the urban commons, and the knowledge commons are treated as one movement in *Free, Fair and Alive*. While I agree with the basic taxonomy, I am more worried than Bollier and Helfrich about the tensions and contradictions among these three types.

Especially troubling is the extent to which the digital commons conspires to destroy the more traditional variety. For an environmentalist, the most important feature of the whole subject of commons governance is that natural resources are finite and subject to degradation. The potential for over-use of natural resources is the basis of Garrett Hardin's point about the commons' tragic potential. And the fact that well-governed commons often manage to conserve and sustain these finite resources was the crucial insight that Elinor Ostrom contributed to the debate. But sharing a text or a language or a song or a digital file is not like sharing a watershed. Proliferation does not degrade informational resources, it strengthens them. And as a direct result of its ability to proliferate without being used up, the digital commons has a huge environmental footprint.

The misty vocabulary of “cloud” and “cyberspace” that we use for digital networks occludes the appalling destruction that these technologies visit on natural systems. Our devices' crucial components are made from rare earth elements, whose physical and chemical characteristics are essential to their functioning, and whose extraction involves the release of heavy metals and radioactive materials into groundwater, rivers, soil, plants, and the

atmosphere.<sup>6</sup> Taken together, the world's data centers consume more electricity than the whole United Kingdom, roughly the same as global air travel.<sup>7</sup> Much of the electricity used in these networks is supplied by coal-fired power stations. China's data centers alone produced nearly one hundred million tons of carbon dioxide in 2018.<sup>8</sup> The digital footprint of a large machine-learning project is about five times the lifetime emissions of the average American car.<sup>9</sup>

The effect of the urban commons is similarly destructive. Although the living dimensions of the urban commons are vibrant and inspiring, including community gardens, city farms, and urban forest initiatives, all cities sit in the center of webs of extraction, stretching out to the devastated ecosystems where our cheap food is grown and our cheap fuel dug out of the ground. The research activities of the University of California (all those servers, freezers, and autoclaves) are sustained at the cost of the health and survival of the people of California's Central Valley and other sacrifice zones in Texas and New Mexico, in which the air and water are contaminated by toxic wastes from shale gas extraction. Our group at UC San Diego has just started to coordinate with an environmental justice organization that campaigns against fracking at one of these locations. It is clear we have much to learn about the communities who pay with their lives for our privilege.

Moreover, these inequities are rooted in the dispossession of the Indigenous commons. In 1838, Congressman Thomas Hartley Crawford, the Commissioner of Indian Affairs, put it bluntly: "Unless some system is marked out by which there shall be a separate allotment of land to each individual . . . you will look in vain for any casting off of savagism. Common property and civilization

6. Nathan Ensmenger and Rebecca Slayton, "Computing and the Environment: Introducing a Special Issue of Information and Culture," *Information and Culture* 52, no. 3 (2017): 295–303. Nathan Ensmenger, "The Environmental History of Computing," *Technology and Culture* 59, no. 4 Supplement (2018): 7–33.

7. John Vidal, "'Tsunami of Data' Could Consume One Fifth of Global Electricity by 2025," *Climate Home News* (11 Dec 2017), <https://www.climatechangenews.com/2017/12/11/tsunami-data-consume-one-fifth-global-electricity-2025/> (accessed Jul 2021).

8. Naomi Xu Elegant, "The Internet Cloud Has a Dirty Secret," *Fortune* (18 Sep 2019), <https://fortune.com/2019/09/18/internet-cloud-server-data-center-energy-consumption-renewable-coal/> (accessed Jul 2021).

9. Karen Hao, "Training a Single Ai Model Can Emit as Much Carbon as Five Cars in Their Lifetimes," *MIT Technology Review* (6 Jun 2019), <https://www.technologyreview.com/2019/06/06/239031/training-a-single-ai-model-can-emit-as-much-carbon-as-five-cars-in-their-lifetimes/> (accessed Jul 2021).



cannot co-exist.”<sup>10</sup> In 1885, Senator Henry Dawes of Massachusetts, returning from a trip to Indian country, observed that “. . . because they hold their land in common . . . there is no enterprise to make your home any better than that of your neighbors. There is no selfishness, which is at the bottom of civilization.”<sup>11</sup> Accordingly, in 1887, Congress passed the Dawes Act, under which all remaining Indigenous territory was to be divided up into 160-acre parcels, each to be assigned to a head of household for individual agricultural development. Anything left over from the allocation would then revert to the U.S. government. Having the discretion to choose which land, the U.S. allotted the worst, rockiest, driest tracts to Native Americans, and sold the fertile land to settlers, with the result that by the time of the Act’s repeal in 1934, nearly two-thirds of the 1887 Indigenous land base had been lost.

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One of the great contributions of *Free, Fair and Alive* is the way it confronts such doubts and anxieties with the idea of “prefigurative politics.” Prefigurative politics “means trying things out. Living with them for a while. Reflecting on them. Making corrections and adjustments.”<sup>12</sup> Asserting that “large systems often cannot be fixed at scale; repairing them may require revisiting and reinventing the system’s smaller component parts and sub-assemblies,” Bollier and Helfrich argue that “bold manifestos or rhetorical postures will not be enough. Only actual social practice and living culture can make headway.”<sup>13</sup>

All the work on the commons suggests that for large-scale transformation to succeed, the ground must be prepared at the local, municipal, and institutional level. It was in this spirit that I joined the GND at UCSD. A public university is owned by its members and answerable to the people it serves, but it only functions as a commons if its members organize to make their voices heard. The electrification plans that we are demanding represent that impulse at its most practical. We urge that the UC be “shovel ready” for the energy transition. “Shovel ready” is prefigurative politics by another name. It means getting organized wherever we have a voice, joining in common purpose with fallible,

10. United States Office of Indian Affairs, “Annual Report of the Commissioner of Indian Affairs, for the Years 1826–1839” (Washington, DC: War Department, 1826–1839), 455.

11. Armen H. Merjian, “An Unbroken Chain of Injustice: The Dawes Act, Native American Trusts, and Cobell v. Salazar,” *Gonzaga Law Review* 46, no. 3 (2010), 609–60, on 615, emphasis added.

12. Bollier and Helfrich, *Free, Fair, and Alive* (ref. 2), 298.

13. *Ibid.*, 317, 298–99.

sometimes frustrating fellow activists. It means building what we can in the way of ecologically sustainable institutions from within the flawed and complex structures of liberal democracy.

Prefigurative politics is by definition an experimental and open-ended practice. As our organization evolved through the challenge of the pandemic and the soul searching engendered by the Movement for Black Lives, we found ourselves confronted by the limitations of our methodology, as brilliantly articulated by the Potawatomi scholar-activist Kyle Whyte's blistering critique of what he calls "crisis epistemology." As Whyte points out, "the hardships many non-Indigenous people dread most of the climate crisis are ones that Indigenous peoples have endured already due to different forms of colonialism: ecosystem collapse, species loss, economic crash, drastic relocation, and cultural disintegration."<sup>14</sup> He asks privileged environmentalists panicking about the end of civilization to imagine what climate destabilization looks like from the perspective of those who have been caught in colonialism's whirlwind time and again, over generations. His diagnosis is spot-on. The apocalyptic urgency of an intellectual and scientific elite is what propelled the GND at UCSD into its meeting with the Office of the President.

Whyte counter-proposes "an epistemology of coordination, not an epistemology of crisis," which he defines as engaging "responsibly in coordinated action together to achieve particular goals" and attending to "care, consent, and reciprocity."<sup>15</sup> There is a lot of practical wisdom in this prescription. Stonewalled by the administration after our petition campaign, it is clearer than ever that we cannot win without building a broader and more diverse coalition. This means focusing on building horizontal relationships, grounded in trust, the better to figure out how our movement can act in practical solidarity with the struggles of those bearing the brunt of the damage. The living practice of prefigurative politics thus brings our local movement to a necessary paradox. The epistemology of crisis drives the essential work of coalition building, which then forces a radical transformation of the crisis sensibility that brought us to the table in the first place.

Science studies scholars may be well-placed to situate climate change in the extended ecological emergency of colonialism. Whyte's critique resonates with

14. Kyle Powis Whyte, "Indigenous Science (Fiction) for the Anthropocene: Ancestral Dystopias and Fantasies of Climate Change Crises," *Environment and Planning E: Nature and Space* 1, no. 1–2 (2018): 224–42, on 226.

15. Kyle Whyte, "Against Crisis Epistemology," in *The Routledge Handbook of Critical Indigenous Studies*, ed. Brendan Hokowhitu et al. (New York: Routledge, 2021), 52–64, 58.

our field's attunement to the *violence* of scientific universalism—our awareness of its tendency to crowd out or crush other ways of being in the world. But just as that awareness necessarily coexists with support for many scientific endeavors, the climate movement must align the epistemology of coordination with that of crisis. Inhabiting an essential tension between the timeline of emergency and the slow work of movement building, I find this double vision oddly familiar. And then I remember: moving between worlds is what we do.