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Every 1

~~PREDATORY DATA~~

EUGENICS IN BIG TECH AND OUR FIGHT FOR AN INDEPENDENT FUTURE



ANITA SAY CHAN

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Predatory Data

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Predatory Data

EUGENICS IN BIG TECH AND OUR FIGHT
FOR AN INDEPENDENT FUTURE

Anita Say Chan



UNIVERSITY OF CALIFORNIA PRESS

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To Mari and Lina, and other beautiful improbabilities.

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INTRODUCTION

Predatory Data

CIVIC AMPUTATIONS IN THE GLOBAL DATA ECONOMY

THIS PROJECT BEGINS WITH A PROPOSITION. What would it mean to narrate the origins of our contemporary data economy not with the conventional knowledge centers, academic vanguards, and industry settings that have dominated explanations of the advance of our present information age, but with another kind of temporal setting? That setting is the racialized datafication fever that fed the rise of what was arguably the twentieth century's first popular, globally expansive information movement when eugenic ambitions aimed to provide universal methods for predicting and perfecting the human race over a century ago.

To suggest that we expand how we locate the origins of our contemporary data economy, and to pin its growth around eugenics' segregationist history, is to not only decenter the dominant narrative of the information age from the familiar cast of Western technological heroes, genius male disruptors, and enterprise-seeking rebels that have been popularly celebrated as daring visionaries of a new computational future. It is to give name also to the political violences and explicitly raced, gendered, classed, and geopolitical dispossessions of the information age that, even while largely unspoken, have laid long and deep at its very foundations. Necessarily then, it is to call for the need to dislodge the monofuturist temporal lenses that have powerfully framed the ascendance of artificial intelligence and big data systems as the now singular culmination of technological "genius." Such lenses have insisted on information industries' principal protagonism in the course of history, drowning out all other alternative paths for future worlding against the percussive imperative for technological "revolution." They have not only cast the roots of our information past in a raceless and genderless shroud of innocent discovery and innovation-seeking ambition, but have ensured that

the overriding trajectory of the contemporary data economy remains perceived as inescapably evolutionary and progress driven. In doing so, they have seen to an intensification of anti-pluralist appetites, such that broadcastings for radical civic dissolution and necropolitical nationalist extermination are now mundane features of the informatic every day.

Against such a backdrop, eugenics' turn-of-the-century disinformation age and the conditions that allowed its violent advance over the course of half a century indeed bear new resonance. Over a century ago, eugenics researchers in the West—anxiously facing globalization's modern advent and growing independence and abolition struggles around the world—seeded a cross-continental movement to “optimize” society in the image of White Western elites and knowledge classes. They developed and promoted a suite of data-driven evaluation techniques and surveillance instruments to prevent what they projected as the “degeneration” of Western nations' genetic futures. While often dismissed today as a fringe movement or pseudoscience, eugenics was once a powerful global force in which prosegregationist visions and targeted extermination campaigns gained prominence far beyond Nazi Germany. This included the founding of research and information infrastructures to measure and market claims around essential human inequality and the risk of living in pluralistic societies where democratic freedoms could be broadly extended. Indeed, well before the start of World War II, eugenicists in the United States had institutionalized historic policy gains spanning the establishment of racialized immigration bans and quotas, forced sterilization of “dysgenic” populations, and the normalization of predictive uses of intelligence tests to promote and sustain the segregation of a “cognitive elite” from “degrading” populations. First promoted by male scientific elites and patrician classes in the United Kingdom and United States, eugenics advanced a monocultural, Western supremacist agenda. This was done by leveraging “rational,” data-driven techniques to address and predict the “problems” of globally pluralizing societies. By eugenicists' account, such problems were spurred through the rise of international migration and the spread of new political imaginaries that seeded new potentials for social change at the turn of the twentieth century, when diverse classes, races, political collectives, and their own dreams of freedom had more mobility than ever before.

Predatory Data brings together the globally mediated dimensions of that information past with our data-driven present to underscore eugenics as an overlooked forerunner to contemporary operationalizations of what this project frames as predatory data. Drawing together such cross-temporal

developments underscores predatory data as not merely a distinctive symptom of the contemporary. It highlights instead the persistent continuity of predatory data methods across generations, drawing attention to how the targeted monitoring and dispossession of minoritized populations were not merely incidental outcomes of data economies. They were, rather, essential consequences of dispossessive and profit-generating knowledge regimes that demanded the instrumentalization and continuous profiling of vast populations. From their earliest efforts, eugenicists targeted minoritized populations in particular to generate the excess of data and evaluation techniques that conditioned the rise of new classes of information elites. *Predatory Data* highlights the history behind such political and economic profiteering through data practice, attending especially to the knowledge work developed by eugenicists and contemporary data enterprises that remade and reprogrammed research infrastructures into instruments for political and economic stratification. The efforts of eugenicists and contemporary data enterprises would not have become so impactful without the data collection methods and global research and information infrastructures they extended to publicly mediate, authorize, and defend their efforts as rationally justified and fundamentally knowledge based. This was despite the dehumanizing acts of political violence and appetites for civic excisions and amputations that both forces normalized.

This project thus draws a through line between the present and past international movements for eugenics that were able to gain significant cultural and political prominence in contexts such as the United States by the first decades of the twentieth century. Such gains were accomplished by growing research architectures to informatically monitor and assess human populations and to differentiate “deserving” classes from the physically, morally, and mentally “unfit.” This project thus underscores how eugenics researchers enthusiastically and often obsessively channeled their ambitions through the frenzied development of varied new data methods, population monitoring techniques, and instruments for identifying and predicting degeneracy in the late nineteenth and early twentieth centuries. These included biometric databases for criminals and immigrants, composite portraiture and intelligence metrics to predict future behavior, IQ exams, civic literacy evaluations for immigrants and people living in poverty, and morality and genetic surveys of the poor and broad classes of the “unfit” (Black 2003; Okrent 2019; Stern 2005) that allowed eugenicists to justify broad applications of surveillance techniques across democratic publics. Even while they argued

for the suspension of basic liberties and rights of “contaminating” minority populations who could threaten the survival of more worthy classes, data-driven practices allowed eugenicists to define and promote their efforts as fundamentally evaluative, with their advocacy based in objectively derived, knowledge-based findings (Bashford and Levine 2010).

While the power and influence of US eugenicists have been most clearly tracked through their success in policy gain, this project highlights the boom in eugenics’ profit-making information market, exploring how a golden age in eugenics publishing, the growth of a popular new intelligence testing industry, the spread of varied and widely selling eugenics information resources, and an explosion of hundreds of courses and lectures offered in some 350 US universities (Kevles 1985, 89) worked to broadly amplify and mainstream eugenics’ radically segregationist arguments to general audiences. Such data-based, consumer-facing products worked to cultivate new appetites across an emergent information class for surveilling populations to assess their social value. By 1928, historians noted that some three-quarters of US universities had introduced courses on eugenics, most of them using best-selling texts such as *The Passing of the Great Race* by the leading US eugenicist, Madison Grant, that popularized disinformation around “race suicide” and the threat of “Nordic races’ extinction” from the growth of global migration (Hothersall and Lovett 2022).

Moreover, US eugenic researchers used design spectacles, data visualizations, interactive exhibits, local fairs, and urban museums as market-based, media tactics to strategically extend their “science” and technical methods. Through exploiting consumer markets that increasingly offered information-based goods, they channeled their ambition to seed a culture of self- and population-monitoring through promoting habits of surveillance and examination as everyday habits for ordinary publics that extended well beyond professional “expert” practitioners. Together, such forms of eugenic data work could come to be imagined as vehicles to correct the errors of democratic societies and institutions, where data-extractive surveillance instruments were promoted as a means to protect society’s most deserving and exceptional classes from the threat of degenerating forces. Eugenic promotions of authoritarian policies for population monitoring could thus be argued for as a means to truncate the excesses of democratic choice exercised by growing “deviant” classes and a necessary path to prevent the threat of an openly pluralistic society.

This project builds from such developments to explore the long history of predatory data—the habitual use of data and research methods that exploits the vulnerable and abuses power through datafication and prediction operations. Today, that has become a defining part of global debates around big data and artificial intelligence (AI)–driven systems. This follows growing reports of US Big Tech companies’ central roles in automating discrimination and amplifying a global resurgence of authoritarianism and political violence targeting minoritized populations around the world. Such impacts draw focus to how the profit-making commercial research and communications infrastructures that have grown around predatory data today have allowed for the mass amplification of conspiratorial logics around a pending threat of majority populations’ extermination and the urgent need to limit pluralistic living. This project argues that we cannot grasp the contemporary ramifications of such dynamics in the age of big data and AI without recognizing the longer legacy of predatory data practices and without grappling with the contemporary data economy’s imbrications with an earlier forerunner in predatory data—eugenics. To attend to such lineages and their channeling into techno-eugenic logics of assessment in today’s data economy is to recognize the double face—and “nocturnal,” necropolitical twin (Mbembe 2003, 2019)—that underpins predatory data’s growth. Such intertwined architectures are what allow big data and AI industries to operate—on the one hand, as official and even preeminent engines of innovation working under the guise of Western liberalism’s highest promise, and on the other hand, as entities that can profit by economizing global progress and security for only those deemed most worthy. They do all this while instrumentalizing global crises into “opportunities” for Western technologists to continue to build more product solutions and ensure, as the billionaire venture capitalist and libertarian activist Peter Thiel wrote in the years following his investment in Facebook and co-founding of PayPal and Palantir Technologies, that “the world [is made] safe for capitalism” (Thiel 2009).¹

The pages that follow thus insist that we unfix our imaginaries from the frameworks of progress and “evolved” futuristic living and labor that have overdetermined our contemporary understandings of the information age. *Predatory Data* addresses sites and temporalities beyond the data-driven products and architectures of Western innovation centers that have too often been protagonized as explanatory agents, as if the most pressing questions of the contemporary were ones of how to sustain unparalleled economic

growth and technological revolution, and not ones of collective pluriversal living. The chapters that follow prompt us to move beyond the familiar trappings of such a master narrative and ask us to recognize instead how much techno-eugenic dictates for amnesia and amputation, and predation and parasitism, have been a part of the information age's organizing strains. They underscore, with other justice-based accounts, how much other overlooked counter-strains have pressed for futures where restoration and recovery could be organizing forces instead. The forces of monoculturalist stratification and prediction that reverberate through the past and present of today's information economy have not been inevitable. However, to steer toward other possible futures requires accounting for more than the stunning novelty and optimization conventionally promised in dominant forms of digital knowledge practice. It also requires confronting how much social disintegration and violence—alongside economic and technological processing—can find new forms of speed and scaling in the age of big data.

TECHNO-EUGENIC FORMATIONS

By the time the two Facebook researchers ran their experiment in February 2019, investigations into how the company's products fueled twenty-first-century campaigns of genocide, mob lynchings, and human rights violations in a range of global contexts far outside the company's Silicon Valley headquarters had already begun. By then, there were signs that the fantasy of digital universalism (Chan 2014) had begun to fray. That fantasy had once cast Western information technology firms and the digital markets they extended as shining exemplars of liberalism and engines for the advancement of global connection, individual freedom, and rational enlightenment in the contemporary age. Still, the brutal spectacle the Facebook researchers witnessed for weeks across their screens went beyond anything they were prepared for. This included an unrelenting torrent of hate-based imagery and polarizing content.

In the months leading up to India's general election, the pair had traveled to the South Asian nation as part of a company fact-finding team. They had created a test account of a twenty-one-year-old woman residing in North India to understand how Facebook's recommendation algorithm shaped the experience of a new user in India, the company's largest national market in the world, where some 420 million of Facebook's nearly three billion active

users lived at the time.² With the test account programmed to simply follow Facebook’s recommended pages and groups without any added direction from the user, the researchers watched as the account grew increasingly filled with pronationalist propaganda and anti-Muslim hate speech (Raj 2021). Graphic depictions of targeted violence that were perversely framed as a tribute to a “Hindu India” and a defense against its supposed extermination from the “threat” of ethnic and religious minorities in the country streamed across the site. In less than a month, an account that had started with a conventional newsfeed became flooded with what researchers described as “a near constant barrage of polarizing nationalist content, misinformation, and violence and gore” (Iyengar 2021). “These are pakistani dogs,” one caption read beside a photo of dead bodies on stretchers. “300 dogs died now say long live India, death to Pakistan,” read another post over a background of laughing emojis.

The memo the researchers pulled together to report their findings to company leadership came with a title that stressed the urgency of the matter in the months before the largest national elections on the planet were to be held: “An Indian Test User’s Descent Into a Sea of Polarizing, Nationalistic Messages.” It was likely one of the last things they had expected to find at the company whose founder, just two years ago, had loudly professed “building a global community” to be its driving principle.³ Calling the test account an “integrity nightmare,” the authors aimed to find language for the indescribable scale of violence that few (if any) training programs in data science would have prepared them for. One researcher reported starkly that, because of their test, “I’ve seen more images of dead people in the past 3 weeks than I’ve seen in my entire life total” (Iyengar 2021). The researchers’ memo came to public light in late 2021, over two years later, as part of the tens of thousands of Facebook internal documents leaked to the US Securities and Exchange Commission and the *Wall Street Journal* by data scientist and Facebook whistleblower Frances Haugen (Purnell and Horwitz 2021). The exposure underscored what human and civil rights advocates, reporters, and industry experts both in and outside of the United States had been sounding as reports of political violence and life-threatening impacts of the platform and of the wildly deficient “security” operations across social media more generally amassed. Particularly for minorities and historically marginalized populations, new forms of political targeting and racialized profiling on algorithmically driven platforms were being seen at unprecedented rates and increasingly with deadly ends.

The 2021 Facebook document leak also underscored how, even despite social media's growing profits from global markets and the company's explicit development of varied products (from Free Basics to Facebook Flex and Facebook Zero) targeting the Global South, the vast majority of the company's budget to protect user safety and fight misinformation (84%) had remained focused on just one country: the United States. Even while less than 10 percent of Facebook's daily active users (some 240 million accounts) were in the United States,⁴ and despite its growth largely being driven by countries far beyond its Silicon Valley headquarters, just 16 percent of its safety and misinformation budget was reserved for what the company categorically labeled the "rest of world" (Horwitz and Seetharaman 2020; Zakrzewski et al. 2021).

Indeed, years earlier, global human rights workers and scholars had already begun flagging the implications of such disparities and reporting the disturbing spread of viral messages that warned not only of the alleged "existential threat" to and "replacement" of majority populations by minorities in various nations around the world, but that magnified calls for political violence. By 2017, distressing signs had heavily mounted around the central role that social media played in an epidemic of xenophobic mediated conspiracy theories, the rise of antidemocratic parties, and political violence in varied international contexts, including sites as diverse as Ethiopia, Myanmar, Hungary, and the United States (Akinwotu 2021; Mozur 2018a, 2018b; Stevenson 2018a, 2018b; Taub and Fisher 2018; Vaidhyanathan 2018). Observing a parallel surge of heightened polarizing online content decrying the complicity, weakness, or unwillingness of democratic institutions to prevent the supposedly impending destruction of majority populations, human rights advocates and scholars called attention to the pattern of authoritarian fervor embraced in the name of racial and national "preservation" escalating in site after site around the world. Not since the international rise of fascist parties in the decades leading up to World War II had calls to dismantle pluralistic, democratic societies seemed to find so many ready champions around the world (Brown 2019; Bashford and Levine 2010). And not since the late nineteenth and early twentieth centuries' global spread of eugenics movements – that turned calls for the forced exclusion, segregation, and sterilization of so-called "unfit" populations into national policies for racial betterment – had a politics of nationalist xenophobia seemed so widespread and so widely tied to information-based practices. Cameroonian political philosopher Achille Mbembe thus described the global intensification of il-liberal, anti-pluralistic

politics in the twenty-first century as “the desire for an enemy, the desire for apartheid (for separation and enclaving), [and] the fantasy of extermination” (2019, 43). These have become unavoidably mainstream elements in and beyond the West and even in the world’s largest and oldest democracies.

In India, reports of platform-amplified political violence that had been documented since 2014 (Banaji and Bhat 2019; Mukherjee 2020; Shah 2022) began to draw international attention after the growing circulation of recorded murders and mob killings began to break records in digital traffic—all the while, with minimal intervention from tech companies. In most cases, victims were members of minority Muslim and Dalit communities and had been attacked after the online spread of Islamophobic conspiracy theories around “Love Jihad,” “Corona Jihad,” and Hindu child kidnapping (Saaliq and Pathi 2021). In one viral video case in 2017, a forty-eight-year-old Muslim migrant worker had been brutally murdered by an assailant who was inspired by the widespread circulation of nationalist politicians’ online propaganda videos (Dey 2018). The entire crime was uploaded to YouTube with a series of sermons against “Love Jihad” and what the killer called the “entrapment” of Hindu women by Muslim men (Mankekar 2021; Mirchandani 2018). The same year, “WhatsApp lynchings” would begin to regularly appear in news headlines as multiple nationalist mobs’ assaults on victims occurred after false accusations of kidnapping, theft, and local crime had quickly spread over the Facebook-owned social messaging platform. Violence would gain renewed force as images of victims’ bodies—some as young as twelve years old (Mukherjee 2020)—circulated with impunity on Hindu nationalist social media channels (Anwar 2018; Human Rights Watch 2019). Researchers would later uncover that several of the documented attacks between 2009 and 2018 had involved hired professional video makers (Mukherjee 2020). About 90 percent⁵ of the hundreds of assaults were reported after the Hindu nationalist Bharatiya Janata Party (BJP) party came to power in May 2014 with social media leveraged as an unprecedented part of its political machinery. By 2017, the BJP could champion Narendra Modi as “the world’s most followed” international political leader on social media (Sinha 2017).⁶ As the party continued its “multi-media carpet-bombing” strategy (Sardesai 2014) without deterrence, tens of thousands of daily messages saturated social media and public space alike (Jaffrelot 2015).

By 2018, human rights advocates could formally tie social media giants to official accounts of political violence and genocide. It was that year when the UN Human Rights Council released its report on a fact-finding mission in

Myanmar that stressed Facebook’s role in twenty-first-century political campaigns directed toward what the UN High Commissioner called an “unprecedented” intensity of violence against Muslim minorities (2018). The UN mission’s investigation, which began in early 2017, had been spurred by an emergency study undertaken in 2016. Evidence of scorched earth campaigns in hundreds of villages (some 354 known by the end of 2017) (UN 2017a) and mass atrocities against Rohingya Muslims at the hands of Myanmar’s Buddhist nationalists began to accrue (Amnesty International 2017; Human Rights Watch 2017; UN 2017b), with survivors reporting mass graves and rivers filled with evidence of atrocities as they were forced to flee. When the UN’s official report on the crisis was released in October 2018, they documented evidence of “gross human rights violations” and numerous links and references to social media, with Facebook described as the primary means for receiving information (UN 2018).⁷

Separate sections in the report were dedicated to the role of social media platforms and Facebook in particular, and included a glossary of themes, lists of specific social media accounts, and ethnic slurs commonly used by public figures and established political leaders to promote extermination campaigns online. Many of those campaigns were reported to still be live posts on the platform, even at the time of the report’s publishing. Countless messages—from known Buddhist extremist groups and religious and political authorities alike—circulated unimpeded around themes of a “Muslim threat” endangering the “Buddhist character” of the nation. In such posts, Rohingya Muslims were repeatedly described as “illegal invaders” that posed an existential threat to Burmese racial purity justified taking whatever means needed to protect “race and religion” in the country. “Our country, race and religion can only survive, if we defend [the nationalist forces],” one post cited in the report said, with a warning that the mistaken application of “human rights” in the nation would “turn Myanmar into a Muslim country” (UN 2018, 326). The UN report stated too that Facebook had ignored reports of a growing crisis across nearly half a decade, despite the company’s targeting of Myanmar as an early market for its Free Basics product in the same period.⁸ And it decried Facebook’s “ineffective content moderation” as enabling extremist groups’ popularization and an escalation of their calls for ethnic cleansing and political violence.

The UN’s 2018 report also referenced vocal pushback from civil society organizations in the Global South, who cited not only the exploitation of their labor for content moderation by social media companies, but also

critiqued how companies' business practices actively amplified the precarity of their work to defend human rights. That same year, multiple Myanmar-based civil society organizations had come together to issue a letter to Facebook decrying its continued lack of Burmese-speaking staff⁹ and the sweeping failure of its detection systems in the growing crisis. It stated, "We believe your [detection] system, in this case, was us—and we were far from systematic Though these dangerous messages were deliberately pushed to large numbers of people . . . [and despite] all of [Facebook's] data," Facebook's teams failed to "pick up on the pattern" (Phandeeay et al. 2018). The UN report further cited its own research team's experience of "ineffective response" from the company after one of its own locally contracted workers began to receive repeated death threats online for his work: "As long as we are feeling sorry for them, our country is not at peace. These dogs need to be completely removed"; "If this animal is still around, find him and kill him"; "Don't leave him alive. Remove his whole race. Time is ticking." The threats followed a widely circulated post that targeted and identified the UN worker as Muslim and a "national traitor" for collaborating with the UN mission. Although Facebook was alerted about the death threats in four separate reports, after each one, the response received was that the company had determined that the post "doesn't go against one of [Facebook's] specific community standards." As the UN report noted, the company's inaction meant that weeks and months after the original post went online, the worker and his family "continued to receive multiple death threats from Facebook users, warnings from neighbors, friends, and even taxi drivers that they had seen his photo and the posts on Facebook" (UN 2018).

By mid-2018, Facebook, the company that made "move fast and break things" a Silicon Valley mantra, publicly admitted that it had been "too slow" in responding to the growing humanitarian crisis in Myanmar (Roose and Mozur 2018) and commissioned its own internal report. Released in November of that same year, the sixty-two-page independent study from the nonprofit organization Business for Social Responsibility (BSR) found that Facebook had become a "platform to undermine democracy and incite offline violence." It asserted that more needed to be done to enforce its existing policies on hate speech, fake accounts, and human rights abuses, not only in Myanmar but in the "multiple eventualities" it stated were certain to arise around the world (Business for Social Responsibility 2018). In a company blog post accompanying the report, Facebook's product policy manager, Alex Warofka, promised to take the "right corrective actions." But he also

insisted on projecting Big Tech companies as defenders of Western liberal frameworks whose technology products in fact made them the best functional stewards of human rights in many contexts. Reminding publics of Myanmar's own lack of formalized universal human rights principles, then, he assured readers that Facebook's own "human rights standards" (2018)¹⁰ would be reinforced through improved "tools and technologies" (Su 2018)¹¹ and more extensive applications of AI in detection systems.

The multiple global "eventualities" that the BSR warned of, however, had already begun to manifest. Two years earlier, the 2016 presidential elections in the United States and the infamous Cambridge Analytica scandal had put Facebook under heightened scrutiny for intensifying antidemocratic disinformation campaigns in the West. Rising concerns around "xenophobia" and "post-truth" that same year had even led Dictionary.com and the *Oxford English Dictionary* to declare them words of the year for English-speaking publics, as the sites noted spikes in their searches online (Dictionary.com 2017; Steinmetz 2016a, 2016b). Attempting to allay growing concerns of political fragmentations and to cast Facebook as a defender of liberal commitments around the world, Facebook extended increasingly familiar promises to dedicate new investments into varied "technological fixes" (Benjamin 2019; Hoffman 2021) that it claimed would enhance existing ethics checks and "global safety infrastructure." In a nearly six-thousand-word "Building a Global Community" letter that Mark Zuckerberg issued in early 2017—which later was referred to as the "Facebook Manifesto"—he reminded audiences of what he saw as the elevated stakes surrounding Facebook's growth worldwide. This involved nothing less than "humanity's" shared benefit in a "Global Facebook" that would combat the polarizing filter bubbles that fragment "common understanding." As Zuckerberg argued in the manifesto, "Progress now requires humanity [to come] together not just as cities or nations, but also as a global community." He made no direct mention of the growing violence around the world that was being directly tied to social media, and Facebook's platform specifically, or to the escalating death and hate campaigns waged by vigilante "truth" and neofascist networks and online radicalization, including in the West.

Such omissions were glaring. By the time Zuckerberg posted his manifesto, extremist calls in the United States were already reported to be driving ever-larger online traffic patterns and mainstreaming alt-right themes of "White genocide," "White sharia," and "death of the West" (Southern Poverty Law Center 2017, 2019). By early 2017, as far right groups in the

United States too were visibly organizing across Facebook and other online platforms to prepare for the deadly August 2017 Unite the Right Rally in Charlottesville, Virginia, Facebook groups such as Alt Reich: Nation and pages for far-right politicians in the United States and Europe were being flagged as active sites of radicalization. An alarming rise in national hate crimes made headlines that year as a twenty-seven-year-old shooter killed six Muslim worshippers in a January 2017 attack on the Islamic Cultural Centre of Quebec City, and a twenty-two-year-old killed a young African American army lieutenant at a bus stop at the University of Maryland. By summer 2019, deadly hate crimes rose further with new mass minority-targeting killings in El Paso, Texas, with twenty-three murdered in the largest anti-Latino attack in recent US history, and with fifty-one murdered in Christchurch, New Zealand, in an assault on two mosques. Reports later revealed how the massacre in New Zealand, which had been live streamed on Facebook by the shooter, had been an inspiration for the El Paso shooter's plan (Southern Poverty Law Center 2019). Moreover, national reports demonstrated a continuation of the trend even after a new presidential administration replaced Donald Trump in the White House. The FBI reported in 2023 that US hate crimes rose in 2021 to the highest level since the federal government began tracking the data more than three decades ago, with the 10,840 bias-motivated crimes reported demonstrating a nearly 25 percent increase from 2020 (Nakamura 2023).

In the face of such developments, Zuckerberg's manifesto asserted an explicitly Silicon Valley-centric worldview that not only conspicuously "forgot" and excised any mention of the growing violence linked to it and other social media platforms, but projected elite, Western data scientists' and Big Tech companies' exclusive right to continuously build. Indeed, so firmly did he defend the ultimate virtue of companies' technological designs, whatever the evidence of their impact, he continued to insist that they were the best solutions for a "free society." He would take until the end of the over twelve-page letter to admit to "making mistakes," only euphemistically calling the company's errors "operational scaling issues" born out of growth that had outpaced its "social infrastructure." He blithely acknowledged that Facebook might have been challenged to respond to populations who "do not share its vision of global connection." But he asserted that "in times like these, the most important thing we at Facebook can do is develop the social infrastructure to give people the power to build a global community that works for all of us."

In the wake of the globally escalating tallies of victims tied to the epidemic of mediated hate hosted on Big Tech platforms, Zuckerberg’s manifesto coached audiences that the right step forward was to continue to build new tools. Those tools, he attested, should not merely be “focused on connecting friends and families,” as the company had been doing, but should scale up for “developing the social infrastructure for community.” He framed Facebook’s recommendations system—the very feature that civil society groups had reported as a radicalization tool for hate groups—as instead a “design opportunity.” He wrote, “More than one billion people are active members of Facebook groups, but most don’t seek out groups on their own. . . . If we can improve our suggestions and help connect one billion people with meaningful communities, that can strengthen our social fabric. . . . [T]here is more to build.” Insisting too that new “civic engagement” tools on Facebook would “help establish direct dialogue between people and our elected leaders,” he likewise inverted the critiques of human rights groups. He reframed the same signs they had flagged as media manipulation practices by authoritarian political parties as indicators of Facebook’s success in global markets instead. In perhaps the most direct affront to the concerns of human rights groups in India, he even proudly referenced Facebook’s ties to India’s nationalist BJP party and Prime Minister Modi. He added, proudly attesting to the global political power of Facebook, “In recent campaigns around the world—from India and Indonesia across Europe to the United States—we’ve seen the candidate with the largest and most engaged following on Facebook usually wins.”

In a striking reification of Western Big Tech monofuturism, Zuckerberg’s post was quickly framed within hours of its posting in English-language news headlines as a “manifesto to save the world” (Guynn 2017; Kosoff 2017). News outlets extolled it as a “plan [to] to fix humanity” (Levy 2017), and a “letter to the world” to “reboot globalization” (Ahmed 2017), written with presidential overtones (*The Guardian* 2017). While the news accounts of Zuckerberg’s letter and the cascade of press interviews that accompanied its release echoed Facebook’s professed mission to newly center “building global community,” they made no reference to the various human and civil rights groups around the world pushing to reform the company, particularly in the Global South. Unsaid too were how the letter’s presumptions around broken governance systems in the rest of the world—and of the unique capacity, and even authorized duty, of Western Big Tech to intervene—reanimated colonial frameworks around Western supremacy. Zuckerberg largely rechanneled

unapologetically universalist projections around the evolutionary thrust and progress-enhancing, civilizing impacts of platform technologies. The official story that circulated faithfully through news accounts amplified narratives of Facebook as filling a void in the “global community” around the world—a global community that would presumably cease to exist without it. In the language of Western Big Tech futurism that Zuckerberg channeled and that the mainstream English-language press endorsed, US Big Tech companies didn’t merely provide the “tools” for user “freedom.” They could now be imagined as providing the basic structures and logics to “fix” global governance and a broken global “humanity.” In such a world, companies were not only innocent, external observers to human and institutional errors that multiplied around them, but were beneficent tinkerers who could convert crises into opportunities for tech development and data solutions. They were entities, moreover, for whom remaking the “social fabric” was primarily a question of designing meaningful user engagements with the right technologies.

In the midst of growing global reports that Western social media platforms were becoming authoritarian regimes’ favored tool for nationalist media manipulation, xenophobic fearmongering, and techno-eugenic-styled campaigns against pluralistic societies, Zuckerberg’s missive projected a starkly Silicon Valley-centric conceit and existential logic that flatly negated the gravity of what was unfolding beyond its walls. More than simply channeling Silicon Valley’s familiar “game” of promissory digital “hype”—a language that works to generate the present to enable the future to emerge, according to anthropologist Kaushik Sunder Rajan (2006, 34)—Zuckerberg’s manifesto and his rewriting of past records betrayed a much darker message. By insisting that the issue of highest import for Big Tech companies and the public was to ensure that there remained “more to build,” he sent a clear message on the significance of the mass political violence and minority-targeting hate campaigns that human and civil rights groups were reporting from around the world. He implied that such costs could be an expendable, collateral sacrifice for an ultimately greater good and an optimized future driven by Western Big Tech companies. Newly economized, progress in such a future could emerge as a thing to be concentrated and filtered through a logic of exception that operated not toward a common good, but toward an explicitly differentiated good that prioritized security for those deemed most worthy of investment. It was a projected future that framed Western Big Tech and its cognitive elites’ continued dominance as a genuine virtue that could guarantee there remained “more to build” at whatever cost.

This project pushes back on such pernicious logics of “expendable” life, and the “imperative to build” in the name of Western Big Tech and its future of optimized, techno-eugenic progress and economized security. It aims to diagnose a global condition where, in the face of a global epidemic of anti-pluralistic authoritarianisms and politics of xenophobic segregation directly tied to Western platform technologies, Big Tech firms and the growing AI- and big data-driven economy can still perversely be promoted and framed as uniquely scalable engines of global salvation. These are engines whose algorithmic accelerations are not only projected as best suited to “fix humanity,” but whose designs can be celebrated as optimizing fixes that “reboot globalization.” This project aims to decenter digital technology and the data economy’s contemporarily dominant narrative as preeminent forces of Western innovation and global evolution. It brings focus to the accounts of violence and necropolitical disintegration that underpin the growth of expansive infrastructures for datafication and prediction that have arisen in their wake. Their life-negating impacts reverberate in embodied, material forms throughout a widening ecology. Such violence is evident not only through the forms of distant suffering that are architected, scaled, and maintained by Big Tech firms in accordance with their assessments of global priority valuations and market calculations. It’s notable too through the voracious systems of datafication designed to claim that human experience around technology use can be converted into perfectly predictable, statistically probabilistic forms of activity. Through such functions, the data economy’s globally extractive data mining infrastructures and algorithmically scaled calculations can drown out all other alternative voices that aim to speak for data practice, research, and knowledge on the possibilities of human experience. All this, while they rationalize their own calculations around “reasonable” loss when it comes to some global user populations and the differentiated cost of human security.

This project underscores the striking resurgence and accelerated spread of eugenic logics and popular methods for predicting the differential value of life and promoting segregationist policies as central to an explicitly techno-eugenic turn. I underscore this as a techno-eugenic logic to stress its inseparability from global data-driven technologies and research infrastructures that power today’s data economy. Moreover, the explosion around the world of explicitly authoritarian, anti-pluralistic, and xenophobic movements demonstrates the enduring resonances of eugenic mobilizations that, far from

disappearing following World War II, instead transformed through market-based methods and applying techniques to economize users, products, and producers. These methods, even if no longer explicitly adopting the language of racial hygiene and cleansing through national policy, were nonetheless invested in quantifying, modeling, and predicting the differential values of human attributes as market-based assets and racialized economic functions. Indeed, varied historians have documented how eugenics never truly disappeared from research cultures, either. Such work has mapped eugenics' enduring impact on a range of contemporary domains where its techniques have long defined foundational practices as they developed in the twentieth century. This includes in modern genetics (Cowan 1969; Kevles 1985; Stern 2005; Subramaniam 2014), criminology (Maguire 2009), population sciences (Ramsden 2002), education (Jacoby and Glauberman 1995), industrial design and urban planning (Cogdell 2004), and contemporary statistics and data applications (Chun 2021; Cowan 1969; Mackenzie 1981). Alongside these developments have been market-based stratifications that continue to draw from the above and that culminate today in the rapid growth of AI- and data-driven economies.

Seriously regarded in its day, eugenics spread internationally among the lettered “information” classes of the late nineteenth and early twentieth centuries through the resources extended across research and communications infrastructures. Led and promoted by prominent scientific and research authorities, its leading voices and figureheads included Sir Francis Galton, eugenics' founder and a cousin to Charles Darwin, as well as academic, medical, and political leaders in institutions of the highest prestige—from the University College London to Stanford University and Harvard University, among others (Black 2003; Okrent 2019; Stern 2005). Obsessed with data collection (Cowan 1969) and fixated on enhancing the survival of those classes, eugenics promoted a program to predict and ensure the best physical, mental, and moral “fitness” for human futures. Eugenicists thus adopted sweeping strategies to promote the outputs of their research centers and to saturate the information channels of the day with the messages of what they aimed to be a new science-based “religion” (Kevles 1985) for the wholesale transformation of society. So successful were they in exploiting information markets and seeding a profitable, information-driven movement in “vogue” (Kevles 1985, 59) with lettered publics around the world—most notably in the United Kingdom and United States, where the movement first took root—that its leaders came to be regarded as a “priestly” class (Kevles 1985, 69). It

was a class, moreover, that proved itself as able to reshape US national and state policies around human migration, segregation, and sterilization in the late nineteenth and early twentieth centuries.

Through such efforts, eugenics researchers mainstreamed experimental infrastructures that promoted extremist policies for restricting democratic norms, expanding data collection on broad populations in efforts to engineer optimized societies. They also saw to—in the United States alone—the historic expansion of national immigration restrictions and sterilization policies targeting the “unfit” in over thirty-two states, where victims were disproportionately women of color identified as poor, immigrant, or disabled. By the early twentieth century, eugenics’ communications and research infrastructures had enabled a “shared language and ambition” (Bashford and Levine 2010, 2) to develop worldwide, uniting the United Kingdom and United States and an array of distinct global locales. Those included Northern and Western Europe (Sweden, Norway, Denmark, Finland, France, Italy, Spain, Switzerland), Eastern Europe (Czechoslovakia, Yugoslavia, Hungary, Turkey, Latvia, Russia), the Americas (Canada, Cuba, Mexico, Brazil, Puerto Rico, Argentina), Asia and Australia (New Zealand, Japan, Hong Kong, South Asia, Singapore), Africa (Kenya), and Germany (Adams 1990; Bashford and Levine 2010).

To attend to the global reverberations of techno-eugenics is to thus recognize the underacknowledged ecologies of illiberal violence and anti-pluralist, xenophobic terrains—sites where “death has nothing tragic about it” (Haritaworn, Kuntsman, and Posocco 2014; Mbembe 2003, 2019)—as necessary for the growth of contemporary data economies and AI-driven systems. Scholars of necropolitics have recognized such death terrains, as well as the maintenance of economic “production” spaces where the givenness of individual rights could be officially suspended, as foundational to the growth of modern orders. They have thus underscored the inseparability of the growth of Western liberalism with the extension of global systems of imperialism and terrains of settler colonial dispossessions that decolonial, critical race, and feminist and queer scholars have long explored (Azoulay 2019; Byrd 2011; Cacho 2012; Hartmann 1997; Mbembe 2003, 2019; Rosas 2019). Achille Mbembe wrote of how such spaces of political exception—central among them, the colony and the plantation—functioned as the “nocturnal face” of liberal states (2003, 2019) that could be architected away from official sites where civil peace needed to be formally maintained. In such remote sites of exception and profit-generating production, conditions of

“unregulated war” and violence—exercised outside normative conventions, and “obey[ing] no rule of proportionality” (2019, 25)—could give rise to the organized destruction of necropolitical “death worlds.” The full functioning of these death worlds first requires, however, as Mbembe specified, “on the one hand, a generalized cheapening of the price of life and, on the other, a habituation to loss” (2019, 26). Mbembe thus reminds readers how often necropolitical sites have emerged, not as the antithesis or limit of liberal democracies but as their hidden twin and underacknowledged double. Ever latent within liberal political orders, they can emerge and come to dominate not merely once the world can be segmented into realms of the biopolitically “useful” and “useless” but once a generalizing acceptance of and “habituation to loss” has been conditioned.

Read through such a lens, the sacrificial economy that contemporary big data and AI-driven systems have amassed in the wake of their era-defining expansions emerges not in spite of, or as the exception to, the data economy’s growth. It emerges instead as its offspring, developing as necessary extensions of technological and economic “production” cycles through remote and seemingly disconnected “sites of experimentation.” In the name of preserving data firms’ profitability and growth and sustaining an official narrative of Western technology (and big data and AI systems, especially) as the twenty-first century’s consummate force of progress, innovation, and high enlightenment, security and civic viabilities for minoritized populations are rendered into expendable resources that are most “value” generating in their very expendability.

Predatory Data builds upon and complements scholarly developments around racial capitalism and the data economy to underscore eugenics’ continued hauntings in our information present and to excavate the explicitly informational and data-engaged aspects of our eugenics past that remain largely overlooked. This is despite the breadth of the data collection practices and research infrastructures that were directed toward broad public outreach to cultivate “eugenic-minded” populations (Kevles 1985, 60) and despite the enduring reverberations of eugenics methods across a span of contemporary knowledge practices. I underscore, then, how the expansive infrastructures for research and communication that eugenicists first developed in the late nineteenth and early twentieth centuries—spanning labs, record-keeping offices, professional societies, and education networks crossing a vast array of knowledge institutions and universities—were dedicated even a century ago to dispossessive forms of data collection, surveillance,

and experimentation. They also coordinated efforts toward the mainstreaming and marketing of eugenics practices, and the spread of a range of modern documentation and assessment techniques. Such techniques, generations before the rise of today's data economy, shaped an emergent class of information consumers. And their appetites for self- and social-monitoring might be expanded, eugenicists recognized, even as the contours of an information age had yet to be fully defined.

DATA PLURALIST FUTURES

Despite its growth, the contemporary data economy's projected occupation of global knowledge futures and the expansion of techno-eugenic logics through research infrastructures and data economies is far from inevitable. However much Big Tech firms have saturated information channels with insinuations of technological supremacy and an ascendent big data and AI-driven epoch that stifles any versions of potential future otherwise, information futures and global "progress" do not rest on their continued dominance. Various research-engaged actors continue to refuse the monofuturist projections of AI and big data temporalities, pressing for an alternative version of knowledge futures and drawing from a range of justice-oriented global traditions to articulate new, data pluralist solidarities. Working to expose the deadly contradictions within Western Big Tech's calculations for an optimized global progress, such actors press for the value of heterogeneous knowledge infrastructures to diagnose and document oppressive systems within diverse local contexts.

Moreover, their commitments to possibilities of futures resonant with data pluralism begin with recognizing the irreducibly varied methods, formats, tempos, and histories long cultivated by a multiplicity of practitioners across local worlds. They work to call out the false conceit of big data and AI's projected universalism, taking seriously not only the assertion of Yanni Loukasis (2019) that all data are local, but reminding of us too of the *situated* nature of any justice-oriented data practice. That is, seeing data from "below" and in context and rejecting what Donna Haraway (1988) called the "god's eye view from nowhere" is an ethical stance that is our best bet for allowing relations of accountability to develop across the diverse local worlds of data work.

Today's data pluralists thus build on the legacy of varied justice-oriented traditions and past and present abolitionist actors, who, in the age of

eugenics, brought together feminist, immigrant, and anti-racist researchers to speak for and develop data practices in explicit refusal of dominant models. Pushing beyond liberal and professional social science research norms that were becoming institutionalized in the nineteenth and twentieth centuries, they underscored the fuller possibilities of research experience and agency exercised by nontraditional researchers. This applied to poor and marginalized populations and methods that extended from alternative research infrastructures to confront the complexities of dynamic, globalizing change. Their data and documentation work thus distinctly drew attention to structures of deadly oppression whose local manifestations—in urban sweatshops, racialized ghettos, and exploitative tenement and residential housing systems—were readily evident in turn-of-the-century US cities. Seeding early articulations of what I call “relational infrastructures,” they cultivated knowledge practices oriented toward other ends than the forms of market innovation, freedom, or growth projected by classic liberalism, contemporary neoliberals, and digital libertarians alike as universal goods. Explicitly grounded in the aims of global justice-based reforms of historically marginalized and vulnerable communities, the relational infrastructures of data pluralists today bring focus as much to the stakes around an underaccounted for past as to a fetishized future. The methods and orientations to knowledge work they cultivate thus center conditions of local restoration and healing, “situated” knowledge engagements, and data solidarities over extractivisms as pathways to accountable local empiricisms (Haraway 1988).

Predatory Data thus builds on the work of critical data and technology studies scholars who, alongside community-based organizers, have highlighted the violent and dispossessive impacts of a big data and AI-driven economy to counter their continued legibility as high forces of liberal knowledge production, technological development, and economic advancement. Such work has critically explored the means by which the politics of race, gender, class, and nationality fundamentally drive the global market pursuits of Silicon Valley’s tech companies (Irani 2019; Lindtner 2020; Vora 2015). Such work has exposed Big Tech’s reliance on hidden networks of global “ghost workers” (Gray and Suri 2019), who are hired and exploited to filter vast scales of “unsafe” content online and who intentionally maintain in Big Tech’s “shadows” as an informalized force of contract labor (Roberts 2019; Raval 2019; Wan 2021). Critics of “surveillance capitalism” further decry the routine violation of seemingly sacrosanct liberal ideals around privacy, free will, rational choice, and “the moral integrity of the autonomous individual”

(Zuboff 2019) that transpires through Western Big Tech companies' expansive applications of user surveillance, prediction, and behavior modification techniques (Ortiz Freuler 2022; Ridgway 2023). Likewise, critical data scholars have explored the radically fragmenting, antisocial impacts of big data platforms, underscoring how they have dissolved the modern liberal promise of information-engaged audiences and the connective power of public discourse (Vaidhyanathan 2018). Big Tech companies, such critical accounts have found, instead foment the explosive rise of disinformation dynamics and intensify political extremism and violent nationalist organizing in the United States (Donovan 2020; Donovan and Wardle 2020; Krafft and Donovan 2020; Markwick and Lewis 2017).

In conversation with feminist, anti-racist, and decolonial critical data scholars who explore the rise of algorithmic violence (Onuoha 2018), data violence (Hoffman 2021), data necropolitics (Pele 2022), and data colonialism (Couldry and Mejias 2019b), *Predatory Data* similarly pushes beyond liberal frameworks to draw focus to the data economy's routinization of violence and erosion of everyday securities for vulnerable populations both in and outside the West. It thus builds on intersectional scholarship from North America that draws focus to the means by which contemporary data economies have disproportionately amplified the insecurity and scale of harms to historically marginalized peoples (Amoore 2013; Broussard 2018; Buolamwini and Gebru 2018; Cifor et al. 2019; Costanza-Chock 2020; Cox 2023; Crawford 2021; D'Ignazio and Klein 2019; Eubanks 2011; Ganesh and Moss 2022; Gurumurthy and Chami 2022; Kuo and Bui 2021; Lewis et al. 2018; McGlotten 2016; McIlwain 2020; Morales and Reilly 2023; Precarity Lab 2020; Shah 2023). Such analyses have placed critical spotlights on the growing patterns of social stratification, segregation, and discrimination that have been driven by the predictive applications of Big Tech companies and that have oversurveilled and overcriminalized people of color and those living in poverty under digital systems. These systems, as justice-oriented US critical data scholars put it, fundamentally increase inequality and punish the poor (Eubanks 2019; O'Neill 2016) with "algorithms of oppression" (Noble 2018).

The continued reproduction of unequal and often violent relations in spite of Big Tech companies' expansion of "data ethics" plans has thus led Anna Lauren Hoffman (2021) to call attention to the forms of "discursive violence" enacted by Big Tech. Hoffman likewise underscores the means by which liberal frameworks around inclusion can be used as a decoy, cover, or

means to prevent deeper reforms from being enacted, as companies “work to scatter opposition to structural inequality, reinforce unequal relationships, and maintain data science and technology’s potential for violence” (Hoffman 2021, 2). Similarly, Ruha Benjamin (2019) has unpacked how liberal claims of heightened “objectivity” and prodiversity “colorblind” designs allow US tech companies to promote their technological solutions even when they reflect or amplify existing inequities and extend logics toward a new “era of Jim Code” in the United States and a “digital caste system” globally.

Predatory Data thus builds on recent work by feminist and critical race data studies scholars who have explored the historical linkages between big data’s discriminatory impacts and past techniques developed to maintain White supremacy—from racialized surveillance and forms of policing rooted in slavery (Browne 2015) to eugenic methods for metricizing difference through research (Chun 2021). Building on histories of science that explore the methodological roots of contemporary statistics with the techniques of correlation and linear regression developed by the British biostatistician and famed founder of eugenics Francis Galton (Cowan 1969; Kevles 1985; Mackenzie 1981), Wendy Chun emphasized data science’s methodological roots in eugenics. She demonstrated how an unquestioned reliance on statistical methods by data professionals today (O’Neill 2016) reproduces deterministic, fundamentally undemocratic worldviews rooted in Western eugenics (Chun 2021). Highlighting the research claims of contemporary data scientists around machine learning and AI-driven applications—from facial recognition to digital matchmaking—Chun demonstrated how today’s data science applications have come to not merely automate “the mistakes of a discriminatory past” shaped by popular forms of eugenics and “race science,” but reproduce once debunked eugenic claims around physiologically readable and “signaled” forms of human difference. While separated by a century, eugenics and contemporary data science continue to amplify the others’ projects. Both, she writes, “frame the world as a laboratory (most explicitly through their surveillance of the most impoverished communities); both seek majorities by propagating ‘nonnormative’ traits; and both promote segregation as the ‘kindest’ solution to inequality (segregation as a training program for racism)” (2021, 23).

Predatory Data builds from such critical interdisciplinary work to explore the central role of Big Tech and AI-driven systems in the global expansion of assaults on pluralism, democratic dissolution, and the parallel amplification of economies of insecurity driven by logics of “reasonable” loss and

calculations of “worthy” living. I explore here how eugenics’ shared lineages with big data cultures today continue to reverberate not only among data science professionals and their routine uses of datafication and prediction methods. Eugenics’ impacts continue to be visible through an array of cultural and information-based practices that continue to sow appetites for population monitoring and for the targeted surveillance of minoritized populations in particular to enhance security for “deserving” populations. I explore how such eugenic norms continue to get mobilized through the globally expansive data infrastructures that scale out evaluative operations for the differential value of life. Interweaving between multisited scenes from our eugenic past and data present, the chapters of *Predatory Data* explore the resonances across the two movements’ interlinked “revolutions.” Through such analyses, the chapters aim to dislodge our imaginaries from a fixation on our data present and from the percussive insistence of an evolutionary arc when it comes to framings of the information age.

Drawing from mixed qualitative methods in science and technology studies (STS), cultural history, digital studies, critical theory, and ethnographies of data cultures that place the present in necessary conversation with the past, *Predatory Data* reminds us how far the techno-eugenic underpinnings and impacts of our information age have traveled. Blending ethnography with historical and archival study, and multisited in terms of both explorations of the past and present, and of locales across the global Americas, this project highlights its own adoption of pluralistic data practices. Such mixed methods enable me to trace the diverse means by which eugenics continues to haunt our data present and to likewise follow the varied contestations that have emerged globally to resist it.

Spanning multiple generations of predatory datafication and prediction work, *Predatory Data* reminds us of the varied means by which dominant dispossessive logics around data practice were refused and of the diverse techniques and temporal interventions that were cultivated collectively to speak for other forms of shared information futures and research infrastructures oriented toward justice-based data pluralisms. Readers will also note that I’ve deferred from trying to compress or abbreviate the literature reviews covered in the chapters that follow. Recognizing the interdisciplinarity of this project, I’ve aimed instead to highlight the diverse global debates, scholarly traditions, and literatures that have informed this study across varied disciplines. Making these pathways explicit does multiple things. It firstly aims for accessibility and inclusivity, and veers away from the assumption

that familiarity with disciplinary debates or disciplinary expertise should be privileged. Making explicit the diverse traditions I draw from and situate myself within—whether STS, feminist, critical race and decolonial theory, critical data studies, or global studies—also voices a commitment to intersectionality, allowing readers to see how an interweaving of such work was foundational to the development of this project. Finally, this approach to citation as an intentional and inclusive practice furthers a feminist and decolonial project, making explicit the voices and struggle of others who made this one possible. As the feminist practitioner Sarah Ahmed writes, “Citation is how we acknowledge our debt to those who came before; those who helped us find our way when the way was obscured because we deviated from the paths we were told to follow” (2017, 17). Recalling and documenting the diverse genealogies that ground this work honors that record of critical practice and commitment to more just forms of knowledge production.

Chapter 1, “Immigrant Excisions, ‘Race Suicide,’ and the Eugenic Information Market,” thus takes readers back to the late nineteenth and early twentieth centuries to explore the explosion of data collection and archival practices set off by the eugenics movement in the United States, when eugenics’ global developments first found its loudest champions. The chapter covers how varied reports, surveys, and studies were undertaken by emergent information classes across the country to advance eugenic theories for population-based prediction, prevent the risk of “race suicide” of well-born White American populations, and promote the excision of racialized immigrant groups who posed the greatest threat to well-born classes.

Chapter 2, “Streamlining’s Laboratories,” places global “smart city” scenes in the present day in dialogue with early twentieth-century streamline designers’ Futurama prototype that marketed eugenically “purified” lifestyles and consumer goods as designed ideals at the 1939 Chicago World’s Fair. Showcasing a future world of driverless traffic controlled from a distance by engineers who removed chaos from users’ unpredictable decision-making, streamliners’ Futurama exhibited the seductive potentials of merging industry-led innovation with eugenic efforts to identify and eliminate “dysgenic” excess, “parasitic drag,” and inefficiency in new consumer markets. Such developments are reminders of the enduring obsession within data-driven enterprises of monitoring performance in efforts to eradicate even minute inefficiencies and to cultivate a mindset of self-optimization among the ideal workers and residents of smart cities.

Chapter 3 unpacks the emergence of cognitive elites as a modern counterpart to the “undeserving poor,” tracing the classification of “cognitive elites” to eugenics researchers’ promotion of hereditary intelligence and IQ tests as predictive measures of individuals’ future worth and economic value in the early twentieth century. Such efforts to economize life have been sustained and bolstered into the new millennium, I argue, through intertwined developments. The first is the growth of discourse around the new knowledge economy, which focused attention around the driving force of knowledge classes and information producers and the outsized value of their cognitive and intellectual labor, while marginalizing a parallel focus on workers and classes beyond such domains. The second is what I describe as the rise of contemporary strains of techno-eugenics among leading voices in Silicon Valley, who project the risk of Western technology stagnation as rooted in an undervaluing of the innovative capacity of the cognitive elite. Echoing eugenicists of earlier decades, techno-eugenicists amplify dystopian disinformation messages, insisting that the regulatory tendencies of democratic states pose an existential threat to Western supremacy and technological capitalism as its highest order.

The subsumption of global imaginaries to eugenic logics are far from inevitable, however. Chapters 4 to 6 thus turn us toward imaginaries for new knowledge futures by historically marginalized communities. Such alternatives have persisted in making space for new freedom dreams by refusing the imperatives for technological revolution and profit-drive imposed by the dominant data economy. Chapter 4 reminds audiences of the growth of relational infrastructures as alternatives to dominant information and research cultures over a century ago. It explores how critical approaches emerged to challenge the forms of anti-pluralist eugenic research and objectivist social science current at the turn of the twentieth century. Tracing the data collection, and visualization techniques developed by women, queer, and immigrant researchers organized around Chicago’s Hull House in the late nineteenth century, the chapter excavates how researchers developed community-based and community-driven data infrastructures in relational methods that centered repair and equity-driven reform as assets to knowledge practice.

Chapter 5, “The Coalitional Lives of Data Pluralism,” takes us into the cross-national, intergenerational networks of intersectional feminist organizers in Latin America that have, against the odds, galvanized new

coalitions to attain the legalization of abortion access in several countries. While growing restrictions around reproductive rights in the United States have brought renewed attention to pro-choice advocacy, Latin American organizers underscored how the recent gains were part of ongoing mobilizations that for nearly two decades had drawn together diverse social justice actors across continents. In some contexts, these had grown to include varied organizations bridging reproductive rights advocates, anti-gender violence and LGBTQ organizations, unions and labor organizations, Indigenous groups, student organizations, and others, working together in an active, pluralistic coalition.

Chapter 6 brings us back into the present day and reviews the growth of contemporary data initiatives that center situated data practice and justice-based approaches, and that I argue collectively articulate a critical framework for community data. Often based outside the mainstream academy, and independent from corporate technology spaces, community data practitioners push back on dominant logics of data practice that have normalized hypersurveillance of, and data extractivism from, poor and marginalized populations. The diversity of relationalities represented across community data projects' multisited, multimethod research practices is a ready indication of the data pluralism that I underscore as inherent in all community data projects and that has long been silenced by the dominant data economy's monofuturist projection.

Together, these chapters argue that we can still disrupt predatory data's expansion, but to do so requires bringing our present and future forecasting into new conversations with the past. Indeed, we understand the impacts of predatory data in our present information age only dimly without a consideration of the history of eugenics and how its specter has fundamentally shaped the master narrative of knowledge work and technology in the twenty-first century. Alongside the work of other critical data studies scholars, this study prompts us to draw out our research lenses to other terrains beyond the conventional corporatized sites and familiar computational infrastructures that have come to define contemporary writing and studies of the digital. To steer away from the disintegrating impacts of predatory data toward other knowledge futures is to seek other forms of pluralistic covitality. It is to cultivate modes of relational accounting and justice-centered practices that promote healing, restoration, and solidarity through data work, rather than merely projecting growth and wealth creation as the lone ambitions or natural

trajectories of the digital. It is to foster forms of relating around data that enable creative agency and credit to be redistributed to actors long silenced and marginalized across space and time. And it is to enable, then, a recognition of how long alternative futures have indeed been pressed for, and so too, how much the ever-narrowing terms of the data economy's monofuture have been contested.

*Immigrant Excisions, “Race Suicide,”
and the Eugenic Information Market*

THEIR GAZES STARED BACK AT me through the camera. Row after row of standardized square photographs of Chinese residents, all framed like mug shots, filled the 160-page paper ledger—an artifact that had been assembled by law enforcement officials in Downieville, California, across four decades following its boom as a nineteenth-century US mining town.¹ Each black-and-white photo had been carefully annotated with the specific identification details and metrics the examiner had taken of each resident, including, in most cases, the name, site of residence, age, height, occupation, and body markings that an interrogation and visual scan had captured. Some photos included a history of movement into and out of Sierra County, and sometimes “back to China.” The inscriptions “miner,” “cook,” and “housekeeper” appeared alongside each photo, as unadorned indices of the kinds of work that had been common for many Chinese residents in California’s mining towns. Other details, such as “sear on left side of neck” and “second finger of right hand off at first joint,” flagged distinctive markers and reflected the kind of routine dangers such labor entailed. Even packaged as it was, in the veneer of what today might have innocently passed as a portable photo album, its careful study tells enough to enable a contemporary viewer to surmise this much: that this is what the contents of a nineteenth-century US criminal databank looks like. And it channeled all the aims of heightening scrutiny over the “probable” lawlessness of the bodies and faces it amassed.

In its finding aid, the California Historical Society, which recently displayed the archive publicly for the first time in a 2022 exhibition on exclusion-era photographs, gave clues of the unusual efforts taken to organize its contents. They specified that it was maintained for nearly half a century (1890–1930) by the Downieville justice of the peace and former sheriff,



FIGURE 1. Pages of the 1890 archive maintained by the justice of the peace in Downville, California, until 1930 to monitor Chinese residents' movements. (Courtesy, California Historical Society, Vault 184_001)

John T. Mason, who recorded data on over 320 Chinese residents in Sierra County. This included 176 residents for whom identification photos had been collected in a single month in 1894. What is clear is that to have produced this kind of visually forensic, anthropometric archive in the late nineteenth century, and to have maintained it as an active surveillance architecture with careful additions of movement history and geocoded information taken and entered over years, required more than an ordinary sense of duty from local officers.

What is also clear is that women were not excluded from criminal profiling. If anything, the archive's gendered classification indicated Chinese women as subjects of special scrutiny. Beyond the standard data collected, the entries produced demonstrate the importance the examiner placed on tracking Chinese women's local relations. Si Nun was labeled as "Jo Wah's woman," Ung Gook as "China Susie," and Maw Gook as "Female Laborer," but with the word *female* conspicuously underlined and the entire phrase framed emphatically in hand-drawn brackets as if to encode other meaning. Updates were added on the women's movement history, including "Gone to

China to never return,” “Gone to China for good 1900,” and “Went to China July 1907.” Reading through the entries, it is difficult not to be unsettled by the quiet zeal channeled through the compact notations and the punctuated disdain in the inscription “gone for good.”

It is difficult to not be frustrated by how little the archive speaks for the subjects captured, how much it allows the final testimony to remain that of the examiner’s contempt, and how many more questions arise than are answered, given all the rows of carefully compiled data and the work to create what critical data scholars today would call “data doubles” of residents. Foremost among those questions are: Why maintain a device like this for decades when, by the ledger’s own account, no apparent crime had actually been committed by any of the Chinese residents in its pages? What varied ambitions compelled such pitched investments from local officials, when, despite the growing exclusion-era laws passed to surveil Chinese migrants before and as they crossed US borders, local officials had no requirement to track migrants once inside national borders? What do such dynamics reveal about the continuity of data practices that, beyond simply heightened scrutiny of targeted classes of individuals, created the conditions for the emergence of a newly specialized information class? Such a class came to see social monitoring and a newfound capacity for surveillance as new means to authorize and deepen social hierarchies around race and gender.

This chapter focuses on the long history of predatory data as a means to explore answers to such questions. While critical data scholarship has valuably drawn attention to the forms of algorithmic discrimination that have globally scaled through contemporary surveillant assemblages, growing work by feminist and critical race scholars underscores how a legacy of segregating information practices—and the use of data resources to exploit marginalized populations and expand dispossessive and segregationist data infrastructures—stretches back centuries. As I explore here, this is accomplished through information professions’ shared roots in racial sciences and eugenics that seeded growing movements in the United States and Western nations at the end of the nineteenth century. New international interests and enthusiasm for eugenics thinking worked fervently to convince publics that certain races and populations were innately disposed to criminality, poverty, disease, and intellectual as well as physical and moral unfitness. They inspired an explosion of data collection and documentation and archival practices to channel their convictions around racialized others. Various reports, surveys, and studies were thus undertaken to advance eugenic techniques for

population prediction and the so-called racial improvement of future societies through the excision or segregation of undesirable classes.

Across the United States, especially, new labs and centers of research, as well as hundreds of classes in virtually all the nation's most prominent institutions of higher education, were established in the early 1900s to promote eugenics. They were preceded decades earlier by varied museum exhibits, public lectures, best-selling publications, and popular news columns that had been launched to popularize eugenics to general audiences and to generate mass legibility in a turn-of-the-century disinformation boom. Far from a fringe practice or pseudoscience, eugenics was in fact a powerful global movement that from its earliest days was enthusiastically promoted by Western elite and lettered classes. Even while eugenics targeted broad classes of social deviance for invasive forms of surveillance and intervention, it remains inseparable from the founding of basic information practices around datafication, prediction, and probability still commonly used in liberal societies and markets today. From the uses of AI-driven bio- and psychometric and criminal databases, to passports and border surveillance techniques, to IQ tests and intelligence exams, to predictive methods through statistical regression now applied by contemporary data scientists, eugenic ambitions drove varied developments to classify and manage populations still in use today. Such developments were undertaken in the name of optimizing futures, with eugenics' specter still reverberating through the foundations of datafication and prediction functions that today lay at the heart of modern data practice and the shaping of information classes.

The Downieville archive as a nineteenth-century channel of predatory data reminds us that eugenic pursuits sought to do more than merely control deviants and prevent them from "contaminating" and "degenerating" genetically superior White and Western elites. Indeed, eugenics' data-centered practices provided a means for individuals and expanding professional classes to see themselves as uniquely well-informed and empowered rational subjects—ones who were members of an emergent information class interrelated through their shared capacity to possess and manage data. Moreover, they could empiricize their propriety as subjects entitled to full legal privileges and freedoms that authorized them to manage not only their own futures but the futures of "inferior" others. Downieville provided us with a snapshot of how eugenicists saw and dissected those classes they argued were not deserving of full autonomy. It provided a glimpse too at how they channeled such a vision through varied data-centered products that cultivated a

possessive relation to data. Those included self-managed archives, best-selling books, news publications, museum and fair exhibits, commissioned studies, and coded maps of ethnic neighborhoods.

Looking through the rows of stolen portraits in the Downieville archive, I am reminded of visual historians' observation that in the nineteenth century growing movements in the United States, as well as new international interests in eugenics, worked fervently to normalize the use of photographic archives to document and regulate classes deemed dangerous. This coincided with experiments in facial imaging and archival techniques by eugenicists via new uses of mug shots, composite photos, and recording systems to document bodily measurements, all collected to metricize, track, and gauge probabilities for and ultimately predict the criminal "type" (Maguire 2009; Sekula 1986). Like the criminal identification system developed by French criminologist Alphonse Bertillon in 1879, each of the Downieville records contained a mug photo with a catalog of varied physical measurements and distinctive physical features. Like the composite portrait technique promoted by British eugenics founder Francis Galton, who blended facial photographs to render predictive composite portraits of criminal, healthy, and Jewish types (1883, 1884) as an early eugenic identification method, the explicitly racialized portraits of Downieville's criminal types were likewise presented as side-by-side comparative images. Unlike either system, however, Mason's ledger also documented individual travel, employment history, and links to social associations, with each entry annotated with numeric codes that cross-referenced single records to others with whom the interrogator had deemed them associated.

In the United States, expanding eugenic arguments in the late nineteenth century swirled around the Chinese, whose racial character was projected as defined by hereditary vices. Rhetoric that framed the "entire Chinese community [as] engaged in criminal activities" (Pegler-Gordon 2006, 57) would, by the 1870s, lead to the first—and what US historians today recognize as still among the most radical—immigration policies with the Chinese Exclusion Acts. The series of acts, which began with an 1875 ban, became the first laws implemented to prevent all members of a specific ethnic or national group from immigrating to the United States (Chan 1991a, 1991b; Lee 2010; Lee 2019; Peffer 1986, 1999). While concerns around labor competition from working class Chinese men arose in the mid-1800s, growing studies documenting Chinese subjects' innate "habits and manner of life . . . [that] breed and engender disease wherever they reside"—and that warned

of how Chinese immigration would lead to the “Physiological Decay of a Nation” from the poison of “bad blood” from the inferior “Mongolian” race (Stout 1862)—spurred middle- and upper-class Americans to call for state and national laws to expel the Chinese danger. Tellingly, this began with broad exclusions applied first to Chinese women rather than male laborers through the 1875 Page Act. Advocates for exclusion argued that without extreme measures for segregation or expulsion, “[s]ome disease of a malignant form may break out among them and communicate itself to our Caucasian population” (Shah 2001, 27), as San Francisco’s health officer predicted in 1869.

The efficacy of such arguments to project and racially “dataify” the Chinese as uniquely virulent sources of moral and physical contamination that put healthy, civilized White natives at risk also turned the Chinese into what historians today describe as the most closely observed, documented, and photographed immigrant group in the United States of the day (Pegler-Gordon 2006, 2009; Shah 2001). The 1875 Page Act’s requirement of photographic documentation for Chinese women, and its expansion in 1882 to require that all Chinese laborers in the United States register for certificates of residence proving their right to remain in the country, put in place the first photographic documentation requirement of its kind. For decades, the Chinese would remain the only immigrant group in the United States for whom such identification was required for entry into the nation. The case set a precedent for eugenicists’ advocacy and future success in expanding legal requirements for photographic documentation for expanding immigrant classes—including Latinos in 1917, and all immigrants in 1924—to enter the country (Lytle Hernández 2022; Pegler-Gordon 2006).

Historian Anna Pegler-Gordon noted that the “racial dimensions of photographic regulation” (2006, 58) during the era were further underscored by the San Francisco Police Department’s creation of a discrete mug book collection for Chinese arrests shortly after it began to use photographic archives for criminals in the 1850s, and that was kept separate from its general mug shot collection until the 1940s. In an era marked by the complex global transformations brought on by rapid industrialization, migration, and national independence and abolition movements, the pitched anxieties of native-born Whites surrounding immigration broadly, and Chinese immigration in particular, allowed eugenic researchers and xenophobic political leaders to gain ground for testing new datafication and prediction instruments to enforce segregation and to justify the dispossession and excision of particular

residents. This also allowed the measure and consumption of difference to become the key metric to stabilize the propriety of White, native-born populations. In the process, White dispossessors could become legible too as a new information class, whose membership relied upon routines of managing information resources, the cultivation of newly possessive relations to data, and tolerance for growing forms of political violence.

In the 1880s, as legislative action passed to completely ban the immigration of almost all classes of Chinese men and women from entry into the United States—and as states expanded anti-miscegenation laws between Whites and Blacks to outlaw relationships between White and Chinese individuals, too² (Curry 2021; Shah 2001)—at least thirty-four towns in California and several others in Oregon, Nevada, and across the Western states saw Chinese residents systematically attacked and violently expelled, with “millions of dollars of Chinese property damaged or destroyed” in the assaults (Francisco 2018, 974). News outlets such as *Harpers Weekly* dubbed discrete events a “massacre of the Chinese” (1885) by Whites. The developments ensured for the next century that Chinese settlements all across the United States remained largely defined as immigrant bachelor societies with few children to extend families or future generations (Curry 2021; Peffer 1986). For over half a century, it ensured that the birth of Chinese American citizens would be largely precluded.

Such stakes cross my mind as I considered the data amassed in the Downieville ledger and the technological architecture required to assemble it. For all the new legal instruments that had been put in place in the late nineteenth century to obligate Chinese immigrants’ documentation, local officials themselves had not yet been required to track or document the Chinese inside national borders (Luo 2022; Pegler-Gordon 2006). Taking on the challenge independently, as the Downieville justice of the peace did, required substantial labor to find and gather resources to scale and centralize a visual archive on local populations. Mason was motivated enough to mount such an effort and to build his archive with enough information to make it a viable tracking device for the county’s Chinese population (Luo 2022). He called upon his son-in-law, a photographer with a studio in Grass Valley, Nevada County, to travel to Downieville in early 1894, just months after the national photography requirement for the Chinese became official. He summoned hundreds of local Chinese residents across the county to comply with the new registration and photo requirements, orchestrating mass travel into Downieville during the ten-day window when recording took place.

He reerected a photo studio in Downieville months later to continue data collection for his archive. Historian Erika Lee commented on the anomaly of Mason's efforts as a local law enforcement official who would go to such ends to construct his surveillance instrument for immigrants. Far from upholding any legal rationale, she observed, above all, "This is a form of racial control and terror" (Luo 2022).

Whatever Mason's presumed justifications to save Sierra County from the specter of immigrant crime and contamination, his archive and profiling instrument must have failed in at least one key expectation. Reading his ledger today, the most conspicuous detail is how Mason maintained it for forty years without apparently attributing a single criminal incident to Chinese residents. Mason's xenophobic experiment to prove that his ledger could keep Downieville's native residents safer from immigrant crime might not have been conclusive, but that didn't keep it from being effective in other ways. In scanning the ledger's pages, it is notable how frequently the lone inscription "Dead" appears alongside many of the photos. Also notable, in just a few cases where Mason elaborated, were reports of more unsettling fates—including "burned" and "froze to death on Lost Creek Feb 1895"—that Chinese residents suffered. They tell enough, however, to warrant another line of questioning. The question was not whether the ledger kept Sierra County's White, native-born residents safer. The question instead was whether the ledger, with its collection of visual and written data compilations, fostered a version of possessive relations that authorized its owners to enact new forms of control—even violence—upon the Other they labored so intently to document. In other words, if the ledger had functioned as a kind of prediction machine, how might it have foretold probable harm to the Other whose excision it had been programmed for all along?

BODIES IN THE ARCHIVES AND THE POSSESSIVE AFFECT OF EVALUATION

Security and violence as twin operations of modern knowledge architectures, of course, have long been recognized and critically mapped by historians of modernity (Foucault 1977; Trouillot 1995). In describing the significance of nineteenth century visual practice and the rise of a new modern culture of archiving in the West, photographer and historian Allan Sekula wrote of the dual operations of "pleasure and discipline," and honor and repression,

that the possibility of visually capturing and “arresting” the body within the archive made available for the first time to mass publics (1986). I cannot look at the Downieville ledger without being reminded of Sekula’s prescient observations, without seeing the interlocking symptoms of pleasure and discipline that extend from big data ecologies and their vast scales of information records and endlessly expanding repositories. And I cannot consider it without seeing at once all the pitched euphoria and anxieties of the age of eugenics that, in the decades of the ledger’s keeping nearly a century before the explosion of digital media we are witnessing today, paralleled big data’s contemporary hope and hype engine. Sekula underscored how deeply the body of the Other and the history of metrification, documentation, and informatic violence around human difference still haunts contemporary archival techniques and ambitions. Writing that “we understand the culture of biometric archives only dimly if we fail to recognize the enormous prestige and popularity of a general eugenic paradigm from the 1870s onward,” he would go on to observe that “especially in the United States, the proliferation of archival techniques and eugenics were quite coincident” (Sekula 1986, 12).

Tailored for a new age of heightened global migration, the Downieville ledger reads as a testimony to predatory data practice and what an archive for xenophobic racial profiling and engine for dispossession looked like in the early decades of the American eugenics movement. It was the seed of what would become, a century later, more expansive techno-eugenic architectures for generalized surveillance that later expanded beyond immigrant classes. In the nineteenth and twentieth centuries, the movement’s infamous obsession with the concepts of “racial hygiene” and “race betterment” drove its fevered pursuit of novel data collection and prediction methods in the United States (Black 2003; Okrent 2019), with the immigrant and criminal body—and the Chinese, who were understood to merge both—as objects that especially energized eugenic fervor. Social monitoring experiments on such classes would seed eugenic pursuits in the United States in its earliest years, before their aims later expanded to arguments for increasingly radical solutions that targeted ever-larger classes of “unfit” populations. While in popular memory eugenics is often recalled as a bygone remnant of a fringe racial science that only gained significant influence in Nazi Germany, eugenics was in fact driven by an expansive global network of elite and professional knowledge classes who were searching for universal laws of population betterment and who powerfully influenced Western imaginaries in their day

through their instruments and experiments to prevent race degeneration (Kevles 1985). From their vantage, the data-driven methods they developed were the basis of new scientific techniques for the control and perfection of populations in the face of modern uncertainties that stroked the anxieties of White elites. Seeded in an age when rising global migrations, abolition, and independence movements from Western colonization shaped new hopes and anxieties among elites around freedom and equity as exercised by new global and domestic agents alike, eugenics held the promise of conserving racial orders and social hierarchies by classifying, tracking, and segregating those who were predisposed to degenerating forms of physical, mental, and moral fitness. Notably, too, eugenics made the most prominent gains not only in Britain and Western Europe, where it began, but in the United States, where the growth of immigration could be leveraged as a distinctively visible target. This is also where expanding circles and resources for eugenics' promotion became the infamous envy of eugenicists worldwide, including in the Nazi regime (Bashford and Levine 2010).

This chapter maps the overlooked history of predatory data by bringing together the interdisciplinary threads of critical data studies and histories of eugenics in the United States, where the movement found its largest base of national support in the decades prior to the rise of Nazi Germany. It highlights the archival politics and information-based techniques around datafication and prediction that mobilized predatory data's segregating and dispossessive impacts over generations. Over a century ago, they also enabled eugenicists to advance their radical reform arguments among lay and lettered audiences alike. In particular, I build on the work of other feminist, critical race, and STS scholars who have demonstrated how eugenic techniques for racial betterment and the control of unfit masses lay at the foundation of varied techniques in modern sciences and professional knowledge practice still used today. These include statistical sciences (Cowan 1969; MacKenzie 1981), methods of correlation and linear regression used in contemporary data science professions (Chun 2021), genetics and evolutionary biology (Stern 2005; Subramaniam 2014), criminology (Maguire 2009), education (Brown 1992), architecture and urban planning (Cogdell 2004), and visual documentation. In conversation with such scholarship, I explore how eugenics seeded a culture of predatory data through popularizing new practices of archival and information management centered around the monitoring and "metricization" of diverse, globalizing populations. Access to eugenics data resources, that is, allowed native-born Whites to

self-recognize as part of a new kind of worthy, proper information class, while rendering racialized others into objects of informatic possession. Through its social experiments, eugenics constrained liberal principles of individual self-possession, autonomy, equality, and inclusion. And much like datafication and AI-driven prediction regimes today, it turned foreclosures of liberal promises that allegedly only occurred in exceptional cases into generalized public rationales necessary to maintain social order.

Central to eugenics' growth was not only the development of methods relevant for scientific disciplines and professionals. As critical was its operationalization of predatory data through the seeding of an information market that could empiricize a threat to social order through affective uses of data. Via market-based approaches, it could amplify broad public appetites for increasingly radical population management techniques. The research-driven methods and data collection instruments eugenics deployed were not merely relevant for growing professional networks invested in research practice, but were imperative for allowing eugenic-age conspiracy theories around race, class, and gender contamination to circulate and be perceived as fact by general publics. In the United States, such work would empower eugenicists' policy gains with historic immigration bans, the introduction of national immigration quotas, and the implementation of intelligence exams to ensure adequate mental fitness of entrants (Black 2003; Okrent 2019). And eugenicists later passed sterilization laws in thirty-two states targeting the unfit and saw to the sterilization of tens of thousands of individuals who were disproportionately poor, disabled, and minority women (Andrews 2017; Hawkins 2021; Kaelber 2011; Ladd-Taylor 2017; Mizes-Tan 2021; Stern 2005; Zhang 2017). While varied actors at the turn of the century publicly critiqued eugenicists for promoting ever-widening violations of democratic political norms, eugenicists advanced techniques for using predictive resources that could both rationalize and rally popular support. Such work in eugenics' earliest decades, however, was especially energized by targeting non-Western immigrants' movement across national borders—and for the Chinese, even within national borders. Such monitoring techniques enabled eugenicists to continue to expand categories of social threat to codify as principle the notion that only society's empirically worthy could be entrusted with the privilege of self-possession and autonomous choice, particularly related to movement, migration, and marriage.

Diversely oriented for the enrollment of everyday individuals, professional classes, and social institutions alike, eugenicists needed to popularize

not only the general idea that individual identity was based on fixed and thus predictable traits that social mechanisms could track in order to optimize. They needed to generate acceptance, too, for graduated suspensions around liberal personhood and individual liberties—and their foundation in principles of equality, possessive individualism, and autonomy—in the interest of advancing social optimization and ensuring White supremacy. As global independence movements in the nineteenth and twentieth centuries underscored the promise of liberal ideals around freedom and equality and the possibility of self-government by rights-bearing individuals around the world, eugenicists actively worked to constrain and invert such possibilities. They did this by amplifying doubts around whether all classes should be allowed full autonomy and questioning whether all classes had the inherent capacity to self-govern, be soundly informed, or make the choices of proper self-possessing individuals. Allegedly, when in proximity to White lettered classes, the most mundane forms of free choice when exercised by “inferior” classes threatened to contaminate “well-evolved” populations. Eugenic information techniques thus entailed not only extending to professional classes the capacity to metricize and empiricize the threat of the unfit, but extending new possibilities for publics to self-recognize as part of a modern information-engaged class, capable of managing eugenics’ knowledge resources and worthy of the privilege to self-rule.

Sekula thus noted that the visual and archival methods developed in the late nineteenth century by Galton and Bertillon for tracking anthropometric measurements for criminal identification were significant for more than merely introducing new classificatory methods relevant for law enforcement officials. They were significant, rather, for expressing a new general “culture of biometric archives” that, in the inclusion of standardizable photographic documentation, promised to translate a messy disordered world of real bodies into a form of measurable, fungible data that reduced nature to “its geometrical essence” and converted “all possible sights to a single code . . . grounded in the metrical accuracy of the camera” (Sekula 1986, 17). In creating a standard physiognomic gauge of the body—and of the socially deviant body in particular—the culture of biometric archives that emerged in the late nineteenth century was marked by new understandings of how to see and read bodies in a world where it was newly possible to assign each recording, criminal or otherwise, “a relative and quantitative position within a larger ensemble” (Sekula 1986, 17). Such expanded potentials for comparative, hierarchical assessment through archival systems

extended powerful new habits of social calculation for those classes with the privilege of archival access. This offered them a distinct “social calculus of pleasure and discipline” that turned on the ability to self-recognize, and to both look up at one’s betters and look down at one’s inferiors. As bodies marked with global difference were increasingly targeted for tracking, such forms of archival assessment offered White native viewers new means to invest the exercise of evaluation with distinct worldly dimension. Techniques advanced by eugenicists for archiving information to track and measure migrants and criminals—and that developed into contemporary standards in the use of visual databases in law enforcement and immigration—thus promised to index social deviancy as much as they allowed social virtue to become measurably recognized at a global scale (Maguire 2009). In the hands of eugenicists, such techniques quickly expanded to include the first uses of intelligence tests, civic literacy evaluations, and IQ exams (addressed in a future chapter) to classify and filter out the unfit. They were first primarily used to target immigrants at the border, and in later decades, increasingly used with other categories of social deviants (Black 2003; Okrent 2019).

Over a century before online social media databases and internet search functions would massify comparative modes of seeing the self and others within a spectrum of documented others, new potentials for late-nineteenth-century information practice projected possibilities too for assessment against a general, all-inclusive universal archive. Such an archive, ideologically eugenic from its seeding, “sought to encompass an entire range of human diversity” (Sekula 1986, 11) that contained “both the traces of the visible bodies of heroes, leaders, moral exemplars, celebrities” as well as “those of the poor, the diseased, the insane, the criminal, the nonwhite, the female, and all other embodiments of the unworthy” (1986, 10), who endured forms of structural inequalities. Importantly, too, the archive offered concrete means for new kinds of information-empowered classes to metricize deviance, increasingly marked as global in form. In the same turn, it measured and empirically affirmed the respectability, worth, and value of elites. In the context of Western nations’ nineteenth-century reshaping through new global migration patterns and struggles for postcolonial independence, it could assure the White viewer of their own rightful status, privilege, and entitlement to possessive relations. And it could do all this while opening the question of the appropriate means and scale for the control of perceived social deviants among the native-born and foreign alike.

“BAD BLOOD” AND “WHITE SUICIDE”
IN THE INFORMATION MARKET

Eugenics doesn't have to appear once in the Downieville ledger to see that its imprint is all over its pages. In the 1860s, English geographer and mathematician-turned-biostatistician Sir Francis Galton asserted in his first work the founding principles of eugenics, which began a movement among global researchers for decades. Penned in 1864—the same year the US Civil War entered its final stages, following the Haitian Revolution, the 1857 Indian mutiny, and independence uprisings across European colonies—Galton's “Hereditary Character and Talent” asserted an aggressively anti-egalitarian, hereditarian vision for conserving Western-driven progress. With it, he provided a program for maintaining Western dominance over broad global populations and so-called unfit classes. Published after Galton's own two-year mapping expedition in southwest Africa had earned him recognition among Western researchers “as an expert on geography, travel, and meteorology” (Fancher 1983, 67), the essay planted Galton's bold vision for controlled race improvement and social engineering pinned around the controversial assertion that individual character, talent, and intellect were incontrovertibly hereditary.

Countering liberal enlightenment thinking of the time around the possibility of educating and civilizing bodies, his argument for the innate nature of the character and intellect of different races set Galton “apart from the mainstream of thought in Britain in the middle of the 19th Century” (Cowan 1969, 20). Galton struggled, however, to illustrate his argument through data. Drawing from selected portions of five biographical dictionaries—four English and one French³—he attempted to convince his audience that such a body of data was representative of “the chief men of genius whom the world is known to have produced” (1865, 159). He thus used statistical analysis to insist that “abundant data” supported his claim that “everywhere is the enormous power of hereditary influence” (1865, 163). He also credited his prior “ethnological inquiry” abroad with seeding his ideas for not only “hereditary genius,” but his belief in the “mental peculiarities of difference races” (Galton 1869). He asserted in his 1865 article that, in fact, broad peculiarities of character, too, including “craving for drink,” “pauperism,” and proclivities to “crimes of violence” and “fraud,” were all inheritable. Galton, a cousin to Charles Darwin who had voraciously read *On the Origin of the Species* after its release in 1859, further used his eugenic model to launch a

critique of national welfare policies as artificially preserving the lives of the weak and “deteriorat[ing] the breed” (Galton 1865, 326). If social elites could be empowered to build what he projected as a social “utopia,” where elite knowledge classes were charged with the assessment of populations and enforcement of a regime of controlled, selective breeding, he enthused, what “prophets and high priests of civilization” and “what a galaxy of genius might we not create!” (1865, 165).

Published in the distinguished London periodical *Macmillan's Magazine*—whose contributors included prominent scientists of the day, including Thomas Henry Huxley and Charles Lyell, and poets Alfred Tennyson and Henry Wadsworth Longfellow (Gillham 2001)—Galton's 1865 manifesto set him and fellow converts on a mission to mainstream eugenics, starting with lettered classes. While it was not until the release of Galton's *Natural Inheritance* in 1889 that the academic world became energized by his cause (Cowan 1969), Galton and his protégés remained steadfast in their work to not only amass the necessary data and methods to authorize eugenics as a knowledge practice, but to translate their vision for the broad reshaping of social institutions and public understandings of self-government alike. In the final decades of the nineteenth century, Galton and his supporters thus saw to the founding of a biometric laboratory at University College London that invited participants to be measured and examined to “gain knowledge” on themselves for a small fee. They collected questionnaires from families asked to record their physical characteristics (such as height, weight, and lung power), and offered cash rewards for more granular family histories (Black 2003; Cowan 1969; Kevles 1985; Orkent 2019). They likewise designed and constructed machines to measure and test human attributes. And they published prolifically on experiments with composite photography and portraiture of genetic and criminal types that would advance law enforcement's documentation methods (Maguire 2009; Sekula 1986). Their work allowed the collection of thousands of profiles and “large amounts of data about the characters of parental and filial human populations” (Cowan 1969, xi), whose analysis would lead Galton in this period to discover the statistical phenomena of regression and correlation that remain foundational to data science practice to this day (Chun 2021; Cowan 1969). Such gains allowed eugenics' growing influence to be visibly institutionalized in England by the beginning of the twentieth century, with the 1901 founding of the Eugenics Education Society in London (that grew to include various respected members of the scientific and political elite of the turn of the century, including Winston

Churchill and Charles Darwin's son, Leonard Darwin), the endowing of the Galton Laboratory for National Eugenics at University College London, the addition of new research fellowships in eugenics there, and the founding of the eugenics journal *Biometrika*. It was in the United States, however, where eugenics' policymaking ambitions gained larger ground and where data-centered techniques—specifically, “visibilizing” the threat to White lives and the survival of society's worthy classes—were leveraged to expand eugenics audiences and advance its cause.

As in Britain, in the United States eugenicists rapidly developed research infrastructures to grow their movement. This spanned the United States' Eugenics Record Office (ERO), the Galton Society, the Race Betterment Foundation, and the American Eugenics Society, with its twenty-eight state committees and even a specific Southern California branch. Eugenics' leadership and promoters included some of the most distinguished scientists and professionals of the day. University presidents (e.g., Stanford's first president, David Starr Jordan), countless professors (e.g., Harvard's Charles Davenport and Yale's Irving Fisher), famed inventors (e.g., Alexander Graham Bell), medical professionals (e.g., John Kellogg), cultural leaders (e.g., H. G. Wells and Henry Fairfield Osborn, the president of the American Museum of Natural History), and even noted progressives (e.g., Margaret Sanger) championed the eugenics cause. Eugenics research centers such as the ERO gained prominence by gathering data on the genetic backgrounds of local households to advance research and develop aggressive, often invasive, techniques to collect family details and compile dispersed datasets scattered across the country.

However, unlike in Britain, eugenicists in the United States quickly came to recognize and leverage growing patterns of non-White, racialized immigration to empiricize the rising threat to White families and worthy social classes. And it would be the “factual” matter of ever-widening immigrant contaminations that they used to awaken public consciousness to the even broader threats of social degeneration posed by “unfit” classes. Leveraging data-driven methods thus enabled US eugenicists to gain broadening support—not merely from nationalist and xenophobic politicians, but “respectable” knowledge classes, professionals, and liberal reformers of the Progressive Era (Cogdell 2004; Leonard 2016), as well as popular classes and ordinary families. If in the late nineteenth century arguments of contaminating non-Western immigrants and the need to intensify monitoring and suspend democratic liberties were levied most loudly against Chinese

immigrants, by the twentieth century US eugenicists warned of threats from broader “degenerate” classes. These spanned southern and eastern European immigrants, US-born minorities, and poor and disabled citizens, all deemed too unfit to shape a modern society’s future.

Eugenics’ growing influence among American researchers was already evident in the late decades of the nineteenth century. Published accounts characterized the kinds of appeals made to research classes at the time. One example was Frederick Wines’s “Report on the Defective, Dependent and Delinquent Classes of the Population of the United States,” a special schedule commissioned for the 1880 US census that used census and medical data to project the growing numbers of immigrants and “defective types of humanity” and that calculated the tax burden imposed on civilization by such dependents (Ladd-Taylor 2017, 29). So too were texts like *The Races of Europe*, an 1899 publication that was based on a lecture series at Columbia University by the economist William Z. Ripley—later a professor of economics and political economics at MIT and Harvard—that based his argument of different European “races” on anthropometric measurements. By the turn of the century, US eugenicists would build on such techniques with growing attention to forms of popular, market-friendly communication that could extend literacy of their movement beyond established research circles. Key to this was leveraging information resources to visibilize—and amplify—the “reality” of the pending threat of growing immigrant classes, whose excessive freedom threatened to contaminate the bloodline the ideal “American race.” Such developments allowed the movement to at once promote imaginaries around “racial preservation” to broader White “American” classes. US historian Nancy Ordover underscored the significance of this “creative visualization” work around racial purity that the movement advanced, writing that “[t]he eugenics project revolved around imagining the nation: what it was (now threatened) and what it might be (with and without government and medical intervention)” (Ordover 2003, 7).

Such visualization work incorporated the use of images as well as “visualizing” narratives to project future degeneracy and translate visual and numeric data for broad publics. American eugenics leaders exploited such predictive, future-making techniques as they tailored education materials for students at university and college campuses. Davenport thus authored a textbook, *Heredity in Relation to Eugenics* (1911), shortly after founding the ERO to promote eugenics to American higher education institutions. Countless institutions, including Harvard, Columbia, Cornell, Brown,

Wisconsin, Northwestern, and Berkeley, offered popular courses in eugenics (Kevles 1985). Published by Henry Holt & Company, Davenport's textbook warned against the effect of growing classes of new immigrants of bad blood and invited readers to imagine how, without greater restrictions, America would "rapidly become darker in pigmentation, smaller in stature, more mercurial, more attached to music and art, more given to crimes of larceny, kidnapping, assault, murder, rape and sex-immorality" (Black 2003, 41). The Davenport textbook's conclusion that "immigrants are desirable who are of 'good blood'; undesirable who are of 'bad blood'" repeated arguments around race suicide that other American eugenicists invoked. Writing in an 1896 *Atlantic Monthly* article titled "Restriction of Immigration," former Census Bureau Director Francis Walker lamented the statistical imbalance between America's traditional Anglo-Saxon settlers and the new waves flowing in from southern Europe that he warned would inflict "vast throngs of foreigners . . . and persons, deaf, dumb, blind, idiotic, insane, pauper, or criminal, who might otherwise become a hopeless burden upon the country" and would risk national "degradation" (Walker 1896).⁴

Eugenicists were keenly aware of the growing channels for information distribution and promotion that late-nineteenth- and early-twentieth-century markets in the United States made available to lettered classes. These included not only journal and academic publications and curated museum exhibits (Black 2003), but explicitly commercial and popular outlets, including magazines and news articles, films (Pernick 1996), book publications, urban expos, and rural fairs (Cogdell 2004), that targeted broad consuming classes. American eugenicists thus actively cultivated relationships with heads of leading cultural institutions, filmmakers, and journalists. By the early twentieth century, they had developed relations with several of the nation's most powerful publishing houses that yielded a host of publications in international circulation. Such global visibility demonstrated their success in negotiating market-based information channels during what historians would later call "the golden age of eugenics publishing" (Regal 2004, 319). Varied eugenics books were released between the 1890s and the 1920s, from authors such as David Starr Jordan (1902 and 1909), Luther Burbank (1907), C. W. Saleeby (1911), William Castle (1912 and 1916), Robert Yerkes (1915), Havelock Ellis (1916), and Margaret Sanger (1917), by respected publishing houses, from G. P. Putnam's Sons to Henry Holt & Company, the Macmillan Company, and Scribner's. The 1856 book *Moral and Intellectual Diversity of Races*, by France's Arthur de Gobineau, whom contemporary

critics recalled “as undoubtedly the most influential academic racist of the nineteenth century” (Gould 1981, 379), was reissued by G. P. Putnam’s Sons in 1915 with a new, inciting title: *The Inequality of Human Races* (Regal 2004).

Recognizing the high sales eugenics’ baiting sensationalism and alarmist frameworks fostered, many of America’s leading publishing houses sidelined any misgivings they had about amplifying and authorizing the disinformation and lack of scientific foundation by such texts and actively sought out eugenics authors to promote and amplify such work (Regal 2004). *The Passing of the Great Race* by Yale University-trained lawyer, conservation advocate, and Immigration Restriction League vice president Madison Grant played a key role in solidifying such coproductive dynamics. Grant’s 1916 text, that twentieth-century natural historian Stephen Jay Gould later described as “the most influential tract of American scientific racism” (1991, 145) for its role in instituting historic immigration restrictions, also popularized White genocide conspiracy theories through its authoritative use of coded maps and visual data to represent European migrations. Grant’s viscerally cinematic descriptions of “alien invasion,” “mongrelization,” and racial “extermination through immigration” (Regal 2004, 319) to complement his published visualizations helped center and ignite eugenic concepts of race suicide and racial conflict in the public imaginary. His promotion of Nordic theory that elaborated on nineteenth-century models of racial difference⁵ built on earlier works, such as Ripley’s 1899 *Races of Europe*. However, Grant’s text animated the theories for new audiences, unlike those of others before him. He would use it to further his critique of changing patterns of American immigration in the early twentieth century, which saw increased numbers of southern and eastern European immigrants, and to elevate Nordic races as the height of White civilization. Across the text’s pages, Grant projected apocalyptic images to urge audiences to beware of “the invasion of America by lesser tribes [that] had placed the blade of a knife against the Nordic throat . . . [and] are beginning to take his women.” He decried misguided democratic values around the brotherhood of humanity that had allowed a suicidal ethics to be put in place via US immigration policies that enabled the “native [White] American” to see to the “exterminati[on of] his own race” (Okrent 2019). While anthropologist Franz Boas lambasted Grant for “inventing a great race” in a book that was built on “fallacies,” “faulty” use of evidence, and “fanciful” and “dangerous” historical reconstructions (Okrent 2019, 401), its reputed publisher, Scribner’s, continued to promote it. In the first five years after its publication, its popularity in the United States drove its

sales through eight new editions, with translations into multiple languages and promotional materials emphasizing its credibility as a “scientific” history of Europe “which may be traced back to the teachings of Galton” (Okrent 2019, 397).

Scribner’s editors later credited Grant’s anti-immigrant volume as “undoubtedly one of the most successful books” they had published that year (Okrent 2019, 403), and it solidified for the publishing house how profitable packaging and amplifying eugenics disinformation could be. In the years following *The Passing of the Great Race*, Scribner’s grew its reputation “as the publishing home for many of America’s leading proponents of scientific racism” (Okrent 2019, 403). It released eugenics volumes, including Seth K. Humphrey’s *Mankind: Racial Values and the Racial Prospect* (1917), Charles W. Gould’s *America: A Family Matter* (1920), William McDougall’s *Is America Safe for Democracy?* (1921), Edward M. East’s *Mankind at the Crossroads* (1923), Ellsworth Huntington’s *The Character of Races* (1924), and Charles Conant Josey’s *Race and National Solidarity* (1922). The publishing house’s investments culminated in the release of Stoddard’s *The Rising Tide of Color*, whose targeting of popular audiences quickly drove it to become a bestseller. It swept through fifteen separate printings in four years and received visible public endorsements from the *New York Times*, who called the text in an editorial “a new basis for history.” Even US President Warren G. Harding’s 1920 campaign emphasized the slogan “America First” (Okrent 2019). Charles Scribner, the head of Scribner’s publishing, later cited how Grant’s book had been “a pioneer” that allowed US publishers to see how much “the race question has now become a favorite” among American and international audiences (Regal 2004, 332).

Contemporary historians credit Grant’s text—and the flood of eugenics publishing that came with it—for helping to harden a vision of “White suicide” into empirical fact in the year leading up to the historic 1917 and 1924 Immigration Acts. It further worked to produce a wave of support necessary to pass them, despite three presidential vetoes over concerns for the political precedents they would set (Black 2003; Okrent 2019). Indeed, the 1917 Act broke ground for imposing the first national test—a literacy exam designed by eugenicists to set minimum standards for adequate character and standards for new entrants into the United States. Decades of active political advocacy by US eugenicists around immigration quotas to limit entry of migrants from undesired nations finally came to fruition with the passing of the 1924 Immigration Act. The act drastically reduced immigration via

a “national origins quota” (set at 2% of the total number of people of each nationality as of the 1890 US national census). It ensured that the largest number of slots were reserved for what promoters framed, in direct consultation with US eugenics leaders, as Nordic races (Spiro 2009). To ensure its passing, Harry Laughlin, ERO superintendent, lined the walls of the US congressional hearing room with large maps of European migration from Grant’s *The Passing of the Great Race* “for a grand visual effect.” Laughlin further presented the committee with a variety of tables and statistics, drawn from his study of populations at 445 public institutions classified by ethnicity, to establish the fact of degeneracy among specific immigrants.⁶ The evidence, he argued, demonstrated that such degenerate classes would dangerously “dilute the bloodstream of America.”

Today, more than a century after its original publishing, Grant’s work continues to gather global audiences, being commonly invoked by alt-right figures in the United States and Europe in contemporary anti-immigration formulations of xenophobic Nordic and White genocide conspiracy theories. US White nationalist Richard Spencer, in the introduction to the 2013 republication of Grant’s 1933 *The Conquest of a Continent*, reminded readers of the long threat of a “miscegenating” US nation that would destroy the “White America that came before it” (Serwer 2019). Emphasizing the plight of White races, such invocations omit mention of how in the years immediately following the 1917 and 1924 immigration bills’ passing, Grant’s work and US eugenicists’ tactics to visualize the fact of non-Nordic degeneracy had earned the admiration of antidemocratic political parties around the world. They leave unmentioned, too, how Grant’s first book grew to become a global bestseller, which came to be considered essential reading by German race theorists, including Adolf Hitler, who notably called the US text “his Bible” (Regal 2004).

DISINFORMATION’S EUGENIC AGE

While the US eugenics movement’s strategic exploitation of information channels, and the convergence of interests they found in American publishing circles and marketing operations, are remembered for their role in mobilizing legislators and publics toward the historic 1917 and 1924 immigration acts, US eugenicists drew from a record of past decades of tactical successes and experiments in communication to make such policies. In the

late nineteenth century, the anti-Chinese immigration acts installed the first national immigration policies, whose racialized restrictions energized eugenicists across half a century. The 1917 and 1924 immigration acts were indeed culminations of American eugenicists' sustained efforts to expand restrictions around so-called "unfit" classes. They invigorated the movement to persuade publics of the need to not only protect the nation from degeneration through the entry of unfit non-Western populations, but of the risk that eastern and southern European immigrants posed to the nation's valuable Nordic race (Spiro 2009). With the immigration acts newly secured, eugenicists could turn their attention in the next decade to new classes of the unfit, beyond immigrants. The same year that Laughlin presented the ERO's data on degenerate immigrants to the US Congress, he also completed writing for a new work, "Eugenical Sterilization in the United States," that occupied him for the next decade. The text, which penned a model for sterilization law for the unfit, eventually influenced new laws that passed in thirty-two states in the early twentieth century (Okrent 2019; Stern 2005).

Before such advances, however, US eugenicists had to repeatedly contend with prominent political critiques, including from US presidents Grover Cleveland, William Howard Taft, and Woodrow Wilson. Dismayed over immigrant scapegoating and political precedents that were set by closing "the gates of asylum which have always been open to those who could find nowhere else" (Wilson 1915), the three presidents issued a series of vetoes to immigration restrictions proposed between 1897 and 1915 (Black 2003; Okrent 2019). To overcome such critiques, eugenicists drew from earlier models of racializing difference, and empiricized harms to White natives from the racialized bodies of the Chinese in particular, to effectively close borders. No other immigrant group more concretely facilitated an intensification of "fear about the future of white lives" (Luibhéid 2002) at the turn of the century than the Chinese. And more than any other group, it was Chinese women specifically who first enabled such fears to readily be shaped into hardened facts about the danger posed to White society, the need for growing surveillance and monitoring, and eventually, the need for outright exclusion of targeted classes.

Sponsored by California Republican Horace Page, the 1875 Page Act was the first national act designed to "end the danger" of "immoral Chinese" (Peffer 1986). Targeting Chinese women specifically, it set in place not only the first significant US immigration restrictions, but the first laws preventing members of a specific ethnic or national group from immigrating.

Leveraging eugenic arguments of an innate “Chinese racial character” that claimed criminality and immorality were unique “hereditary vices” (Shah 2001), the Page Act barred women immigrants from “any Oriental country” from entry into the United States based on their presumed criminal status as prostitutes. While not all Chinese women immigrating at the time were prostitutes, and while the Chinese were not the only immigrant group involved in prostitution (Luibhéid 2002), the act nonetheless justified the broad classification and exclusion of Chinese women specifically from seeking entry as “immoral labor” for over half a century. Historian Nayan Shah noted that the “queer domesticity” (2001) Chinese immigrant households often exhibited at the time routinely entailed multiple women and children living in a female-dominated household or without the presence of a male head. Such household models, that included cohabitating communities of men and common-law marriages of Chinese men and “fallen” White women, were a stark departure from White American notions of respectable domesticity. As one author of an 1885 report by a Special Committee of the Board of Supervisors of the Chinese in San Francisco stated, it made it impossible to tell “where the family relationship leaves off and prostitution begins” (Shah 2001, 41). The Page Act nonetheless established a powerfully influential model for enabling the expanding exclusions of broader categories of undesired populations by demonstrating how readily discriminatory data, and the markings of marginalized difference, could be hardened into objective public fact about the dangers posed by racialized and sexualized others. By branding Chinese women as prostitutes and restricting the immigration of Chinese women, “lawmakers were able to control the formation of families and birth of Chinese American citizens” (Curry 2021, 15). With revised anti-miscegenation laws outlawing relationships between White and Black and White and Chinese residents (Curry 2021; Shah 2001), the effect was to radically delimit Chinese American citizen births in ways that eugenicists hoped could eliminate the Chinese, and eventually other inferior populations, from the United States altogether.

Indeed, historians have noted that the decades prior to the Page Act’s passing saw the “systematic surveillance” of the Chinese grow across the West Coast, where the “technologies of liberal security” (Shah 2001, 46) via municipal reports, health surveys, and geographic mappings intensified the targeted inspection of Chinese bodies, and their places of residence and work. The “extensive data” (Shah 2001, 46) such a regime generated worked to empiricize the menace of the Chinese into given fact that would extend across

decades (Shah 2001, 37)—so much so, that by the beginning of the twentieth century in cities such as San Francisco the monitoring and control of the “Chinese race [had] become inseparable from the operation of [the city’s] public health systems” (Shah 2001, 48). Reports by medical, public health, and municipal officials during the period repetitively represented the “entire Chinese community” as not just a danger for being categorically “engaged in criminal activities” (Shah 2001). Such accounts projected the Chinese as posing a “social, moral and political curse to the [White] community” (Trauner 1978, 70) and festering a “laboratory of infection” and contagion that threatened native-born Whites. Beyond San Francisco, too, Chinese settlements were blamed for disease outbreaks—from smallpox to cholera to the bubonic plague—that were alleged to spread due to the Chinese population’s racial preposition to criminal behavior and virulent disease.⁷ Municipal reports throughout the 1860s and 1870s, such as *Chinese Immigration and the Physiological Causes of the Decay of a Nation* (1862) and *Impurity of Race, as a Cause of Decay* (1871), written by prominent San Francisco physician and member of the California Board of Health Dr. Arthur Stout, echoed eugenic warnings of the racial degeneration and “self-destruction” that would befall the “Caucasian race—the race created with the highest endowment and greatest aptitude” (Stout 1862, 6)—from the infusion of bad blood from inferior Eastern Asiatics. Such immigrants threatened to “poison” the “manifold beauties” and “mental and physical energies” of the nation unless measures of “self-preservation” were taken (Stout 1862, 9).

With the full authority of leading medical researchers and public health officials behind them, municipal examiners repeatedly invaded Chinatowns of the West Coast in the late nineteenth century, subjecting residents to violent inspections that routinely resulted in expulsions, the destruction of buildings, and the dispossession of residences as alleged “sources of disease.” One case was Honolulu’s Chinese quarter, where forty-five hundred residents lived in 1899; the entire Chinese quarter was burned to the ground after two cases of bubonic plague were reported (Trauner 1978, 77). Widespread publicity was generated from the inspection theater,⁸ as routine news reports of “periodic public health investigations—both informal midnight journeys and official fact-finding missions—fed the alarm about the danger Chinese men and women posed to white Americans’ health” (Shah 2001, 17–18). News illustrations of burned and destroyed buildings came with captions of how “city officers ‘survey[ed] with satisfaction’ the demolishing of ‘the Den of Filth’” (Trauner 1978, 77), just as city officials boasted of their success in

seeing to the passage of extreme measures and orders to have “every house in Chinatown thoroughly fumigated” (Trauner 1978, 82).

Proposals to segregate and expel the Chinese settlements outside of the city limits of San Francisco that were set forth since the 1850s were still met with varied rebuttals throughout the late nineteenth century (Trauner 1978). Throughout the late nineteenth century, the use of exceptional surveillance techniques on the Chinese—especially photography—was debated⁹ even as “supporters of Chinese immigration were concerned that photographic documentation marked innocent Chinese residents as criminals” (Pegler-Gordon 2006, 58). Varied concerned officials, moreover, on principle, embraced the possibilities of “tutoring and reforming conduct to ensure self-regulation . . . [and] vigorously questioned whether the Chinese residents were amenable to reform or so recalcitrant that they must be expelled so the rest might thrive” (Shah 2001, 48). The campaign to exclude Chinese women as prostitutes demonstrated how such political sympathies could be overcome. It also provided a model that proved how “datafying” the threat to White native lives could energize campaigns that pushed the negating of democratic rights for improper subjects. Indeed, the Page Act created a first-of-its-kind, cross-continental system of examination, investigation, and documentation—only genuinely enforced on Chinese women at the time of its passing. It required varied photographs, biographical records of family and relations, and certificates demonstrating moral character to be generated, verified, and resubstantiated by authorities at ports of departure and entry (Curry 2021; Peffer 1986).

Immigration historians have noted too how the surveillance of Chinese women in the nineteenth century instantiated the power of the case file for immigration, a format that was integral to the functioning of modern disciplinary societies for opening new correlative possibilities. This included the constitution of the individual as a describable, analyzable object, and the constitution of a comparative system that made possible the measurement and description of observed phenomena in individuals within and between systems. Eithne Luibhéid thus noted how the combined data of case files on Chinese women enabled a series of investigations to be brought to bear upon them. Individual files could be cross-referenced with aggregated archival records of other Chinese immigrants, including in other cities, to verify and track familial relations, and a sequence of others to then track and calculate incriminating gaps in individual testimony.¹⁰ Historians thus noted that unlike any other immigrant group, Chinese women were required

to prove their propriety. With no evidentiary standard designated,¹¹ however, the system ensured that nearly all Chinese women were criminalized and denied entry (Curry 2021).¹²

It was the notion of the especially “virulent threat” that Chinese women posed to White men and respectable domesticity that late-nineteenth-century eugenic campaigns aimed to harden into objective facts through medical and legal officials’ ominous predictions about infectious transmissions from Chinese female prostitutes to White male clients and innocent families. Testifying before a congressional committee investigating conditions in Chinatown in 1877, the founder of the University of California Medical School,¹³ Dr. H. H. Toland, claimed that an astounding 90 percent of the venereal disease in San Francisco could be traced directly back to Chinese prostitutes, who were “the source of the most terrible pollution of the blood of the younger and rising generations” (Trauner 1978, 75). Eugenic physician and publisher Dr. Mary Sawtelle, editor of the *Medico-Literary Journal*, a medical advice journal with largely middle-class White female readers, likewise circulated articles representing all Chinese women as prostitutes who conspired to “infus[e] a poison into the Anglo-Saxon blood” and imperiled American families and the “future of the American nation” with syphilis (Shah 2001, 107). By the late 1870s, eugenic reformers such as Sawtelle would propose measures that historians today describe as “far more aggressive” than even systems of mandatory inspection imposed on female prostitutes in western European colonies (Shah 2001, 110). Sawtelle argued for the creation of a federal bureaucracy and surveillance system to leverage public health authorities to “track syphilis to its lair” and to require physicians to register all venereal disease cases, report the condition of victims to their sexual partners, and isolate carriers behind locked hospital doors. Chinese proximity to White residents was used to amplify claims that domestic servants, chambermaids, and “half of the Chinese servants employed in the families of the wealthy . . . reek[ed] with this venereal virus” (Shah 2001, 89). In the midst of such attacks, Chinese women were reduced “to the menacing stereotype of the syphilitic prostitute” and classified as a uniquely vicious “source of contamination and hereditary diseases” (Shah 2001, 80). By historian Nayan Shah’s account, such framings reified the notion of Chinese bodies and sexuality as threats, not merely to the moral sanctity and health of White citizens and workers, but to the institution of White heterosexual marriage, the purity of heterosexual reproduction, and White American middle-class domesticity as a whole.

By 1882, the expanded anti-Chinese immigration act prohibited the entry of almost all classes of Chinese men, too. Included in the act were prohibitions on the entry of immigrant convicts, prostitutes, lunatics, and idiots into the United States. Such additions codified eugenic worldviews of the need to protect superior classes from broadening degenerate populations into national policy. The Immigration Acts of 1903 and 1907 expanded barred categories to include anarchists, epileptics, the insane, those with infectious diseases, and those who had physical or mental disabilities that hampered their ability to work. By 1917, the exclusions culminated further to include a broad list of immigrant undesirables: alcoholics, anarchists, contract laborers, epileptics, feeble-minded persons, idiots, illiterates, imbeciles, paupers, persons afflicted with contagious diseases, persons being mentally or physically defective, persons with constitutional psychopathic inferiority, political radicals, polygamists, and vagrants—all viewed as biological and social expenses to society. The measure also granted the government the authority to deport alien radicals in the country and imposed a literacy test for all immigrants for the first time (Okrent 2019). They laid the ground, too, for the historic 1924 Immigration Act that drastically reduced immigration into the United States and that initiated use of national quotas designed to limit immigration from undesired nations, to reserve the largest number of slots for Nordic races (Black 2003; Spiro 2009) and to ensure that the future of the nation would be driven by eugenic worldviews.

The growing political gains of anti-immigration laws by eugenics advocates in the United States are reminders of how much eugenicists had come to play dominant roles in various channels of research and information culture in the late nineteenth century, even before the 1917 and 1924 immigration restriction laws. For decades, the naïve defenses of democratic norms of government had been read as a necessary target of eugenics advocates, who decried the danger of liberal ideals that weakened national futures by protecting the individual rights of the unfit without appropriate checks or outright prevention from better informed parties. By 1916, texts such as Grant's *Passing of the Great Race* warned that the seeds of racial suicide were embedded in democratic ideals; he argued that in nations like the United States, liberal immigration policies were "introducing the seeds of fatal disease into the body politic" (Spiro 2009). Projecting the future extinction of "native Americans of Colonial descent" from an immigration policy that granted overly expansive rights of "asylum for the oppressed," Grant urged, "We Americans must realize that the altruistic ideals which have controlled

our social development during the past century and the maudlin sentimentalism that has made America ‘an asylum for the oppressed,’ are sweeping the nation toward a racial abyss. If the Melting Pot is allowed to boil without control and we continue to follow our national motto and deliberately blind ourselves to ‘all distinctions of race, creed or color,’ the type of native American of Colonial descent will become as extinct as the Athenian of the age of Pericles, and the Viking of the days of Rollo” (Serwer 2019). Such assertions remobilized arguments made since the mid-1800s on “the perils” of democratic government and leveraged the threat of racialized immigration in published accounts to do so.

Dr. Arthur Stout’s 1862 report to the California Board of Health, *Chinese Immigration and the Physiological Causes of the Decay of a Nation*, warned that racial degeneration among the Caucasian race would result from the “morbid philanthropy in liberal government and by the belief in the general equality of mankind” (1862, 7). This invective followed Arthur de Gobineau’s 1855 “Essay on the Inequality of Human Races,” which advocated for the segregation of superior White races from inferior Yellow and Black races and warned that nations’ incorporation of such lower races had led to the fall of past civilizations. He further decried the French Revolution and the rise of democratic governments for “reveal[ing] the failure of superior individuals to control the weak and the mediocre” (Kale 2010, 52). Stephen Jay Gould reminded readers that Gobineau, in his 1855 essay, also tellingly argued for the need to establish methods to “find a measure, preferably imbued with the prestige of mathematics, for average properties of groups,” rather than comparing individuals, to affirm racial hierarchy among populations. “The difficult and delicate task cannot be accomplished until the relative position of the mass of each race shall have been nicely, and, so to say, mathematically defined,” he argued (1981, 382).

The incrementing gains of such arguments in the late nineteenth and early twentieth centuries underscored how much could be realized by eugenic strategies that aimed to harden racialized data into concrete fact. Following gains in immigration restrictions, eugenicists in the United States turned their attention to sterilization laws. From 1907 to 1917,¹⁴ such efforts made rapid gains state by state, so that by 1917, some fifteen states had passed new laws to allow the sterilization of convicted criminals, the mentally disabled, and the mentally ill in state custody.¹⁵ California’s passage of such a law eventually allowed twenty thousand individuals to be sterilized between 1909 and 1979—a disproportionate number of whom were working-class, Latinx,

Indigenous, and Black women who were incarcerated or in state institutions for disabilities (Hawkins 2021; Lombardo 2010, 2011; Mizes-Tan 2021; Zhang 2017).

It was not until World War II and the unapologetic championing of the Nazi party by US eugenicists in the 1930s that eugenic policy gains in the United States officially began to be reversed. During the twelve-year period of Hitler's regime, for instance, US leadership at the ERO still "never wavered in . . . scientific solidarity with Nazi race hygiene . . . [or with the] view that the racially robust were entitled to rule the earth" (Black 2003, 1047).¹⁶ Historians have noted that, indeed, even after Hitler's rise to power in 1933, leadership at the ERO turned publications such as *Eugenical News* into channels of "pro-Nazi agitation" (Black 2003, 1105).¹⁷ Just months before the official start of World War II in 1939, ERO's Harry Laughlin published a report, *Immigration and Conquest*, that continued to predict and decry how America would soon suffer "conquest by settlement and reproduction" through an infestation of defective immigrants, who, like rats, would begin their infestation from Europe via the ability "to travel in sailing ship" (Black 2003, 1069). After years of open endorsement, recirculation, and amplification of Nazi disinformation, the ERO was forced to finally shut down by the Carnegie Institution and its head, Vannevar Bush, after the Nazi invasion of Poland in late 1939, and the official beginning of World War II, allowed news of atrocities to circulate to the shock of publics around the world. A few short years after, when Harry Laughlin passed away in 1943, ERO director Charles Davenport nonetheless defended him in *Eugenical News* as a visionary whose views were opposed by those of "a different social philosophy which is founded more on sentiment and less on a thorough analysis of the facts" (Black 2003, 1071).

Even while the ERO closed its doors, eugenic laws in the United States continued for decades, forcing tens of thousands more Americans to be sterilized, institutionalized, and legally prevented from marriage on the basis of race. During the twentieth century, eugenic visions that first targeted Chinese women as specific racial and sexual threats to secure futures saw to the forcible sterilization of more than seventy thousand people across thirty-two US states—more than half of whom were poor or ethnic minority women (Stern 2020)—with programs targeting Native American women even in the 1970s.¹⁸ One-third of the female population of Puerto Rico was sterilized due to the passage of eugenic policies—the highest rate of sterilization in the world (Andrews 2017). The lasting impact of eugenics in America

and ERO would be noted in at least one other concrete way. Years and even decades after the ERO's closing, individuals who had submitted family data to be assessed and included among the one million index cards, thirty-five thousand files, and half-ton of family genealogical volumes that had been amassed there for research continued to look to the ERO for revelations into their identities by sending requests for information and updates on pedigrees and proof of lineage. Historian Edwin Black noted the continuity of such correspondences demonstrates the enthusiasm for eugenics that was sustained and documented until at least the 1980s. By Black's account, such inquiries "probably never stopped" (Black 2003, 1079).

I draw attention to forgotten archives of an American eugenics age that span the indices of the ERO and the Downieville ledger to insist that they are ready reminders of how much eugenics' legacy has shaped our data past and to shed light on the close proximity of their resonances for our data present. That those proximities are not readily legible among the dominant narratives that shape our imaginaries of the contemporary is a telling indicator of how easy it has become to forget how deeply histories of assessing the Other have shaped data practices across the decades of our information age. This is especially relevant in a moment when fetishizations of AI as a newly evolved, superior form of racialized, rational intelligence (Baria and Cross 2021; Katz 2020) explicitly channel eugenic imaginaries. However, it is also an indicator of how much frameworks of progress and innovation have overdetermined the dominant narratives that are reproduced around our contemporary information age. It underscores how little frameworks of amnesia, silencing, or violence—that might as well have described the symptoms dominant in our data present and that post- and decolonial studies scholars have pointed to as a defining aspect of Western archival practice and history making, too—are permitted space in the conversation (Trouillot 1995).

More than one hundred years later, archives such as the Downieville ledger and the ERO records remind us how far back the cultural obsession for datafication as an instrument for segregation and dispossession goes. They also remind us of how broadly such logics could spread through eugenic imperatives that translate such practices well beyond the discrete research and technical professionals who have largely been the focus of contemporary critical data scholarship today. Downieville reminds us, moreover, how broadly such techniques could spread via the routines of everyday authorities. It reminds us of how everyday local institutions—not merely centers of high technology and knowledge production—came to serve too as core channels

for the extension of informatic instruments and archives for surveillance as supposedly necessary means to enhance security for more properly deserving classes. They remind us too how readily information ledgers could activate and concretize social stratifications between social classes and how vulnerable and marginalized populations would prove to be early inhabitants of new data futures. Much as today, marginalized classes then would likewise serve as the testing grounds for new mechanisms of racialized and gendered surveillance. Such pursuits often argued to uniquely define our big data present. But they have been obsessions sustained by nineteenth-century knowledge paradigms around eugenics that read the impossibility of shared, common welfare as defining constraints on future building.

These resonances, far from being incidental, tie together our data present and past. Both were initially promoted from the obsessions of elite knowledge classes and researchers aiming to perfect “broken” presents through methodological innovations that aimed to quantify and predict the empirical world. Both were driven by visions of a radically contingent future that no longer presumed the future as a temporal space, open to and inclusive of all and conditioned on the simple passage of time. The future instead required new, radical techniques for managing information and filtering populations to preserve the survival of civilization’s fit races. In the case of big data, these techniques allow a new temporal and technical order to be set by emerging classes who promise a more perfect prediction. In the nineteenth and twentieth centuries, such framings of contingent futures in the United States helped naturalize and amplify eugenic calls for surveilling, evaluating, and later segregating and excluding or otherwise excising populations. In the twenty-first century, similar projections of a contingent future have likewise fueled techno-eugenic calls for a radical transformation of knowledge institutions to prioritize research practices anchored around future prediction and to deprioritize outdated knowledge routines and disciplines, some of which have been projected as outdated precisely because of their focus on understanding the past. And in the past as in the present, eugenic paranoid ideas around contingent futures would be used to bolster authoritarian arguments to limit autonomous choice and suspend ideals around free personhood and self-determination on which liberal societies had been founded. Indeed, whether through generalizing automated decision-making in contemporary AI systems or imposing decisions on classes deemed too unfit to responsibly exercise individual rights and free choice, both called for redesigning societies around new hierarchical structures where only classes

able to demonstrate readiness to manage information as property should be granted full decision-making capacity.

How such logics continued to play out throughout the twentieth century, generations after eugenics had been presumed to recede, is the subject of the next two chapters.

*Streamlining's Laboratories*MONITORING CULTURE AND EUGENIC DESIGN
IN THE FUTURE CITY

WELL BEFORE SMART CITY TECHNOLOGIES BEGAN to be prototyped across global twenty-first-century cityscapes and urban laboratories, a sprawling “future city” emerged in the center of New York City, a luminous jewel of the 1939 World’s Fair. Commissioned by General Motors, the Futurama showcased a proximate utopia featuring an orderly, predictable flow of automated highways, driverless cars, and planned suburban societies. The thirty-five-thousand-square-foot installation brought to life the smooth, frictionless principles of the streamline design movement that made the new, aerodynamically remade forms of bullet trains and mass-produced vehicles iconic representations of the modernist era. Celebrated as the “smash hit” of the 1939 World’s Fair, the Futurama incorporated all the seductive conveniences of streamlining’s design principles of uninterrupted flow into a single, immersively engineered futurescape. Drawing in an unprecedented audience of some forty-four million visitors, the largest of any World’s Fair until then, it unveiled a model of trafficless, remotely managed, fourteen-lane highways that seamlessly connected the nation’s vast terrains. And as its architect, the famed streamline designer Norman Bel Geddes, put it in his book, *Magic Motorways* (1940), predictably, it “never deviat[ed] from a direct course.”

A 1939 *Life Magazine* article on the Futurama embellished on the order and promise achieved with streamlining’s efficiency-oriented designs. It highlighted the remote controls of an engineer monitoring the city from a distance, removing all the chaos and noise from users’ unpredictable decision-making. Across the fourteen-lane highways of future America, it marveled, “Cars change from lane to lane at specified intervals, on signal from spaced control towers which can stop and start all traffic by radio. Being out of its driver’s control, each car is safe against accident. . . . [While o]ff the highway,



FIGURE 2. Spectators given a god's eye view of the Futurama's streamlined world. (General Motors, New York World's Fair/Manuscript and Archives Division, the New York Public Library)

the driver dawdles again at his own speed and risk" (1939). This, the article affirmed, is what streamlining's "sober, courageous planning can do" with "inventors and engineers" who, audiences were assured, had "cracked almost every frontier of progress" (1939).

However, it was the eugenic ideals baked into the Futurama's model city that conditioned its sublime effect on visitors and the press. This was translated through a showcasing of social achievements that were projected to have emerged from perfected high technological design. It wasn't just how this city of the future functioned, in other words, it was also about the society for whom the city was designed. As the 1939 *Life Magazine* article opened, it reveled in the unabashedly fit, tanned, heteronormative, family-based ableist masculinity standardized at the center of the streamlined future projected through the Futurama. It stated, "America in 1960 . . . is really greener than it was in 1939 . . . full of tanned and vigorous people who in 20 years have learned how to have fun. They camp in the forests and hike with their handsome wives and children . . . its members alive and very fit. . . [And] when they drive off, they get to the great parklands on giant highways" (1939,



FIGURE 3. The Futurama's crossing fourteen-lane highways. From *LIFE* magazine, June 5, 1939. (Alfred Eisenstaedt/the LIFE Picture Collection/Shutterstock)

81). This was a future utopia, readers were told, where the fruits of intelligent planning, science, and technology had eradicated problems of excess, uncertainty, and wasteful heterogeneity—and where the dedicated work of streamlining standards, and ridding the world of disorderly, bad designs, ensured evolutionary progress in social and technological products alike.

Generations later, streamlining is remembered for popularizing and creating new market appetites for cleansed, decluttered forms and smooth, elongated surfaces in industrial products, represented by the now iconic aerodynamic profiles of 1930s bullet trains and airplanes (Bush 1974; Cogdell 2004; Kulik 2003). Far from innocent, however, the Futurama reminds us

too of how much streamlining's aesthetics and its use to mediate the spirit of unhindered progress relied on eugenic methods around a racially purified, planned society and its commitment to the necessary removal of dysgenic forces to advance a future utopia. The so-called elements of "parasite drag" (Bel Geddes 1934) that streamlining designers, including Bel Geddes and Raymond Loewy, both members of the 1939 World's Fair planning committee (Kargon et al. 2015), worked obsessively to diminish, were decried for not simply introducing unsightly, devolved elements into products and design. For streamliners, such elements worked as explicitly regressive forces that, even if imperceptible to untrained eyes, measurably impeded social and material operations, truncated market flow and economic profits, and obstructed the advancement of technological and biological machines.

Streamliners thus blended perfectly into the World's Fair international expositions that were architected to celebrate Western progress and technological advancements. London's 1851 Great Exposition was the first such event; its profitability and popularity helped spur an international movement in exposition making. This fed into the elaboration of extravagant visual architectures intended to celebrate the global market-based innovations of host nations and to affirm the interests of the political, financial, corporate, and intellectual elites behind their making. Under the pretense of creating a space for global comparison, world's fairs welcomed spectacles of racialized global difference. Colonial villages and living ethnological displays of native and other non-White peoples were infamously used to confidently channel an equation of White supremacy with Western technological progress and to contrast spectacles of primitive humanity with the "blueprints for future perfection" (Rydell 1984, 19) offered by elite Western designers. Channeling an unequivocal endorsement of Western nations' global dominance, world's fairs framed imperialist expansions into Asia, Africa, and Latin America as parts of a rightful world order that they assured audiences would remain unchallenged. Such assurances aimed to allay what historians have noted was a "widespread anxiety" (Rydell 1984, 19) among White consuming classes in the West over the rapid economic changes underway in the nineteenth century, spanning rising class struggles, colonial independence movements, economic depressions, and new patterns of global migration.

Eugenics' perfected future was thus contingent. Streamliners promoted the idea that it all relied on a continuous monitoring to contain contaminating elements and to segregate or excise unfit, dysgenic forces from well-bred populations. The Futurama's twenty-minute-long travel experience not only

simulated the ease of autonomously managed long-distance transport, but it assured passengers that the unpolluted world they passed through had been scrupulously crafted by dedicated, ever-attentive, and watchful professionals who ensured the security of well-born travelers. Replicating the observational powers granted from the elevated vantage of a suspended conveyor belt one-third of a mile long, the Futurama floated passengers, seated side by side, through a simulated aerial pathway as they looked over the meticulously sculpted “world of tomorrow.” Intentionally data-rich in its planning and design, with over 408 topographical photographs of different regions of the nation used in its development, the one-acre-size expanse of miniaturized urban and natural landscapes was filled with over five hundred thousand model buildings, fifty thousand cars, and one million trees as a means to deliver a veritable god’s eye view of the future to spectators (Morshed 2004). As visitors stepped off the Futurama, too, they were immediately provided a pin that read “I have seen the future” to certify the experience (Kargon et al. 2015).

It was no secret either that the exacting order and perfection achieved in the Futurama’s streamlined society had been fundamentally shaped through investments in eugenic methods and design. Historians noted that in the early twentieth century, the burgeoning field of industrial design leveraged a visible marketplace of goods to create the explicitly consumer-facing sites of international expos (Cogdell 2010; Rydell 2010). By the 1890s, such expos were called “world’s universities” and showcased the future benefits of eugenic thinking and planning to broad consumer audiences. Smart city prototypes and their universe of perfected streamlined products thus projected the possibilities of eugenic advancement through a visible world that aimed to convince publics of the real, tangible results that could materialize by removing regressive elements—defined by their “dysgenic, parasite drag”—from society and showcase industrialization as the apex of civilization (Bender 2009).

Streamlining in this sense might be described as a post-pluralistic aesthetic—self-consciously drawing attention to the perfection achieved only when overly populated, crowded, and noisy elements were identified and removed. Design historian Christina Cogdell wrote about how streamline design channeled the material embodiment of eugenic ideology in the early twentieth century by approaching products the same way that eugenicists approached human populations. Both, Cogdell wrote, “considered themselves to be agents of reform, tackling problems of mass (re)production, eliminating ‘defectiveness’ and ‘parasite drag’ that were thought to be slowing

evolutionary progress. Both were obsessed with increasing efficiency and hygiene and the realization of the ‘ideal type’ through such amputations and as the means to achieve an imminent ‘civilized’ utopia” (2010, 4). In addition, both worked assiduously to assure publics that they could rely on new knowledge professions, especially those related to industry and evolutionary biology, “two of the most powerful social and scientific systems of the late 19th Century,” Cogdell wrote, “who offered their professional skills as a means to gain control over rapid changes and anxieties over new disorders infiltrating modern life” (Cogdell 2010, 82).

In this chapter, I point to the 1939 Futurama exhibit and its celebrated success as a future model for smart cities and design in consumer society to directly address the history of eugenics and what a growing number of historians point to as its enduring persistence in Western societies (Black 2003; Cogdell 2010; Rydell 2010; Stern 2005; Wolff 2009). Conventional explanations espouse the disappearance and retreat of eugenics in the United States following World War II, marking its decline following a peak of political influence in the 1910s and 1920s. It was during this period when proponents in the United States successfully led the passage of the National Origins Act and the nation’s institutionalization of broadly applied immigration quotas, as well as laws legalizing forced sterilization of the unfit in over thirty states. However, I underscore that the broad popularity of the Futurama marked another important transition.

Rather than marking a dissolution of eugenics influence in the United States, the Futurama, I argue, evidenced continued public appetites for eugenics thinking. It marked an important turn for the movement when the capitalist marketplace, rather than the policies of modern states, came to be the key platform for scaling eugenic ideals to broad publics. If the world of law and policy had previously been regarded as the essential social vehicle to target for eugenic reforms around the measurement and removal of dysgenic classes, the 1930s marked the rise of a new strategy that centered the marketplace, with its vibrantly visible ecology of production sites and manufactured goods, as the key stage to utilize for reforms. Broadly engaging for consumers and producers alike, the economy could be an expedient alternative to politics for public outreach and education on eugenic ideals and how to monitor supposedly subordinate populations to reduce polluting forces.¹

This chapter thus builds on chapter 1’s exploration of eugenic researchers’ development of a nineteenth-century information market. While conventional histories of eugenics in the United States have focused on the

nationally scoped policy gains of its promoters and eugenics' contributions to data-centered research methods, largely overlooked has been how eugenicists came to identify the economy too as an opportunity for extending and popularizing its radically segregationist worldview to a growing class of information consumers. Eugenics' discovery of the economy as a relevant stage yielded early market-based experiments with the publishing industry and collaborations with filmmakers, cultural sectors, and educational institutions eager to distribute eugenics to an audience beyond the narrow research networks and knowledge professionals who made up its early base. And as this chapter explores, by the twentieth century, such a strategy expanded to include an emerging network of industrial designers, producers, and architects who recognized the visual politics of the capitalist marketplace as a uniquely rich space from which to extend eugenic ideals. Moreover, it could be space that offered the consumption of visual difference as evidence for and a predictor of the superiority of consuming classes themselves.

The Futurama's smart city thus made explicit how flexibly eugenicists could shift from the world of politics to a world of commerce as a new site and stage for reforms. More than just a strategy that provided eugenics with a new existential justification and target for salvation (one that their projection of overly permissive, degradation-accelerating democratic politics once supplied), the growing marketplace of capitalist goods could provide a scalable theater to extend eugenics' utopic prophecies in modes more visually seductive and persuasive than any state policy could provide. Through the marketplace, eugenics promoters could project a future of perfected goods, material bodies, and standardized production, efficiently and profitably reproduced and responsive to the needs and concerns of fit, well-born, and future-worthy populations. In such a world, metrics around the social and economic benefits of removing parasitic elements from products and the growing popularity and sale of streamlined goods provided empirical validation to eugenicists' obsessive (and often failed) methods. If their attempts to "dataify" human difference had failed to produce a science of racial degeneration and improvement, the economy could provide an alternative evidence-bearing mechanism to empirically validate eugenic ideals. That is, it provided ready methods that allowed the brutality of modern marketplaces' exclusions, exploits, and violences to be selectively represented and cleanly rationalized (or forgotten), where what mattered most was a luminous world of consumer products and rising sales. And importantly, it provided eugenics a place to hide in plain sight.

The politics of monitoring and streamlined design channeled through global smart cities today remind us of eugenics' enduring market-based shift. This chapter reviews this transition, looking first at eugenicists' growing recognition in the 1930s of the capitalist marketplace and production of consumer goods as a viable and even advantageous alternative to politics as the primary stage in which to project its salvatory reforms. Exploring the work of leading designers and the famed "godfather" of American industrial design, Raymond Loewy, I unpack how streamlining was used to draw young design professionals into the burgeoning practice during the interwar period. I close by reviewing the persistence of streamlining ideals in smart city ecologies, exploring how streamlined approaches to salvatory transformation translates into contemporary start-up enterprises in Latin America. There, datafication infrastructures promise to perfect flawed designs in gendered labor by compelling self-monitoring habits among young female tech workers, whose productive capacities could be streamlined for optimal profitability and correctively transformed into value-generating accessories for smart living.

MONITORING MARKETS, EUGENICIZING DESIGN

Generations following the *Futurama*'s debut, the ideal of the smart city still looms large as a model of perfected urban space. Like the mixed-sector collaborations between industry, state, design, and urban development actors that once coordinated world's fairs' global visibility, parallel partnerships over a century later now find new purpose in global smart city architectures. Anchored around the product innovations of corporate giants such as Cisco, IBM, Intel, Microsoft, Siemens, and Google Alphabet, the public-private investments behind smart cities today promote them as evolved global spaces where the complexities, uncertainties, and potential dangers of urban life are managed through ubiquitous forms of urban "sensing," expansive data collection, and predictive analysis. Channeling what technology studies scholars Orit Halpern and Robert Mitchell called the "smartness mandate" (2023), smart cities' temporal logics "colonize space through time" (14) and turn on the future-oriented, anticipatory practices of constant evaluation to secure economic evolution and ensure technical devolution remains foreclosed. Smartness thus organizes a form of technical rationality, "the primary goal of which is . . . perpetual evaluation

through a continuous mode of self-referential data collection; and for the construction of forms of financial instrumentation and accounting that no longer engage, or even need to engage, with what capital extracts from history, geology, or life” (24).

Yet, well before data-driven ecologies automated contemporary forms of ubiquitous digital surveillance in smart city architectures, parallel forms of offline population monitoring were being promoted in the name of eugenically designed societies. Streamline designers’ role in exciting public appetites around the Futurama and prototyping future cities nearly a century ago reminds us how the cultivation of hypervigilant monitoring techniques was not to merely cleanse the market of dysgenic design but to work for the emergence of a consumer capitalism optimized through eugenic principles. While the popularity of streamlining in the early twentieth century is credited today to the appeal of its symbolic value and aestheticization of speed and efficiency (Bush 1974), its leading designers actively promoted their uptake of eugenic-derived techniques of continuous assessment, economized production, and excision of parasitic drag as driving their practice (Cogdell 2010). It emerged, then, as the defining aesthetic of modernity in US industrial design circles in the years following World War I. As the United States entered into World War II, streamliners could frame their practice as a “salvatory” force for a market facing a new period of crisis—one where the untold demands of the wartime economy needed to be met with an evolved form of market capitalism.

This required first cultivating new techniques of observation to repeatedly examine and monitor for the expression of parasitic drag—often imperceptible in normal conditions—to diminish regressive forces. Futurama designer Norman Bel Geddes thus stressed streamlining’s “empirical method,” applied to meticulously examine and alter designs toward streamlined ideals. As he wrote describing the painstaking process of model testing while a wind was driven around them, “[C]ertain models register less resistance—or *parasite drag*—than others . . . [which are] altered and more data secured. Slowly, from a good many thousand such experiments . . . desirable forms [are] established” (1934). Pronouncing the iterative process should seed a “science of streamlining,” Bel Geddes predicted that monitoring to reduce parasitic anomalies could yield a revolution in knowledge making. As he stated, “Science has been awaiting the great physicist, who, like Galileo or Newton, should bring order out of chaos in aerodynamics, and reduce its many anomalies to harmonious law” (1934).

Historians today credit industrial design – and streamlining in particular – with innovations that revived consumer markets following the economic slump of 1927 and the Great Depression of 1929 (Kulik 2003). It was arguably less through a platform of science and more through leveraging the visual theater of a new consumer society, however, that streamliners succeeded in promoting hyper-monitoring to rid design of what they saw as its many anomalies and inefficiencies. Streamliners Bel Geddes and Raymond Loewy, in particular, rose to heightened levels of public fame following the end of World War I. Their introduction of new streamlined aesthetics helped boost sales and profits of mass-produced artifacts during the economic slump of the interwar period. Celebrated in the media for years after World War II, they would be lauded as turn-of-the-century futurists (Harry Ransom Center 2013), modernist heroes (Goldberger 2013), and revolution-making visionaries (Albrecht 2012). Loewy, whom *Time* magazine placed on its front cover in 1949, was crowned “the most important” industrial designer in twentieth-century America (Kulik 2003). Their insistence on approaching production as a system that could be obsessively assessed to identify unwanted, noisy elements was credited for saving a “sluggish” postwar market and “simplifying fabrication” processes with “sometimes spectacular” sales results (Bush 1974, 311).² Typically, however, there was little attempt to explain or even mention how deeply eugenics fundamentally shaped the methods and techniques of streamlining (Cogdell 2010; Morshed 2004).

Streamliners, though, were acutely aware of the power of publicity. Before they became known as industrial designers, Bel Geddes worked as a Hollywood and Broadway set designer, and Loewy worked as a fashion illustrator for *Vogue* and *Harper's Bazaar* and as a window designer for major US department stores, including Macy's and Saks Fifth Avenue. Both recognized opportunities to excite market appetites by cultivating public personas. Both drew amply from eugenics to dramatize the importance of their work and to promote the adoption of purifying practices among fellow designers, particularly when it came to what Loewy referred to as protecting “prosperous” consumers (Loewy 1942) from the contaminating excesses of the postwar market. In various magazine articles and interviews from the 1930s to 1950s, in publications such as *The Atlantic*, *Ladies Home Journal*, *Life*, and *Time*, as well as the 1939 World's Fair, broadcast platforms were used to showcase streamliners' public role as “[t]he Industrial Designer [who] dedicated himself to educating public taste . . . [for] an increasingly high standard of design and engineering perfection” (Loewy 1942, 95).

Within their profession, too, streamliners promoted a duty to vigilantly monitor against an overpopulated, polluted marketplace—one where the exercise of an examiner’s eye determined the necessary application of what Loewy called “design abortions” (1942, 98). Loewy stressed the dire absence of such monitoring work evident during the origin years of the profession. Addressing the British Royal Society of the Arts in 1942, describing the period following WWI, when industrial design emerged, he stated, “[P]eak production for war turned overnight into peak production for peace . . . and the demand was immediate for every sort of manufactured item, no matter what its form” (1942, 93). He was more strident about what he saw as a world of putrid excess in the United States after decades of uncontrolled growth. He spoke retrospectively about his career as an honoree in 1981 before the British Society of Royal Designers for Industry, stating, “[Following WWI], the entire American scene was in need of . . . a design transfusion. Products were gross, clumsy, noisy, vibrating, smelly and quite ugly” (1981, 203). Further leveraging eugenic metaphors as he referred to the heroic work – and “industrial blood transfusion” (1981, 203) – that industrial design provided to US consumer markets in the Great Depression’s late 1920s, Loewy credited himself with “convinc[ing] Washington of the role industry should assume” in leading national policy. Successful products and their consumption, Loewy insisted after all, was the central driver of the nation’s future that grew everything from employment bases to more demand for raw materials, shipping, insurance, and advertising.

Streamliners like Loewy thus openly dramatized their work as a salvation for national markets and the future of civilized culture (Loewy 1942, 93). They projected the rise of industrial design as responding to the existential threat posed by the uncontrolled growth of devolved products that were allowed to flood markets irresponsibly. More than merely innovative, Loewy saw industrial design as a corrective to the “painful monstrosities” (Loewy 1942, 93) that threatened to taint future generations, and emphasized how streamlining worked to “cleanse” manufacturing and “abort” (1942, 98) polluting designs. As he professed to his Royal Academy audience in 1941, streamlining would at last rescue the “civilized taste of the increasingly prosperous customer” (1942, 93) from the “unbelievable ugliness” and “the most flagrant bad taste” in the majority of manufactured items.” (1942, 93).

Just a few years later, Loewy’s advocacy for removing design monstrosities via streamlining earned him the October 1949 cover of *Time*. Featuring

an image of Loewy's face knowingly staring back at readers, framed by his famed streamlined product designs, the cover included a caption that cemented Loewy's reputation as not just a streamlining evangelist, but a savior of capitalist profit making. It read simply, "Designer Raymond Loewy: He streamlines the sales curve."

STREAMLINING CAPITALISM, REMAKING THE SELF FOR CRISIS TIME

Just two decades earlier, parallel arguments made by eugenic researchers and political leaders on the need to truncate uncontrolled population growth among the unfit – including people living in poverty, people with disabilities, and minority and immigrant classes – led to the passage of the landmark US Immigration Act of 1924. Projecting a future of blood-based, genetic contamination and racial suicide that permissive border policies would inflict upon well-born, White elites, eugenicists successfully legalized the heightened monitoring, surveillance, and datafication of minoritized classes as a means to control, contain, and predict devolutionary impacts. The racialized immigration quotas, monitoring instruments, and restrictions eugenic researchers put in place (and that remain the model for nationally based immigration quotas maintained to this day) were designed to exclude unwanted classes from non-Anglo and non-Scandinavian countries of origin. They also expanded the national bans established by the Chinese exclusion acts (that began in the 1860s) and the 1917 immigration law of earlier decades. Such eugenic policies' impacts were compounded by state-based sterilization laws (over thirty-two states by 1937) (Stern 2020) targeting the unfit and heightened restrictions on movement, marriage, and coupling of unwanted populations already within the nation.

Projecting the social abominations and degenerated national future at stake that had been allowed to advance from overly permissive political ideals around equality, freedom, and autonomy, eugenicists targeted democratic policies and norms as their initial site of reform. Well before eugenicists' discovery of design worlds and the market economy, eugenicists focused on the world of politics. At least until the end of the 1930s, politics were the key public stage for expediting their reforms and for successfully advancing a eugenic society.

The official start of World War II, however, changed public receptivity and prompted the need for a new strategy. While leading US eugenics policy and research institutes, such as the Eugenics Research Organization (ERO) in New York, continued to promote the adoption of sterilization laws, the 1930s saw the final state among thirty-two (Georgia) become the last to legalize eugenic sterilization. The period just before the official start of the war saw the ERO turn the final streams of its once ample funding toward the publication of “pro-Nazi agitation”³ and resources (Black 2003, 1105). Many local organizations were finally forced to close their doors, too, as financial and political backers were no longer willing to finance eugenics (Allen 2011; Bird and Allen 1981) after the Nazi escalations and invasion of Poland in late 1939 allowed news of atrocities in Europe to circulate broadly.

By the beginning of the 1940s, as global war spread across Europe, US streamliners found a new public platform for eugenics’ evangelism in the world of commerce and marketplace of designed goods. In speaking as a US-based streamliner before the British Royal Academy audience toward the end of 1941, Loewy projected the war’s economic and political instabilities as disruptive but ultimately evolving forces for streamliners that would rightfully press producers toward necessary “design abortions” for excessive, deficient, or defective product plans that an earlier period had irresponsibly allowed. Instead, as he put it, “The number of models in any given line of products [could be reduced]” to a “single, perfect unit. . . . Many design abortions will be automatically disposed of in this action” (1942, 98).

Beyond perfecting product output, such crisis events from Loewy’s vantage also prompted designers’ internal evolution of mind and cultivated skills by pressing “the designer [to become] an economist” (1942, 97) and a flexible forecaster in planning for all the potential stages and timelines for production. Urging them to reorient their temporal registers and cognitive capacities toward an acutely heightened, future-tensed work of anticipation and prediction, he stated, “Emergency has upset . . . the tempo [of] normal activity. . . . There is no constant flow of business. . . . [T]he designer must condense into three weeks what work would ordinarily have been distributed over three months” (1942, 97).

Advocating readiness for a “state of unlimited emergency” (Loewy 1942, 98)—or what feminist Maria Puig de la Bellacasa called the “permanent precariousness” that conditions “innovation time’s” restless, insatiable value-seeking activity (2015)—Loewy assured his audience that “ultimately, design will benefit from the present emergency,” as designers would be

pressed to streamline and “conserv[e] materials” (1942, 98). They would be compelled to cultivate a new internal discipline and temporal disposition necessary to “produce the most beautiful accessories to living ever available to any civilization” (1942, 98). Such intensified internal tempos, by Loewy’s projection, would enable the designer to “operat[e] with a split personality, in a dual role. He is coordinating the various fields . . . working quickly, efficiently, to produce in a state of unlimited emergency, while at the same time he is preparing a ten-year schedule for good design when all materials are plentiful” (1942, 98). It was not merely that designers’ temporal registers and attentive capacities should be remade to optimize for constant productivity, but that to achieve such an ideal the designer now needed to perfect an acutely heightened practice of monitoring directed both inward to the self and outward to external factors.

Beyond ridding a visual marketplace of the degrading influence of bad products, streamliners came to see their designs as complementary to the demands of a newly competitive economy that the crisis period of world wars and their aftermath brought. Such conditions demanded greater innovative capacity and predictive anticipation as designers worked in a shifting marketplace, where the flow of supplies to manufacturing and the needs of consumers were rife with contingencies. If a eugenic-derived design could help create a more efficient and innovative capitalist market, streamliners’ capitalism could also help forge a more resilient form of industrial design and predictive designer. And it would be those evolved professionals who could later help ensure that eugenic influences sustained a currency in modern markets well after eugenicists’ early twentieth-century policy gains in the United States began to wane.

SELF-MONITORING IN THE LATIN AMERICAN SMART CITY

Generations later, streamliners’ mission to prevent market abominations and promote new temporal dispositions among working professions channels through global smart city design. In such experimental sites, expansive sensing networks now routinize surveillance and ubiquitous forms of examination to be undertaken throughout systems. What once appeared as streamliners’ obsessive call for continuous monitoring to remove parasitic elements is now automated through distributed sensors, remotely run cameras, and

grids of closed-circuit televisions. Showcasing the promise of expanded urban monitoring applied to minimize uncertainty and disorder, smart cities allow diverse urban sites to be legible as enhanced digital infrastructures (Kurgan and Brawley 2019), distinguished for a “logistical superiority” that streamlines urban life and outperforms other, allegedly regressed spaces (Halegoua 2020, 10).

“Smartness” as an extension of streamlining indeed manifests in the vast product network of sensors and monitoring hardware operating to evolve the performance of urban systems. However, smartness itself as a governing disposition—or what Halpern and Mitchell called a form of technical rationality (2023)—also permeates life and work across living complexes. Like streamlined designs, smart architectures promote the virtue and profitability of perpetual evaluation, sustained through both automated technical networks and the everyday participation of actors conditioned to accept and even valorize an ecology of constant surveillance and datafication of human-system interaction. Smartness as an attribute thus turns on the intersecting operations of digital monitoring, sustained human-system engagement, and occupants’ willingness to live and work under constant data collection and assessment.

Part of this entails a redefinition of practices of the self through smartness, where new tolerances for perpetual monitoring are cultivated to manage growing uncertainty and disorder across both urban space and within the self. Personal conduct as a target of streamlining promises to better evidence, know, and predict the value—or expense—generated by an individual through enhanced forms of datafication. This final section thus explores how such techniques of self-monitoring are cultivated through the streamlined self as they extend within a contemporary smart enterprise in one recent fieldwork site for me—the data-driven start-up and code academy in Lima, Peru, called *Laboratoria*. Particularly within global tech and development sectors, *Laboratoria* has been celebrated for accelerating education models and rapidly retraining women in Latin American cities to be employment-ready coders in just six months. Doing this, however, has entailed developing monitoring systems—and cultivating self-monitoring habits—for the working class students to evidence and predict their future worth as women and gendered minorities in tech.

Indeed, well beyond Peru, code academies such as *Laboratoria* rapidly grew for disrupting conventional educational markets to respond to the reported global crisis of a shortage of coders. Central to this was demonstrating

the profit-making viability of ventures that could teach programming in a fraction of the time universities or technical institutes required. Education remade under smartness regimes extends rationales for continuous evaluation by promoting self-monitoring and modulation as necessary operations to measure transformation and to navigate and endure the pervasive uncertainty, competition, and crisis conditions of innovation ecologies (Chun 2011). Halpern and Mitchell thus underscored how smartness logics apply as much to the governing of urban space as to individual self-governing. As they put it, “[If] smartness is predicated on an imaginary of crisis that is to be managed through a massive increase in sensing devices, [its spread enables] self-organization and constant self-modulating and self-updating . . . [so systems] can . . . adapt by analyzing data about themselves” (2023).

Speaking to me in 2017, just three years after launching Laboratoria, its founders described the origins of their social enterprise as an experiment to accelerate the training of coders to fulfill high, unmet demands in the market. They added that the unique business advantage they developed was to not only outpace conventional education systems, but to direct the potentials of technological empowerment to the social transformation of women. Through this, Mariana Costa Checa, Laboratoria’s founder, stressed an ambitious vision: to become the main global source of female tech talent from Latin America. Distinct from many parallel ventures, Laboratoria touts its ability to empirically identify, filter, and track among thousands of applicants—over two thousand for placement in its Lima-based classroom in 2017—talent that really *can* be transformed into employment-ready coders. As Costa Checa underscored, “We realized we had to have a selection process that was more robust, training that was much more complete, and a clearer strategy to place them in the market” (personal interview, June 25, 2017).

In working toward this, Laboratoria credits what it refers to as the startup’s “rigorous data driven Selection Program” that collects over six hundred data points from applicants to help them identify “real potential for technology.” An extensive series of online and on-site exams, preadmission tests, psycho-social evaluations (for measuring traits, from perseverance to persistence), logic and comprehension tests (with exams on reading comprehension with technical themes), an additional prework assignment, and, finally, a rigorous “simulation week” are designed to ultimately reject over 95 percent of applicants and to select only those (just seventy admits in Lima in 2017) with “real potential.” As Chief Operating Officer Ana Maria Martinez elaborated, “We are superobsessed with data . . . with predicting who has potential to

learn programming. . . . So we are constantly measuring [the students]—not only when they are admitted, but at graduation, and after they work” (personal interview, June 9, 2017). Laboratoria credits this approach to obsessive tracking to creating a placement rate where some 75 percent of graduates are placed in coding jobs that average a threefold increase in income after completing the boot camp. They note that such measures provide evidence that they provide real “Skills—Not Just Diplomas.”

Indeed, at the graduation ceremony in Lima for Laboratoria’s summer 2017 cohort, the motto of the company on the power of code to transform was palpably channeled throughout. The event, hosted in a packed auditorium in the manicured, tourist district of Miraflores, opened with the familiar, triumphant soundtrack from *Star Wars*, with text scrolling over the screen of how “in a galaxy far, far away” the students of Laboratoria were called upon. It was followed by a virtualized three-minute data visualization video animating a morphing network graph. It was created using the data drawn from students’ monitored activity in the class’s shared Git Hub repository, which included an active code-based archive of all the students’ lesson work and coded commits over the course of the boot camp. The morphing graph’s aestheticized mutations and steady, mesmerizing whirls provided a smooth veneer to a streamlined version of students’ experience over the previous six months. Whatever hardships, discomfort, and struggles there were could now be reduced into a glossed-over version of luminously represented code commits, an idealized distillation of evolved human productivity at the technological interface.

As the primary means for the audience, made up largely of students’ families hailing from distant cities, to view a narrative of the past six months of a loved ones’ life in aggregate with Laboratoria, it spoke in the language of smartness with its reliance on data monitoring and managed data pools to project its tracking of an optimization of life, performance, and productivity. In the final seconds, the animation suddenly burst into an explosion of rapid whirls that represented the intensity of two Hackathon events organized by Laboratoria with regional corporate representatives to oversee and prototype work with students in a thirty-six-hour period confined to Laboratoria’s office site. The back-to-back, all-nighter events for students were in the company of and under the constant observation of corporate reps and sponsors, who remained visibly on site during the intensified competition to emphasize to participants the potential for earning employment following the events. Those events memorably came to life for students in the flurry of data streams stretching out before them.

Alongside larger industry actors, data-driven start-ups such as Laboratoria have worked to prototype the presumed proximate future of industry-oriented tempos and hyperevaluative environments with the added tools of data analytics that can work to optimize results in the artificially intensified and temporally compressed space of the start-up boot camp. While Laboratoria's work turns on reputed capacities for managing thousands of user profiles to weed out most applicants per cohort and mine information pools for key signals that best identify viable talent, it has also touted itself for being a start-up that works to know applicants differently from other tech companies or traditional education institutions.

Since its founding in Peru nearly a decade ago, all students have hailed from economically challenged sectors. In Lima, the first city where the company set up offices, students are typically first-generation degree earners, hailing from peripheral districts and new urban settlement zones where families migrating from the Andes and dispersed Indigenous communities that adopt Spanish as a second language often begin to settle. For such learners, two-hour-long commutes to Laboratoria's class site (in a single direction), in paths that weave across Lima's varied traffic and vast zones of cultural and economic divide, are routine.

"All of it is truly horrible," one twenty-five-year-old Laboratoria graduate flatly stated, recalling what her daily commute of nearly four hours entailed. Such complexities are only one among many layered risks students manage on a daily basis in order to invest in and train for their futures. While often taken for granted, navigating the city for marginalized working populations requires developing a savviness in managing space and time for both speed and safety. As one part-time instructor described it: "[Otherwise] Lima devours you, just being in traffic and the general conditions of work." For students living outside Lima, too, it's not unusual for their own temporal investments to begin well before formal admission into Laboratoria's program. One alum recalled how she bought her first bus ticket—one for travel to Lima from Trujillo, a city some ten hours away—after deciding to apply to Laboratoria. "I had never stepped a foot in Lima before. . . . I arrived alone without any family here, and went straight on to take the exam," she explained, adding that she would repeat the same trip alone three more times before being accepted into the program.

The work of predicting worthy and unworthy potentials for future company success, however, has made Laboratoria a darling in the world of social

enterprise. Since its founding, Laboratoria has won multiple international awards, including the 2014 Kunan Prize for Social Entrepreneurship, the 2016 Google Rise Award, and multimillion-dollar backing from Google, Telefónica, and the Inter-American Development Bank. They also gained prominent global visibility as one of only three awardees distinguished at the 2016 Global Entrepreneurship Summit hosted by the White House and moderated that year by Facebook's Mark Zuckerberg with then US president Barack Obama (King 2016). And by 2022, it had won added multimillion-dollar awards from Mackenzie Scott, Blackrock, and the Peery Foundation.

All this has further accelerated the tempo for expanding Laboratoria's start-up sites and graduation rate. Having begun in Lima with a first cohort of just fourteen students in 2014 as a project among four friends—half of them graduates from the same elite masters program in international affairs at a US ivy league university—the company opened sites in Mexico City; Santiago, Chile; and Arequipa, Peru, shortly after its launch, graduating some four hundred students just three years later. That year, the enterprise proudly announced aims to exponentially expand operations to see to an incredible ten thousand graduates per year across the network within the next four years, adding that it would soon open two new sites in San Paolo, Brazil, and Guadalajara, Mexico, with added sites being scoped in Colombia and Ecuador. That same summer of 2017, in Laboratoria's Lima-based classroom, a converted floor of a high-rise office building in Miraflores, I listened as Herman Marin, one of the charismatic cofounders of Laboratoria, spoke to a cohort of fifty students without any hint of concern of the changes already taking place due to the new demands of rapid scaling and growth in the company. Even if he no longer knew any of the students by name, he channeled his own early experiences in tech, sermonizing to the class the imminent conversions that would soon open up to them: "There are thousands of things that are going to happen . . . from meeting supercool people . . . to being able to travel. . . . And being able to have control . . . to define your future."

That kind of message blends a tech-imbued salvatory conviction with a pitched, almost missionary-like faith in what the power of opting into technological training and increased market opportunity can rapidly effect. But the emphasis on individual "transformation" also seeps into Laboratoria's aim to provide more than just tech skills—and to stress the value of "personal conduct" and "soft skills" in tech sector and office environments. Among the classes students take throughout the program are ones not just focused

on web development, user-experience design, and coding skills, but also on developing skills in personal conduct, streamlining personal aesthetics (with clean, uncomplicated, and pulled back hairstyles stressed), and managing personal desk space as visual markers that make themselves available for routine evaluation in office cultures. These practices, too, are opportunities to evidence individual value and worthiness to company authorities.

Coaching on the importance of self-conduct and preparing students for the kind of mindset monitoring he anticipates, Marin told the class, “Today, all jobs of the future are very focused on trying . . . not just to connect with people who can do the technical work . . . but also focused on understanding how to achieve the right *cultural fit* . . . how to find *people* who can really ground themselves in the organizational structure of a company that has a distinct mindset . . . and how to develop within new employees the kind of perspective that [those companies have] created.”

Marin, however, also underscored the importance of individuals making the right choices for themselves in managing space and time in the context of data-driven monitoring and assessment techniques. Data-driven conduct channels new possibilities of self-monitoring—of a micro-attention to constant feedback loops of information and an experience of self as now embedded within fluid interactive, information-generating spaces. As Marin said, “It’s a fact . . . that a person takes about twenty-six minutes to recover when there is an interruption in work. That is a huge problem because . . . if you’re interrupted three or four times . . . we are talking about an hour or two hours of work lost . . . productivity that you fail to develop. And employers lose an opportunity to continue creating value . . . and obviously, there are ways to limit that.”

His comments orient the class to consider how one’s consciousness of time can get parsed to the tempo of microdecisions, local data points, and moments of potentially impactful action, so that even a minute won’t be at risk of being used badly. As Marin advised, self-organization should start “before starting your workday . . . or maybe even the night before, when you have the opportunity to quickly check emails . . . or to try to coordinate in advance with the people you want to try to connect with the next day . . . [since] there are already people and things that are happening without you . . . and [you don’t want them to have to] depend on your being there.”

But it was his next tip on the utility of commute time that I found most unexpected. Channeling smart city ideals of streamlined urban transportation, he advised students, “Another important strategy is to use commute

time . . . and go from home to work in a more productive way . . . [and] there are a lot of things that can be done . . . like trying to use that space [for] meetings . . . [since] today a lot of jobs work remotely . . . [so] you can have meetings on the phone. . . . For many of us, commute times are long, right? More than an hour . . . [so] that time can be used to accomplish things at work, and not wait until you get there . . . it's [just] a matter of organizing.”

For all Laboratoria's celebrated data management and for all of Marin's own micro-attention to time and space, down to the optimal use of each minute, Marin seemed to have entirely lost sight of the limits of a smart city's infrastructural projections that, far from having attained general ubiquity, are inoperable outside the designated confines of strictly zoned, future-ready urban living. He missed, then, what even the most novice of first-time visitors to Lima might notice. He missed that the informal system of micro- and public buses that the city is infamous for, and which are the most common forms of transportation used by the vast majority of Limenans, would be almost inconceivable for the kind of workplace activity he prescribed. When Laboratoria's students reference their typical commute of two hours from the city's peripheral zones to Laboratoria's offices in the manicured business district of Miraflores, they describe two hours of standing with one hand gripping a handrail for balance and the other gripping a bag of possessions. Most commutes require an exchange between multiple bus routes, so there's never an uninterrupted stretch of time. Even if a free seat was available, a background of rush-hour traffic, horns, motors, and the calls of combi drivers would drown out most conversation.

As importantly, he missed crediting students for how much self-organization and time management are already exercised in their day-to-day navigation of the city, both well before and after being accepted into Laboratoria's boot camp. Marin's own commute to work consists of a fifteen-minute walk through Miraflores's picturesque neighborhoods to Laboratoria's office. I can't help but wonder, for as much personal coaching and data collection on students as Laboratoria dedicates to know its coders better, if the blindness to even the basic complexities of life for Laboratoria's students isn't something that is itself predesigned. Could it be that the company's message on the potentials of identifying viable, investment-worthy talent—enabled by access to personal data and monitoring of choices around technology—can only be sustained so long as dispositions are streamlined exclusively toward market demands; so long as it can keep attentions focused on the promise of monitored conduct, optimized value generation, and production, and away from

the real and varied local complexities that shape the actual lives and daily work experiences of students, that can now be treated as excess noise. And so long as the principles of streamlining, turned onto the lives of Laboratoria's students as products of smart ecologies' futurized labs, can continue to be credited with perfecting designs and purifying human production for the elite White, governing classes it always projected as its ideal consumer.

CONCLUSION

This chapter opened by exploring eugenics' influence on the work of founding figures in industrial and smart city design, reviewing how principles of hyper-monitored design and production were used to identify market optimizing and value "dragging" elements in products during the interwar period. Over half a century later, the persistence of streamlining ideals in smart city ecologies continue to channel through messages of the salvatory, transformative potentials of technological markets and the hypermonitoring practiced under contemporary start-up enterprises in Latin America. There, datafication infrastructures promise to perfect "flawed designs" in labor by compelling self-monitoring habits among young tech workers, whose productive capacities can be newly streamlined for optimal profitability and correctively transformed into value-generating accessories for "smart living."

This chapter underscored how powerfully an unsullied narrative of "transformation through code" and data-driven evaluation can operate and how much such mantras can be used to speak in the interest of the futures of individual workers and knowledge institutions. As a parallel symptom of the affective bonds between global Western liberal and financial logics, popular "invest in a girl" (or, really "invest in a global girl") campaigns and their related epistemic infrastructures that feminist technology studies scholar Michelle Murphy described are resonant here, too. Such campaigns, their dependence on data and anticipation, and their melding of Western liberal NGO and global corporate excitements—whether from Nike, Intel, or Goldman Sachs—could grow and gather enthusiasm, Murphy noted, precisely because the numbers and data did designate "the girl" as a good investment (2017, 121). Investing-in-a-girl campaigns, Murphy wrote, "exemplif[y] the way finance capitalism creates value out of life, rendering life as something that either accrues or diminishes in value . . . like other growth/risk opportunities for capital" (131). However, she asked, "What if the math

had not added up, and in fact another object or life form was calculated as the best investment? . . . The popularity of the girl raises the questions, What work does this phantasmagram do for capitalism? What is the girl an alibi for?" (121).

Particularly considering eugenicists' interest in remaking markets and economic production in the image of streamlining, the question is apt. For at least as much as the work done to make the heroic potentials of dysgenic monitoring and data capture around unwanted parasitic elements on markets known has been the work done to discount and diminish other forms and terms of knowing, to deliberately create "un-knowns" and omit awareness of key aspects of human experience that inevitably exceed the narrow terms of industry-optimizing valuation and market-driven demands. And in so doing, this work allows "the (global) girl" to stand in not for the radically excluding, dispossessive contradictions of a streamlined, data-driven capitalism's contemporary regime, but to be reframed as a "recoverable" version of what less deserving, unworthy counterparts could never be before the evaluative assessments of Western techno-elite monitors. What, indeed, is "the Global Girl" an alibi for?

THREE

Of Merit, Metrics, and Myth

COGNITIVE ELITES AND TECHNO-EUGENICS IN THE KNOWLEDGE ECONOMY

VETERAN MEDIA JUSTICE ORGANIZER and US digital rights advocate Danielle Chynoweth was candid about her deepest criticism of the technology sectors' growing impact on social services and the hype around venture philanthropy (Brainerd 1999; Moody 2007; Onishi 2015) that began in the early years of the new millennium. She recalled her work with the Google Foundation and the Bill and Melinda Gates's Foundation in the 2010s, the latter now estimated to be the second-largest charitable foundation in the world with over \$69 billion in assets. Such outsized investments, however, haven't always translated into improved social services. As she said, "[With] the big Silicon Valley funders . . . there was always another agenda in their funding, which was technological experimentation and gathering information . . . transmission . . . [and in the end] expanding technologies' role and power in social spheres."

It is a criticism that only intensified across the better part of the past three decades, as economists, social scientists, and business leaders pronounced tech industry actors as the leading edge of a new economy centered around knowledge-intensive activities, an increasing reliance on intellectual labor and large-scale information processing (Powell and Snellman 2004). Chynoweth's own work in the same period remained dedicated to developing nonprofit participatory media initiatives that put communication technologies into the hands of underserved, local communities. Her campaigns worked to democratize media ownership and argued for universal media and technology access as a fundamental human right, rather than a commodity supplied through market-driven consumer services. Such a reframing would include Central Illinois's homeless and housing-precarious

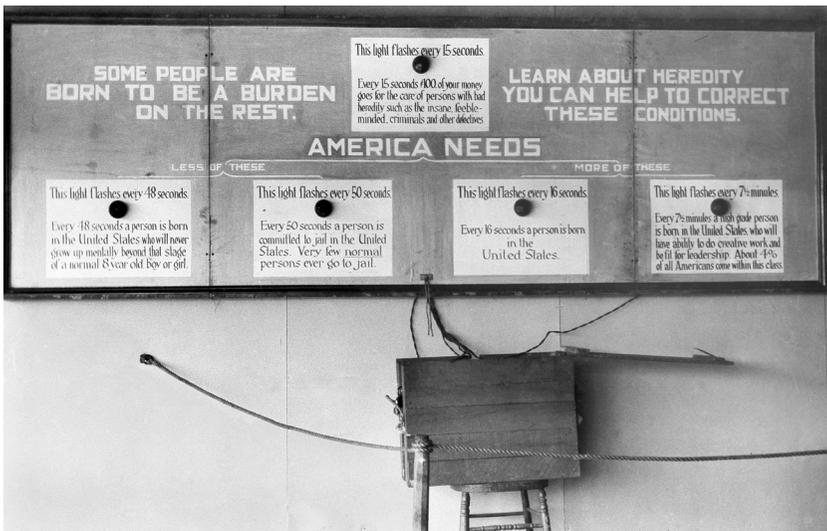


FIGURE 4. An interactive eugenics exhibit by the American Eugenics Society that circulated at US public fairs in the mid-1920s. Large text frames the display, reading “Some people are born to be a burden on the rest.” Beside it, a light flashing every fifteen seconds is captioned with the text “Every 15 seconds \$100 of your money goes for the care of persons with bad heredity such as the insane, feeble-minded, criminals and other defectives.” (Science Photo Library/Alamy Stock Photo)

populations, which she now serves as the head of the Cunningham Township Supervisor’s Office in Urbana, Illinois.

And despite being well outside the mainstream in imagining technology’s future, Chynoweth has built a remarkable record of successes in establishing new policies and infrastructures for grassroots media. Working with Prometheus Radio Project, she coordinated the national campaign that won passage of the Local Community Radio Act of 2010, implemented under the Obama administration, which authorized government licensing of local low-power broadcasting in urban spaces. Later, as organizing director at Media Justice from 2014 to 2016, she coordinated a national network of racial justice leaders to win policy campaigns for net neutrality, prison phone justice, and broadband expansion for low-income families. Following the 1999 World Trade Organization citizen protests in Seattle, she became a leading voice in the independent media movement, spearheading the founding of Urbana-Champaign’s Independent Media Center (UC-IMC) in 2000, still globally renowned for being one of the largest (at thirty thousand square feet) and longest-running independent community media and arts

centers. Today, a quarter century after the historic protests in Seattle, she still serves as a leader of a very active UC-IMC, where a community radio station, media training facility, performance venue, public access computer center, books to prisoners project, and art gallery and studios count among its routine operations.¹

Across that time, she noted how she increasingly found herself in encounters with tech-sector philanthropists. She had to grow accustomed to the market-based logics driven by industry appetites for the “next big thing” that they brought with them. Despite the deep divides separating their worlds, Chynoweth plainly stated that today, “There is a lot of technology in philanthropy.” By 2021, the top ten philanthropic donors were made up disproportionately of technology entrepreneurs, not only the Bill and Melinda Gates and Google Foundations but other familiar headline makers, including Elon Musk (\$5.7B in funding in 2021), Michael Bloomberg (\$1.6B), Mark Zuckerberg and Priscilla Chan (\$1.1B), Sergey Brin and Nicole Shanahan (\$816M), Jack Dorsey (\$765M), and Jeff Bezos (\$511M) (Di Mento and Gose 2022). Chynoweth’s observations about the outsized influence such capital-heavy investments would have on philanthropy echo what other researchers have observed about venture philanthropists’ self-described push to evolve social services for the twenty-first century through *metric-driven*, data-focused assessments that promised a return on investment in a way traditional philanthropy had never done (Moody 2007).

Despite such conceits, Chynoweth’s greatest frustration remains the persistence of a classificatory logic that she recognized as dominant in such organizations’ approach to giving and charity: that of the undeserving poor. She cited the long history of classifying the undeserving poor, what historian Michael Katz noted has existed as a defining feature of Western political and social discourse that rose to national prominence in the United States during eugenics’ public surge in the early twentieth century (2013). She underscored the particular perniciousness of its use and vitalization in the contemporary knowledge economy, where intensifying techniques of metrification, assessment, and impact evaluation around even poverty management are used to increasingly filter deserving beneficiaries out from the rest. And she echoed its parallel with what Caribbean science studies scholar Sylvia Wynter called the category of “human otherness” peopled by the “jobless, the homeless, the poor, the systemically made jobless and criminalized—of the underdeveloped—all as the category of the economically damnés” (2003, 321).

For Chynoweth, the currency of the “undeserving poor” as a category is what has allowed a “bureaucratization of violence” to emerge against people living in poverty today. Sorting lives into categories of deserving and undeserving poor, it works by applying data protocols and eligibility assessments that project life chances and rationalize economic investments and resource provisions (or denials) for populations that funders rarely see. She did not mince words in describing the visceral brutality of impacts she has witnessed: “A maze of highly rationalized, highly technical processes stands between citizens and residents and the resources they need to avoid tragedy. And whether literally or metaphorically, people can’t get access to housing, their fingers freeze, and they get gangrene and then their fingers are cut off.” She adds, “This wasn’t the result of some dramatic autocratic gesture. We didn’t need to take homeless people and chop off their fingers in the public square, but their fingers are gone all the same. This is just the banal, everyday outcome of the bureaucratization of violence.”

After more than three years working with Chynoweth in research partnerships oriented toward designing technology programs to support the needs of low-income and underserved populations, I am used to her direct and incisive observations (see more in chapter 6 on these collaborations). Her read on the violence of “dataifying” the undeserving poor directly implicates contemporary knowledge economies and the use of the “undeserving” classification to provide a technical, rationalizing veneer to the deadly, necropolitical stakes at its heart (Mbembe 2003). The designation “undeserving,” that is, evidences how powerfully new techno-eugenic logics around metricizing worthy and unworthy life and rationalizing the differential values of human worth now operate to calculate the danger – and cost – unfit populations pose through an inability to integrate into dominant technical regimes. As Chynoweth has written with Elizabeth Adams, “This categorization of the ‘undeserving poor,’ is driven by logics of superiority such as racism, sexism and ableism that justify care for some and deprivation for others within an avowedly democratic system that would otherwise find such inequities abhorrent. This sorting is supersized by technology . . . [that for some populations have] life or death consequences” (forthcoming). Feminist historian Michelle Murphy likewise described parallel logics as sustained by twentieth-century social sciences’ “economization of life” (2017), a mode of valuation rooted in eugenic concerns around population that relied on “the project of racializing life—that is, dividing life into categories of more and less worthy of living, reproducing, and being human” (2017, 5). Through

such classifications, life could be newly understood as a utility for enhancing national economies. As such, value in human lives could be reformulated as “lives worth living, lives worth not dying, lives worthy of investment, and lives not worth being born” across varied policies and economic indices that advance “new kinds of racialization even as they reject biological race as such” (7).

Historians of science thus explored how the economy-focused object of population served eugenic researchers such as Raymond Pearl, a devoted student of the famed English eugenicist Karl Pearson. Through the economy, Pearl found a cunning means to recode biological models of racial hierarchy without making any direct reference to race (Murphy 2017; Ramsden 2002). In the decades following WWII, population’s quantifiable object gave researchers a means to calculate the differential value of racialized lives in terms of economic contributions without making racial stratifications explicit. Through such fungibilities, it allowed eugenics—and academic disciplines such as demography that had elevated Pearl—to powerfully assume the cover of political neutrality (Ramsden 2002). That disciplinary cover lasted throughout the twentieth century and remained, historians note, even after Pearl amended his initial framings of population by specifically reintegrating a language of racial hierarchies. Writing a decade later in 1937, he noted that the quantifiably driven biological law of exponential population growth that he had become renown for advancing now appeared to him to apply more to human populations that were less evolved socially and biologically. This included the fertility of groups of foreign and colored populations in the United States coming closest to “the animal pattern” he had famously described a decade earlier with his studies of drosophila fly reproduction ([Pearl 1937, 88] Ramsden 2002, 887).

Population as a quantifiable object, however, was not the only utility that allowed eugenics to find cover and make claims to providing a seemingly race-agnostic, objective regime for the economization of life. This chapter explores how intelligence and mental fitness came to be repurposed too as lasting metrics-based classificatory indices. By providing a numbers-based measure for rationally segregating individuals according to their chances for best utilizing or squandering investments, intelligence provided an “objective” indicator of how well or poorly an individual with given resources of mind and intellect could perform as a productive, profit- or dependency-generating economic asset. By eschewing the language of race, it provided a palatable means to advance eugenic logics across generations. It could thus serve as

a direct planning resource for advancing more competitive modern economies and to “objectively” predict the value of life in relation to future market productivity. As an attribute that eugenicists insisted was hereditary and biologically driven, intelligence further correlated—by eugenic framings—to an individual’s moral capacity and propensity for crime, addiction, or laziness. It thus provided a means for allegedly predicting individuals’ offspring too as future economic values or liabilities. With such heightened stakes, it could then be deployed by researchers to argue for new monitoring practices over suspect classes—namely, immigrants and people living in poverty—in the early twentieth century. Data collected could then be used to evidence mental unfitness, and later, to call for massive exclusions or segregations based on projected economic impacts.

Decades later, as a newly hailed knowledge economy came into view in the late twentieth century, resonant queries prominently shaped national public discourse once again. If cognitive elites (Herrnstein and Murray 1994) continued to outperform others in a technologically driven marketplace, why should public investments adhere to democratic rather than meritocratic logics based not on a vision of equality but on distributed rewards according to differential merits? What would responsible public policy look like, if wasted investments in some forms of life could not only be empirically mapped and tied to intelligence data, but could be argued to amplify economic inefficiencies that detracted from deserving, intellectually competent, and competitive classes?

This chapter draws a through line from the eugenics thinking of the early twentieth century to the meritocratic logic of the late twentieth century that directly fed into contemporary techno-eugenics. It demonstrates how metrics and merit worked together to provide techno-eugenics with an objective cover and means to dodge accusations of racism across the twentieth century. This occurred even as their program for justifying racialized stratifications remained fundamental to its project. Central to this was the work of datafication around the undeserving poor and the cognitive elite that enabled both categories to endure across the twentieth century. The persistent demands around their measurement and monitoring that first rose to prominence with eugenics research circles and their obsession with objectifying a universal measure for human intelligence thus continued to shape national debates. These debates raged with the rise of the knowledge economy from the late twentieth century and into the new millennium as models of predicting hereditary intelligence reemerged through techno-eugenics.

I close this chapter by tracing a transition from vilifications of the undeserving poor to contemporary defenses of their counterpart—the deserving cognitive elite. In an era of growing applications of artificial intelligence (AI), where AI-driven models heighten new anxieties around competitive superiority, predictions by tech-sector leaders of widescale societal regress have increasingly begun to circulate. Such accusations of technological stagnation project blame on a political unwillingness to fully embrace AI’s future or empower a cognitive elite by instead sustaining support for underproductive and undeserving populations and sectors. Such condemnations are rooted in eugenics’ generations-old arguments around the enduring threat that democratic institutions allegedly pose to a true social evolution driven by cognitive elites. But if democratic norms around public welfare and inclusion erected obstacles to techno-eugenic promotions of natural hierarchy and “evolution through innovation”, at least the data-driven knowledge economy might enable a site where the unfettered freedoms of deserving individuals, and the merits (rather than privileges) of the cognitive elite might at last be realized.

METRICIZING THE UNDESERVING POOR

US poverty historian Michael Katz reminded us that while the classification of the undeserving poor has existed across centuries, it was only in recent modern history that it came to be widely read as something resulting from individual failure and personal inadequacy. For large parts of history, poverty was seen as a largely inescapable and inevitable phenomenon brought about from a general condition of scarcity. While a “soft” version of poverty as individual failure might have attributed poverty to laziness, immoral behavior, inadequate skills, or dysfunctional families (that might still be reformed), not until the late nineteenth century with the arrival and rise of eugenics did a “harder” version of a biologically determined undeserving poor emerge (and become datafied) as a central object of research. Eugenic researchers labored across the late nineteenth and early twentieth centuries to demonstrate poverty not as the result of inevitable scarcity or the result of structural exploitations, as labor reformers argued, but as the result of inherited deficiencies that concretely limited intellectual potential, encoded harmful and immoral personal proclivities, and concretely circumscribed economic achievement. Coupled with what Katz called Progressive Era

economists' "discovery of [economic] abundance" in the early twentieth century, he wrote that a new "world of possibility where poverty no longer was inescapable" (Katz 2013, 3) emerged. It was one, however, that "carved a hard edge of inferiority into ideas about poor people" (Katz 2013, 3) who failed to apply the same resources (whether personal, material, and information-based) others had as vehicles for wealth creation. Or so the myth went.

From the start of their earliest research endeavors in the late nineteenth century, eugenicists sought to "dataify" the empirical degeneracy of the mentally, physically, and morally unfit and the hereditary nature of dysgenic traits, whether criminality and licentiousness, or laziness, alcoholism, and pauperism. They also aimed to concretely objectify the empirical superiority of the well-born and the hereditary nature of their gifts, singling out "character and intellect," in particular, from their earliest endeavors. Francis Galton, a cousin of Charles Darwin and the English biostatistician credited with founding eugenics, published "Hereditary Character and Talent" in the distinguished London periodical *Macmillan's Magazine* (whose contributors included prominent literary and scientific figures of the day) as his earliest manifestation of eugenic methods in 1865. As covered in chapter 1, Galton targeted *Macmillan's* explicitly elite, educated, urban audience to launch his argument, appealing to his readership by offering them evidence of genius as a hereditary trait passed down through the well-born. Drawing from selected portions of five biographical dictionaries, four English and one French, which he argued represented "the chief men of genius whom the world is known to have produced" (1865, 159), he built a statistical analysis aiming to demonstrate familial, biological relations among the men represented. He insisted that "abundant data" supported his hereditarian claims. Asserting an aggressively anti-egalitarian vision for conserving Western-led progress, he wrote the essay in the same period as the US Civil War was entering its final stages, and when the Haitian Revolution, the 1857 Indian mutiny, and varied independence uprisings by colonized peoples of color across the European empire had raised the promise of new liberty for formerly enslaved and subjugated peoples across the West. While framing the article around genius and talent as characteristics of well-born elites, he did not miss the opportunity to make his larger point: that broad peculiarities of character that created expenses on the state and well-born, including "craving for drink," "pauperism," and proclivities to "crimes of violence" and "fraud" (1865), were all inheritable. Beyond a critique of global liberation and independence movements—which he projected implied a threat for

the future of genius and intelligence—Galton aimed his invective toward a critique of national welfare in the West. Such policies, he argued, artificially preserved the lives of the weak and “deteriorated the breed” (1865, 326). Were social elites empowered to enforce an economy of controlled, selective breeding in Western nations, instead, he argued, what “prophets and high priests of civilization” and “what a galaxy of genius might we not create!” (1865, 165).

Galton’s formula for promoting eugenics, which focused as much on proving an information-based profile of the “deserving elite” as dataifying the “undesiring poor,” continued to be replicated by growing global cohorts of eugenic researchers. Across the next half century, many worked obsessively to develop a spate of biostatistical measuring techniques and new qualitative and quantitative data methods and research instruments to bolster their claims around mental fitness. By the late 1870s, Galton published in social sciences and technical journals on his development of composite portraiture—a technique that visually blended multiple facial photographs to render predictive, prototyped images of healthy, criminal, and Jewish “types” (1883). His obsession with eugenic accounting and education also led him to develop datafication methods and techniques accessible to wider audiences. Among them was a self-developed, handheld, “invisible” counting pad that allowed the counter to pick a hole with a pin-based counter held in one’s pocket. Galton used this to surveil and count what he considered to be “attractive” women in neighborhoods. By the 1880s, in pursuit of the idea that intelligence would surface in the form of sensitivity of perceptions, Galton opened his “Anthropometric Laboratory,” a thirty-six-foot-long by six-foot-wide testing space that he used to stage a variety of his self-designed measuring instruments and gather data on publics who attended the International Health Exhibition in London (Herrnstein and Murray 1994, 2). For a price of three pence, individuals could proceed through the lab’s successive stations to have their data recorded across a spectrum of tests measuring their acuity of sight and hearing, sensitivity to slight pressures on the skin, and speed of reaction to simple stimuli. While some stations recorded the height, weight, and eye and hair color (what Galton wrote could be correlated to robust health) of individuals, others offered devices to measure the highest audible note individuals could perceive or measured breathing power and capacity, strength of pull and squeeze, and swiftness of blow (Galton 1884). Proudly, Galton wrote at the end of a twelve-page pamphlet he published in 1884 with the details of the lab’s content, “Most of the instruments in use at the Laboratory are wholly or in large part of my own designing” (1884, 12).

By the end of the century, Galton's obsession with hereditary genius and his parallel anxieties around the spread of "feeble-mindedness" in the West led to founding the field that came to be known as psychometrics. Particularly in the United States, researchers inspired by Galton's eugenics channeled their enthusiasms toward the development and spread of varied instruments for the measurement of psychological faculties. These gave rise to new global appetites for datafying and objectifying human intelligence. Such investments, as the head of the New York-based Eugenics Record Office (ERO) Charles Davenport put it after founding the ERO in 1904, were key in shaping new policy that could, at last, "purify our body politics of the feeble-minded, and the criminalistic and the wayward by using the knowledge of heredity" (Katz 2013, 32), particularly since, as Davenport asserted to fellow eugenicists, welfare agencies were a "force crushing our civilization" (Rosenberg 1997, 95).

In the early decades of the twentieth century, US eugenicists saw to the development of various techniques, methods, and models for the measurement of so-called hereditary intelligence packaged as administrable exams and intelligence quotient (IQ) tests sold by the hundreds of thousands to state and government institutions. Ironically, they had been derived from the work of psychologist Alfred Binet, who, in 1904, was commissioned by the French government (following the nation's establishment of public education) to develop techniques to identify school children in need of some form of special education beyond the standard classroom. Binet remained adamant to his death that the techniques he developed were not a measure of intelligence (Gould 1981, 181). Although Binet's method assigned scores to children derived from the "mental age" indicated by "age-assigned tasks" they were able to complete during an exam, Binet insisted that intelligence was too complex to be reduced to a single number that could be used to rank and compare individuals as a generalizable practice. He explained, "The scale, properly speaking, does not permit the measure of intelligence, because intellectual qualities are not superposable, and therefore cannot be measured as linear surfaces are measured" (1905a, 40). He was concerned that his techniques could be used as predictive tools to indelibly classify a child as backward, or to permanently deny care. He warned of how schoolmasters with "exaggerated zeal" (1905b, 168) might use the tests as an "opportunity for getting rid of all the children who trouble [them]" (1905b, 169) or might create rigid classifications around a child that would become "a self-fulfilling prophesy." Binet shared his new methods by raising the recent memory of

the political scandal around the Dreyfus Affair—a scandal that involved Alfred Dreyfus, a French artillery officer of Jewish descent who was exonerated of baseless charges of treason after a two-decades-long series of anti-Semitic campaigns by the French press and military. As Binet cautioned, “It is really too easy to discover signs of backwardness in an individual once one is forewarned. This would be to operate as the graphologists did, who, when [Alfred] Dreyfus was believed to be guilty, discovered in his handwriting signs of a traitor or a spy” (1905b, 170).

Binet stressed early on the varied limits of his method, underscoring what it was not, as much as what it was designed to do. He declined to define IQ as a measure of inborn intelligence. He insisted that his scale was designed for the specific purpose of the charge given by France’s Ministry of Education and was only useful as a guide for identifying children in need of special education. It was not a general device for ranking all pupils by mental worth, for affirming eugenic claims of hereditary feeble-mindedness, or for predicting and projecting a fixed state of mental inferiority that would be used to classify an individual in perpetuity (Gould 1981). As Binet wrote in his 1905 article introducing his new method, examiners should only consider the results of their study of any child as an indicator of that child’s “condition at the time and that [time] only. We have nothing to do either with his past history or with his future; consequently . . . we shall make no attempt to distinguish between acquired and congenital idiocy . . . [and] we do not attempt to establish or prepare a prognosis. . . . We shall limit ourselves to ascertaining the truth in regard to his present mental state” (1905a, 37). Such explicit delimitations against prediction, for historian Joanne Brown, demonstrated Binet’s larger commitments towards a model of “mental orthopedics” that evoked “a whole system of meaning, founded on a humane, ameliorative approach to medicine” (1992, 82) over epidemiological models that emphasized pathology. As Gould put it, it demonstrated Binet as less concerned with the impacts or “cause of poor performance in school” than in identification “in order to help and improve, not to label in order to limit” (Gould 1981, 182).

Despite Binet’s specifications, eugenicists were quick to realize the potential in his scale, particularly proponents such as the US psychologist Henry H. Goddard. Goddard became increasingly convinced that of all hereditary traits, inferior intelligence and mental deficiency were the chief determiners of problems of human conduct and the source of most undesirable behavior. In 1908, just a few years after Binet’s first publications on his testing methods

were published, Goddard began translating the Binet test into English and distributing the test—around eighty-eight thousand copies by 1916—across US institutions (Goddard 1916). Goddard, like Binet, had worked with children in the early 1900s as the director of research at the Vineland Training School for Feeble-Minded Girls and Boys in New Jersey (Katz 2013). Unlike Binet, however, Goddard, a fervent eugenicist, was convinced that deficient intelligence in children was genetically determined. Moreover, he believed it was the primary indicator of a future of deficient emotional and moral control—understood as the cause of criminality, alcoholism, and prostitution—that would inevitably require greater state intervention and public investment to address. He was likewise convinced that high intelligence, framed as the single most important human attribute, enabled not only strong cognitive aptitude but also good judgment and a mastery of emotions that he argued underpinned moral behavior before society and the state (Gould 1981). Intelligence, as he wrote, “[c]ontrols the emotions and the emotions are controlled in proportion to the degree of intelligence. . . . [I]f there is little intelligence the emotions will be uncontrolled and . . . will result in actions that are unregulated. . . . Therefore, when we measure the intelligence of an individual and learn that he has so much less than normal as to come within the group that we call feeble-minded, we have ascertained by far the most important fact about him” (1919, 272).

By 1910, Goddard was promoting a three-tiered system for classifying feeble-minded individuals and introducing new terminology around the category of “the moron” that he had come to stress in his invectives demanded newly intensified measures to manage. He promoted his new taxonomy at the American Association for the Study of the Feeble-Minded’s 1910 annual meeting, specifying that morons are those with an IQ of fifty-one to seventy, who ranked higher than previously recognized classes of “imbeciles,” whom he specified were those with an IQ of twenty-six to fifty, and “idiots” with an IQ of zero to twenty-five. However, as higher-ranking undesirables who might pass unnoticed and even procreate among nondefective populations, morons, Goddard warned, posed the real risk to well-born society. He wrote in his best-selling study of hereditary feeble-mindedness, *The Kallikak Family*, a book infamously filled with doctored photos of physically altered subjects that nonetheless popularized his new taxonomy of defectives in 1912, “The idiot is not our greatest problem. He is indeed loathsome. . . . Nevertheless, he lives his life and is done. He does not continue the race [but]. . . . [i]t is the moron type that makes for us our great problem. And when we face the

question, ‘What is to be done with them . . . ?’ we realize that we have a huge problem” (1912, 101–2).

Goddard served as a consultant for the American Breeders’ Association, helping devise their 1914 position that “defective classes be eliminated from the human stock through sterilization” (Hothersall and Lovett 2022, 361). He also advocated for establishing an intelligence testing program to monitor and assess new immigrants arriving at Ellis Island for mental fitness, focusing only on those he could identify as the lowest economic strata. He began an infamous study on immigrant intelligence in 1913 that collected data exclusively from immigrating passengers who had arrived by travel in steerage class—the cheapest means of travel—and ignored entirely those who had traveled in either first- or second-class passage. Noting in the study that he omitted individuals who were either “obviously” normal or feeble-minded to focus on feeble-minded persons who would not be obvious to immigration officers without the aid of tests, he assembled a staff to work with him over three months to administer an intelligence exam to a preselected group of 178 people who were of Jewish, Italian, Hungarian, or Russian descent. Among the assessment questions, all delivered in English, that he designed were “What is Crisco?” (the US-made cooking product introduced just two years earlier as an alternative to butter and lard) and “Who is Christy Matthewson?” (an American football player). Respondents were also shown a picture of a tennis court without a net and asked what was missing (Hothersall and Lovett 2022, 363). Based on responses to his questions, over 80 percent of all respondents were found to be feeble-minded, confirming, as Goddard wrote in 1917, “that a surprisingly large percentage of immigrants are of relatively low mentality” (Goddard 1917, 269).

Even as Goddard admitted that such a large percentage might invite disbelief among readers, he asserted that “[i]t is never wise to discard a scientific result because of apparent absurdity. Many a scientific discovery has seemed at first glance absurd. We can only arrive at the truth by fairly and conscientiously analyzing the data” (1917, 266). He went on to rationalize the results by describing the changing nature of European immigration, which, prior to 1900, had disproportionately come from northern and western Europe, and which, in later decades, had increasingly come from eastern and southern Europe. As Goddard characterized it, “It is admitted on all sides that we are getting now the poorest of each race” (1917, 269). Notably, a consideration of one potential economic impact seemed to give him pause over how strictly the exclusion of feeble-minded immigrants—“morons” in particular—should

be enforced. Underscoring the potential utility of “mentally defective” populations in the workforce, he wrote,

At least it is true that they do a great deal of work that no one else will do. . . . It is perfectly true that there is an immense amount of drudgery to be done, an immense amount of work for which we do not wish to pay enough to secure more intelligent workers. . . . May it be that possibly the moron has his place? . . . [P]erhaps after all it is a superficial view of that problem to say, we will eliminate them all as fast as we can. It may be vastly wiser, more scientific, and more practicable to say, we will accept the moron, discover him as early as we can, train him properly and use him as far as his limited intelligence will permit (Goddard 1917, 268).

He nonetheless reminded audiences that “the question of heredity” should not be overlooked, given that “[m]orons beget morons” (Goddard 1917, 270). Such competing considerations, Goddard concluded, could be resolved through a multipronged approach to the undeserving poor that included sterilizing immigrant morons (just as the nation was doing with “native morons”), deporting imbeciles, and finally, his own readers taking public action. As he wrote, “All of this means that if the American public wishes feeble-minded aliens excluded, it must demand that Congress provide the necessary facilities at the ports of entry” (1917, 271).

Goddard ended the article by proudly sharing the dramatic expansion in deportations of mentally defective populations from Ellis Island—by 350 percent and 570 percent in 1913 and 1914, respectively—that his study had triggered. This, he concluded, was what the promise of mental testing as a means to monitor the unfit had quickly made possible. He wrote, “This was due to the untiring efforts of the physicians who were inspired by the belief that mental tests could be used for the detection of feeble-minded aliens” (1917, 271). Indeed, within just a few years after Goddard’s publication of the use of mental tests at Ellis Island, what historians have noted as a rapidly growing testing enterprise (Brown 1992) could already be seen expanding globally, with sales reaching “astonishing” levels (Katz 2013, 36). By 1923, Princeton psychologist Carl C. Brigham followed Goddard’s arguments in a book titled *A Study of American Intelligence*, which used the results of the US Army’s World War I mental testing program to predict that an influx of immigrants from southern and eastern Europe would lower native-born Americans’ intelligence. Immigration therefore should be restricted to Nordic and northern European stock. By then, too, nearly four million test copies of the National Intelligence Test had been sold (Katz 2013). Historians

noted that by the 1920s “the entire public educational system of the United States had been reorganized around the principles of mental measurement, [with] the psychological profession [producing] more than seventy-five tests of general mental ability” (Brown 1992, 4). Copies of Goddard’s test were also being distributed in at least twelve countries, including Canada, Great Britain, Australia, New Zealand, South Africa, Germany, Switzerland, Italy, Russia, China, Japan, and Turkey (Goddard 1916). And by 1930, at least nine million adults and children in the United States alone had been tested by one of the Binet-Simon revisions (Brown 1992; Hothersall and Lovett 2022).

By the beginning of the 1920s, IQ had entered the American vernacular and was largely understood, despite the debates that still surrounded it, as a synonym for intelligence. Varied schools—including school districts in Springfield and Boston, Massachusetts; Peoria, Illinois; Trenton, New Jersey; Buffalo, New York; Atlanta, Georgia; and Oakland and Berkeley, California—had begun to incorporate mass intelligence testing as part of school routine by 1926. Detroit students took tests in the first grade to determine the grouping they were assigned for the first six years of schooling, as well (Brown 1992). Critics of the use of mental tests began to raise “a chorus of political dissent . . . around the issues of democracy, mental testing, and ‘educational determinism’” several years following their mass marketing and promotion. Social historian JoAnne Brown wrote, however, that they found themselves “hard-pressed to mobilize sufficient counterevidence to remove the tests,” given that “[testing] professionals [had] established a data base that was, by virtue of its sheer size, nearly impossible to challenge” (Brown 1992, 6–7). By the early 1920s, Brown concluded, “Mental testing was no longer an experimental technique but a commercial enterprise in which many individuals and institutions had a stake” (138).

As significantly, by the 1920s, public education campaigns by the American Eugenics Society (AES) reflected lessons from Goddard connecting mental unfitnes and feeble-mindedness with national economic degradation and regression. In varied eugenic exhibits that the AES installed at public fairs across the nation, interactive displays framed with the text “Some people are born to be a burden on the rest” invited visitors to observe a series of flashing lights. Around one light that was labeled as flashing every forty-eight seconds, a caption read, “Every 48 seconds a person is born in the United States who will never grow up mentally beyond the stage of a normal 8-year-old boy or girl.” Beside it was another flashing light with the caption, “Every 50 seconds a person is committed to jail in the United States. Very few *normal*

persons ever go to jail.” Above the boxes, large text pronounced “American needs less of these.” Around another light that flashed every seven-and-a-half minutes, a caption read, “Every 7–1/2 minutes a high grade person is born in the United States who will have ability to do creative work and be fit for leadership. About 4% of all Americans come within this class.” Above it, large letters indicated “American needs more of these.” Above them all hovered a single light that flashed every fifteen seconds that punctuated the economic rationale and critique of waste and excess under welfare state policy channeled in the display. “Every 15 seconds,” it read, “\$100 of your money goes for the care of persons with bad heredity such as the insane, feeble-minded, criminals and other defectives.”

The rapid expansion of an intelligence testing enterprise and the ready popularization of eugenic classifications around mental fitness through the projection of economic futures and the impact on healthy populations readily demonstrated to Goddard the viability of such strategies to protect the political power of the established White elite in a context of rapid global change. As importantly, it provided a means to press for a reinvention of democracy, uprooting the meaning of democratic government from conventional definitions as historically rooted (as he acknowledged) in a “rebellion against a so-called aristocracy.” By allowing that people rule instead by selecting “the wisest, most intelligent and most human to tell them what to do to be happy,” democracy could be “a method for arriving at a truly benevolent aristocracy” (Goddard 1919, 237). Just a year later, Goddard conceded that “unintelligent millions” might eventually “decide to take matters into their own hands” in a kind of “Russian-style revolution” (Hothersall and Lovett 2022, 376). He reasoned that his version of a restyled democracy would readily resolve such a possibility by ensuring that such populations be quickly disenfranchised and that established democratic governments be reinvented as hierarchically organized meritocracies based on intelligence testing instead.

THE KNOWLEDGE ECONOMY AND THE RISE OF THE COGNITIVE ELITE

Nearly a century after the release of Binet’s scale, US social scientists hailed the final decade before the new millennium as a new kind of knowledge economy (Castells 1996; Powell and Snellman 2004). The same period saw proclamations of the rise of new cognitive elite classes and an unapologetic

revival of eugenics' pro-hereditarian standpoint on intelligence with the publication of *The Bell Curve: Intelligence and Class Structure in American Life* (1994). Written for a popular audience by longtime conservative and libertarian authors Richard Herrnstein, a Harvard psychology professor, and Charles Murray, a fellow at the American Enterprise Institute, the text infamously set off a pitched national debate. The authors reasserted a biological basis for intelligence and correlating individual achievement, socioeconomic success, and professional productivity with hereditarily determined IQ measures (Jacoby and Glaberman 1995). Across over eight hundred pages of content, replete with tables, graphs, and data on IQ, they argued that America's most pressing economic and social problems could be empirically traced to questions of intelligence and populations with lower intelligence. Through such data, the authors aimed to underscore how lower and higher IQs mapped across racial and ethnic differences, with White populations demonstrating higher levels than Black and immigrant groups, now dominated by populations of non-European descent. Echoing eugenicists from generations past, they channeled their data toward a critique of democratic policy and welfare programs as wasteful expenditures that detracted from support for the gifted and cognitively deserving. Attacking a broad sweep of welfare, education, and immigration allowances, they closed their text by asserting that inequality "is a reality" and investments "trying to eradicate inequality . . . [have] led to disaster." As the authors wrote, "It is time for America once again to try living with inequality" (Herrnstein and Murray 1994, 551).

Selling four hundred thousand copies in its first two months after publication, the text's overnight bestseller status sent its eugenicist arguments into the headlines of nearly every major US news magazine and newspaper. It appeared on the front page of the *New York Times Book Review*, *Newsweek*, and the *New Republic*, and was featured on National Public Radio and popular television news programs, including *Good Morning America* and *Meet the Press* (Staub 2019). Such popular reception in the United States was by no means a given. The decades following WWII saw the fervent hereditarian and biological determinist standpoints that had once been so publicly at the center of eugenics' mission gradually wane as an "environmental consensus" (Katz 2013) around individual achievement began to rise. By the beginning of the 1960s, historians noted that confidence was running high that early educational interventions could accelerate the cognitive abilities of disadvantaged children (Staub 2018). While the same period saw the testing industry and profession around psychometrics flourish, with hundreds of millions of

people worldwide being tested every year (Staub 2018), historians noted that the most controversial uses of tests to promote eugenic laws and discrimination fell silent during this period. They remained out of the public eye, with few vocal champions, for decades. This changed in 1969 when Arthur Jensen, an educational psychologist from the University of California at Berkeley and grantee of the eugenics- and race science–dedicated Pioneer Fund (whose first president in 1937 was the Eugenics Research Organization’s own Harry Laughlin), published an article in the *Harvard Educational Review*. It attacked compensatory and remedial education as a failed public expenditure. Jensen argued that such programs, which targeted Black and other minority students, would inevitably continue to fail because they were aimed at populations with relatively low IQs, a largely heritable trait (80% heritable, according to Jensen) that therefore would remain immutable, regardless of external interventions (1969).

Just two years following the publication of Jensen’s article, a fellow grantee of the Pioneer Fund, Nobel laureate physicist William Shockley, defended Jensen’s arguments around the wasteful economics behind the nation’s welfare policies, adding that they would only lead to future social and economic regression. He told the National Academy of Sciences in 1971 that “our nobly intended welfare programs are promoting dysgenics—retrogressive evolution through the disproportionate reproduction of the genetically disadvantaged” (Katz 2013, 40). He followed this with recommendations to counteract such trends, suggesting as a “thought exercise” a scheme for paying people with low IQs \$1,000 to be sterilized and advocating a sperm bank for geniuses. He was echoed shortly after by a young Richard Herrnstein, who wrote in a September 1971 article titled simply “IQ” in *The Atlantic* that “the tendency to be unemployed may run in the genes of a family about as certainly as bad teeth do now” (1971, 63).

Scholars and public commentators voiced alarm over the “new eugenics” (Hothersall and Lovett 2022; Katz 2013) leading voices seemed to be stirring among public appetites in the 1970s and early 1990s by leveraging arguments around race and hereditary intelligence. While many pondered why such arguments had reemerged with force in the 1970s and 1990s, after seemingly lying dormant for years, Herrnstein and Murray were clear about the resonances they saw between their argument around IQ, race, and future achievement and framings of the contemporary era as defined by an information-driven knowledge economy. As they wrote in *The Bell Curve*, highlighting the economic demands for what they called the new “cognitive

elite” in the contemporary age, “In our time, the ability to use and manipulate information has become the single most important element of success, no matter how you measure it: financial security, power, or status. Those who work by manipulating ideas and abstractions are the leaders and beneficiaries of our society. In such an era, high intelligence is an increasingly raw material for success . . . [in] a new kind of class structure led by a ‘cognitive elite.’” They further connected such an organically evolving economy with the demand for more “complex” forms of labor and workers able to cognitively process complexity.

Leveraging the notion of an empirically observable economy as a means of distancing themselves from merely political editorializing, they wrote matter-of-factly, “Today’s technological frontier is more complex than yesterday’s” (98). Given that the capacity for individuals to manage “complexity is one of the things that cognitive ability is most directly good for” (541), the undeniably growing complexity of contemporary life in a technologically infused society would value and reward the labor of the cognitive elite more than labor less efficiently performed by others. Moreover, today’s technologically infused economy had evolved to complexity on its own, they argued, rather than through the structural forces and interventions of either the state or private sector, and it required less regulation to align with society’s needs. Opening *The Bell Curve* with a nod to the “economization” of life, then, they highlighted the links between IQ and economic productivity, writing that the link between IQ and occupation “goes deep. If you want to guess an adult male’s job status, the results of his childhood IQ test help you as much as knowing how many years he went to school” (51). They added that “a smarter employee is, on the average, a more proficient employee” (63) and that “the advantage conferred by IQ is long-lasting . . . [with] the smarter employee tend[ing] to remain more productive than the less smart employee even after years on the job” (64). Despite the fact that “since 1971, [the US] Congress and the Supreme Court have effectively forbidden American employers from hiring based on intelligence tests,” they nonetheless recommended that “an economy that lets employers pick applicants with the highest IQs is a significantly more efficient economy” (64), adding what the authors estimated to be another \$80 billion to the economy annually.

After dedicating the second part of the book to chapters on “how much [low] intelligence has to do with America’s most pressing social problems” (115)—including crime, poverty, unemployment, workplace injury, idleness, welfare dependency, and single-parent families—the authors spent the final

chapters taking aim at various government programs that they read as irresponsible expenditures leading to a dysgenic nation. This included familiar eugenic tropes—from immigration, which they called a “major source of dysgenic pressure” (341), to affirmative action, special education, and compensatory education programs. Those programs targeted underserved and minority youth that “dumbed down” education (417) and taxed gifted students whom the authors claimed were “out” of favor for the last thirty years, as federal funds targeted so-called “in [favor]” disadvantaged students. By the authors’ avowedly apocalyptic (509) projections of the nation’s future, the US government set society on a course toward self-destruction by insisting on policies to support the vulnerable and working against the “reality” that the nation had “naturally” evolved through the economy into a hereditary meritocracy.

Countless editorials and public commentaries emerged to counter *The Bell Curve* in the wake of its release. Editorials from the *New York Times* to the *Los Angeles Times* lambasted the text for its revival of long-debunked eugenic theories (Jacoby and Glauberman 1995). Social scientists, biologists, and educators were likewise among the vocal critics who underscored the authors’ selective use of educational statistics and flawed and sloppy representation of scientific literature on heredity and IQ. They also criticized the authors’ conspicuous citation of varied researchers—seventeen in all—who were known contributors to *Mankind Quarterly*, a far-right publication funded by the Pioneer Fund. The publication has been called a “cornerstone of the scientific racism establishment” (Kinchelov, Steinberg, and Gresson 1997, 40) and a “White supremacist journal” (Saini 2019), whose founders included champions of apartheid in South Africa as well as former leaders of Italy’s eugenics movement under fascism (Lane 1995). Notably absent from the dissenting voices, however, were those very actors at the center of *The Bell Curve*’s information economy—namely, the engineers and tech entrepreneurs placed at the center of Murray and Herrnstein’s cognitive elite. Their silence on the topic channeled an assent to their elevation in the new economy. Neither were there any direct refutations on the economic framing of *The Bell Curve* by social scientists or economists who had helped to introduce the language of knowledge economy into a public lexicon. Their silence, too, suggested alignment with reading the escalating inequities of race and class in the knowledge economy as naturally evolving, rather than structurally produced, outcomes.

Over two decades later, historians lament *The Bell Curve*’s “lasting impact on policy discussions of race and intelligence” (Staub 2018, 148) and their

continued connection to the nation's economic productivity. More recently, outlets such as *Scientific American* and the *Humanist* noted a resurgence of *The Bell Curve's* popularity, with revived sales and author Charles Murray (Herrnstein passed away in 1994 shortly after *The Bell Curve's* publication) reappearing across national talk, broadcast, and podcast circuits in the years following the 2016 US presidential election (Evans 2018; Seigel 2017; Zevallos 2017). Leadership from Silicon Valley companies, which just three decades ago in the mid-1990s had been entirely absent from the five most traded companies on US exchanges and which by 2021 made up all five (Chafkin 2021), still remained largely silent on the ongoing debate around genetics, intelligence, and economic progress. Helping solidify and later popularize the image of new, intellectually dependent work and heroic technological innovators in the public consciousness, leading social scientists and scholars who had argued for the emergence of a knowledge economy early on still refrained from commentary or intervention around the issue. Researchers continued to treat the sustained fetishism around hereditary intelligence and its link to the flourishing of national economies as if it were outside their domain. This occurred even as early theories on the growing power of knowledge work and scholarly literature around the knowledge economy gained popular currency, and as Silicon Valley and the technology industry's global rise was celebrated across international headlines for generating unprecedented scales of wealth.

Those that were vocal, such as Silicon Valley's Peter Thiel, the outspoken libertarian venture capitalist and billionaire cofounder of PayPal and Palantir Technologies, echoed the explicitly pessimistic tones of *The Bell Curve* and earlier eugenic authors. Thiel notably channeled his critiques toward a new techno-eugenic framework that emphasized the imperative of evolution through innovation. In 2009, Thiel already espoused contempt for what he read as the economically degenerative, innovation-blocking policies of the regulatory welfare state that insisted on supporting regressed populations. They made it necessary for actors like himself to intervene to ensure "the world [is made] safe for capitalism" (Thiel 2009).² He elaborated further in an essay for the Cato Institute, writing,

I no longer believe that freedom and democracy are compatible. . . . The future of technology is not pre-determined, and we must resist the temptation of technological utopianism—the notion that technology has a momentum or will of its own, that it will guarantee a more free future. . . . A better metaphor is that we are in a deadly race between politics and technology. . . . The

fate of our world may depend on the effort of a single person who builds or propagates the machinery of freedom that makes the world safe for capitalism (Thiel 2009).

A decade later, Thiel publicly endorsed Donald Trump for US president, speaking for him at the Republican National Convention and pouring funds into Trump-backed candidates' campaigns (Heffernan 2021), including Trump's 2024 vice-presidential running mate, JD Vance (Kinder, Hammond & Rogers 2024). Far from merely an eccentric technologist turned political dabbler, Thiel has been credited more than any other investor or entrepreneur with "creating the ideology that has come to define Silicon Valley: that technological progress should be pursued relentlessly—with little, if any, regard for potential costs or dangers to society" (Chafkin 2021, 10). His success in ruthlessly pursuing a singular drive toward technological advancement, at whatever cost, "has earned him troves of devotees in Silicon Valley and around the world who read him as a techno-libertarian whose pursuit of technological advancement channels nothing less than deep commitments to personal freedom, scientific progress, and even salvation" (Chafkin 2021, 10). This was seeded with his leadership of the "PayPal Mafia," an informal network of technology financiers, engineers, and capitalists dating back to the late 1990s that includes Elon Musk and the founders of YouTube, Yelp, and LinkedIn (Weiner 2021). Among their investments were companies including Facebook, Airbnb, Lyft, Spotify, Stripe, and DeepMind (Google's world-leading artificial intelligence project).

Thiel's vision for progress as an explicitly economically driven force that should be prioritized by societies even at the cost of conventionally protected democratic values echoed eugenic proponents' public assertions from over a century ago. His insistence on economic progress above all echoed the language of turn-of-the-century Wharton Business School economist and future American Eugenics Association president Simon Patten, who asserted bluntly in 1899 the evolutionary force of progress in helping societies to "crush the inefficient." As Patten wrote then, "Social progress is a higher law than equality, and a nation must choose it at any cost. A lack of progress would eradicate the efficient and prudent as certainly as the presence of progress crushes the inefficient and thoughtless. Progress [thus] . . . favour[s] non-moral standards upheld on the one hand by concrete economic rules harmonizing with the immediate environment, and on the other hand with intensive feelings that made men discontented with anything short of perfection" (1899). Thiel's techno-eugenic framework updated Patten's language by emphasizing the

existential threat to an innovation-centered knowledge economy and the cognitive elites who powered it via regulatory states that insisted on protecting public welfare. Thiel's language, by the post-Trump era—as AI-based products increasingly shaped global trade and economic bases—grew more pessimistic. Speaking before an Oxford University audience in 2022, he highlighted the innovation “stagnation problem” that the current democratic establishment had created across a spate of Western nations by continuously attempting to regulate new technological developments, from AI to biotech. Such efforts, he predicted, would “derange our societies” by eventually ensuring a no-growth economy (Thiel 2023). It would impose barriers around the intellectual power of the cognitive elite in the interest of protecting lesser-evolved classes, restraining potentials for technological advancement and inevitably leading to a regression of society and the economy alike.

While easy to dismiss as incompatible, mainstream framings of the knowledge economy that were popularized by late-twentieth-century liberal social sciences and business news outlets shared varied key parallels with techno-eugenic frameworks. Both highlighted the central protagonism and heightened value of new classes of knowledge professionals and cognitive elites, whose novel economic and technological contributions directly powered the knowledge economy, and arguably enabled such positions to advance with little public outcry or intervention. By keeping the public eye trained on the anxieties around new forms of intellectual demands, skills, and capacity knowledge work the new economy demanded of all classes of workers, both could keep attention pinned around the deficiencies of laboring populations, rather than drawing attention to the racially segregating politics of “the knowledge economy” and questions of what interests were creating new pressures to accelerate a push toward knowledge production as an optimized site of profit generation. Such public calibrations projected a natural, rationalized veneer to the rapid transformations underway in the economy, rather than recognizing the state or private sector activity that had enabled a dismantling of regulatory frameworks when it came to technology. They would both lean heavily on knowledge and intelligence as factors that enabled a selective elision of the knowledge economy's racialized impacts and dispossessions. In doing so, they kept the public eye distracted from larger questions of racialized and class-based economic stratifications that had amplified across the decades and that had accelerated with the rise of Silicon Valley disruptors and parallel knowledge economy actors driven by new imperatives to innovate at whatever cost.

To attend to Thiel’s pronouncements around the knowledge economy, and the silence that has generally characterized the larger tech industry and digital economy scholars’ reactions to texts such as *The Bell Curve*, then, is to confront the techno-eugenic logic of assessment that underpins the rationalization of the contemporary knowledge economy’s growth. It is to ask that we attend to the intensified forms of social inequality and race-based stratifications that have grown with it. And it is to recognize the double face—and nocturnal, necropolitical twin (Mbembe 2003, 2019)—of its growth. Such intertwined architectures are what allow Big Tech to operate, on the one hand, as official and even preeminent engines of innovation working under the guise of Western liberalism’s highest promise (as much of the popular and scholarly framings of the knowledge economy have suggested), and on the other hand, as entities that can profit by economizing global progress and security for only those prioritized as the most deserving, worthy, and intellectually equipped. More than ever, it is time we diagnose the global condition in which Silicon Valley companies and their data-driven extractions can still perversely be promoted as uniquely scalable engines of global innovation and economic salvation, even in the face of growing structural inequities that have advanced under the accelerations of the knowledge economy.

CONCLUSION

To attend to techno-eugenics’ reverberations throughout the contemporary knowledge economy is to recognize the underacknowledged ecologies of illiberal violence and anti-pluralist, xenophobic terrains—sites where “death has nothing tragic about it” (Haritaworn, Kuntsman, and Posocco 2014; Mbembe 2003, 2019) that scholars of necropolitics have recognized as foundational to modern orders—as latent, too, in the contemporary ecology of big data and AI-driven systems. It is to recognize the inseparability of the growth of Western liberalism with the extension of global systems of imperialism, terrains of settler colonial dispossessions, and plantation slavery that decolonial, critical race, feminist, and queer scholars have long explored (Azoulay 2019; Byrd 2011; Byrd et al. 2018; Cacho 2012; Hartmann 1997; Mbembe 2003, 2019; Rosas 2019) as likewise enabling the continuity of spaces where individual rights and values could be officially suspended. Philosopher Achille Mbembe described how such spaces of political exception—central

among them, the colony and the plantation—functioned as the “nocturnal face” of liberal states (2003, 2019) that could be architected away from official sites where civil peace needed to be formally maintained and visible. At these remote sites of exception, however, conditions of unregulated war and violence—exercised outside normative conventions and “obey[ing] no rule of proportionality” (2019, 25)—could give rise to the organized destruction of necropolitical “death worlds.” The full functioning of such worlds first requires, Mbembe specified, “on the one hand, a generalized cheapening of the price of life and, on the other, a habituation to loss” (2019, 26). Mbembe reminded readers how often necropolitical sites have emerged, then, not as the antithesis or limit of active democracies but as their hidden twin and under-acknowledged double. Ever latent within liberal political orders, they can emerge and come to dominate, not merely once the world can be segmented into realms of the biopolitically useful and useless, but once a generalizing acceptance of and “habituation to loss” has been conditioned.

The sacrificial economy that the contemporary knowledge economy has given rise to, particularly in the age of big data and AI, appears not despite or as the exception to global tech companies’ growth. It emerges instead as their offspring, developing through remote, concealed, and seemingly disconnected “sites of experimentation” in the name of preserving Big Tech’s public face and protecting the official narrative of Western technology (and big data and AI systems, especially) as the twenty-first century’s consummate force of progress, innovation, and high enlightenment.

Media justice organizer Danielle Chynoweth’s critique of the technology industry’s impact on social services that began this chapter underscores such a lens among social service providers working with populations that would be classified among the undeserving poor. In stark contrast to the official narrative of tech-driven philanthropy extended within business and technology sectors, the emergence and growth of tech-driven venture philanthropy in the late 1990s was celebrated as a remedy for the projected inefficiencies of traditional philanthropy. Pressing for an evolution of traditional philanthropy, venture philanthropy, as Paul Brainerd of Social Ventures Partners put it in a widely circulated 1999 essay, would introduce new “innovative approaches to giving” (Brainerd 1999). During its rise in the early 2000s, as it was being touted as the “new buzz” in business and philanthropic circles (Weiss and Clark 2006), other foundations emerged with funding from prominent technology entrepreneurs. As sociologist Michael Moody found after interviewing varied dot-commers

and entrepreneurs involved in the field in 2007, many proudly and unself-consciously described themselves as “innovation junkies” with “very high expectations” of their investments. And they saw themselves as benevolently bringing the power of tech-based transformation to social service work as a means of improving social sectors’ “slow, inefficient, and unproductive” workplace routines (Moody 2007, 341).

While the pitched hype around venture philanthropy has leveled in recent years, the undeniably outsized and still-growing investments and enduring influence of venture philanthropy in nonprofit practice today (Onishi 2015) continues to spur heated debates among nonprofit and social service providers. These debates center around not only what it means to import metric-centered principles—from “return on investment” to “due diligence”—from corporate realms into the center of nonprofit missions. They highlight too what it means to do so with the particular form of innovation-demanding hubris, self-righteous conceit, and disruption-seeking “move fast and break things” mindset that has defined Silicon Valley’s approach to innovation in the new millennium. Such unrepentant disruption has proven destructive, especially when it comes to social institutions, from education to the press, to care sectors, and to health and human services. For Chynoweth, that self-assured sense of superiority has made the ordinary violence such logics have wrought upon the populations she serves all the harder to bear. And it has underscored the powerful and continuing salience of the “undeserving poor,” and their metrification, as a foundation to tech-centered enterprise in the new millennium. It is a reminder too of the spectrum of positionalities that techno-eugenic proponents could occupy.

Like eugenicists in the early twentieth century that infamously encompassed liberal progressive reformers alongside illiberal xenophobic champions (Leonard 2016), techno-eugenics proves flexible enough to encompass a range of positionalities across technology sectors. Despite their superficial distinctions, they maintained a classificatory logic that urged the need for reform and intervention driven by more evolved and competitive knowledge classes. Heralding an imperative for innovation as an economically and socially evolving force, they amplified and mainstreamed outcries against the “excesses” of the regulatory welfare state and democratic protections. This was enabled by exchanging past references of degradation through racial dysgenics for an emphasis instead on projections of Western ruination through economic stagnation, technological regression, and curtailments of individual choice in a once free market.

Of course, there have been other forms of critical orientations around the obligations of government that aimed to hold political leaders more accountable to the work of securing public welfare and democratic protection. The data work that such actors channeled over generations and the justice-oriented solidarities and intersectional collaborations they fostered to undertake their efforts is the subject of the next three chapters.

*Relational Infrastructures*FEMINIST REFUSALS AND IMMIGRANT
DATA SOLIDARITIES

JANE ADDAMS'S UNFLINCHING REFUSAL of University of Chicago President William Harper's 1895 proposal to incorporate Hull House into the university did not mince words. As the renowned US feminist cofounder of Hull House wrote to Harper in a letter from December of that year,

[A]ny absorption of the identity of Hull-House by a larger and stronger body could not be other than an irreparable misfortune. . . . Its individuality is the result of the work of a group of people . . . living in the 19th Ward, not as students, but as citizens, and their methods of work must differ from that of an institution established elsewhere, and following well defined lines. An absorption would be most unfair to them, as well as to their friends and supporters, who believe that the usefulness of the effort is measured by its own interior power of interpretation and adjustment (Deegan 1988, 35).

Indeed, there were already multiple invitations for Hull House to be incorporated into the University of Chicago by the time the now famous volume *Hull-House Maps and Papers* had been published in 1895. Each invitation, historians recount today, had been roundly refused by Addams. Her unflinching refusal of Harper's 1895 proposal to incorporate Hull House into the university decried what she called the "irreparable" ethical breach that allowing the collective life of the settlement to be "absorbed" into institutions of the establishment would cause, despite the "very valuable assurance of permanency" it promised.

But from Harper's end, there were multiple reasons that motivated the University of Chicago's attempts to incorporate Hull House's experimental community of resident-researchers in the heart of Chicago's multi-ethnic West Side. The University of Chicago, newly founded in 1892 through a \$35 million donation from Standard Oil monopolist John D. Rockefeller,

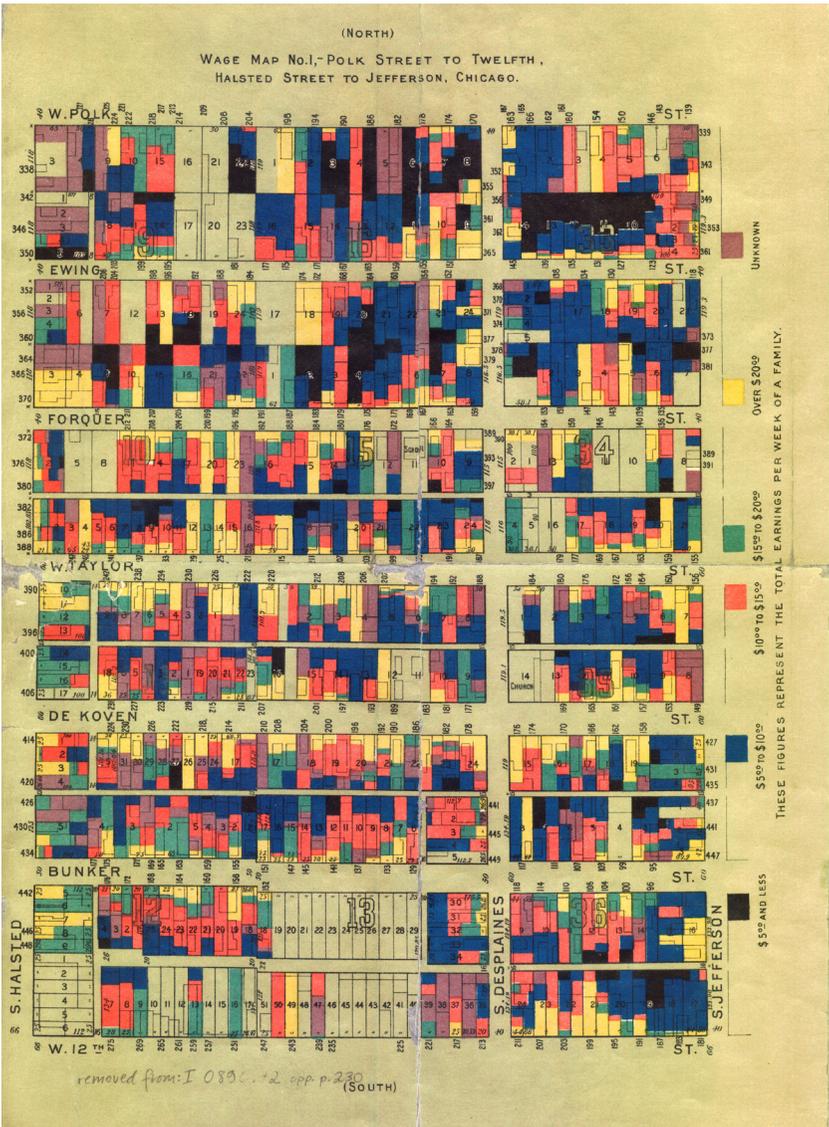


FIGURE 5. A wage map visualizing household income data among the immigrant families in Chicago's West Side, published in the *Hull-House Maps and Papers* volume in 1895, demonstrating the "total earnings per week of a family," up to \$20 per week. (Courtesy, Newberry Library)

was itself a fledgling institution with new departments—including the United States' first department of sociology—that were established to draw in leading faculty and help cement the University of Chicago's reputation as a preeminent knowledge institution. Although Hull House was barely

half a decade old at the time, its engagements after its founding in 1889 (as only the second US settlement, following the Neighborhood Guild in New York City's Lower East Side that was built in 1886) had allowed it to establish a reputation for "daring" efforts in the social settlement movement (Deegan 1988, 3). And it quickly distinguished its leadership as "the archetype and dominant U.S. social settlement" (Lengermann and Niebrugge-Brantley 2002, 6) by the turn of the century. Central to this was not only Hull House's development of community-based classrooms, free courses, and open organizing spaces extended to the working families and largely immigrant households growing in Chicago's 19th Ward, but its work to document the conditions of life, labor, and conflict far outside the city's elite districts in a period of rapid urban expansion, stratification, and change. As Hull House grew resources to include a free kindergarten and day care, a coffee house, gym and athletic programs, a theater and art studios, and legal services for residents of the 19th Ward, its work would be credited with spurring the expansion of parallel settlement house organizations across the nation, which would grow by 1910 to 413 across thirty-three states. Many, following Hull House's publication of its *Maps and Papers* volume, would similarly release research volumes that tracked the rapid transformation of city life and its impact on marginalized populations—including, notably, W. E. B. Du Bois's *The Philadelphia Negro* (1899), published with Philadelphia's College Settlement, and Frances Kellor's *Out of Work: A Study of Unemployment* (1904), published with New York City's Henry Street Settlement.

While Harper's overtures to incorporate Hull House were clear in their day, and arguably still translate in the present when elite universities in the United States have struggled to demonstrate their relevance to broad publics and civic bases, the reasons for Addams's pointed refusal of incorporation, despite whatever benefits it might have promised, invites exploration. As this chapter reviews, it had to do with the elite academy's relation to eugenics and its role in extending hierarchical, social Darwinist paradigms in society. But it also had to do with the commitment of Hull House's diverse researchers to build other models of knowledge infrastructures that could enable alternative intersectional feminist research practices and pluralistically cultivated data methods. In contrast to the previous three chapters, this chapter and the next two explore community-based alternatives to predatory data that existed across generations. Designed to push back on the stratifying and dispossessive impacts that eugenic researchers anchored into and

worked to mainstream over more than a century of data work, community-developed alternatives aimed to foster new forms of data solidarities among diverse practitioners. And whether through the relational infrastructures covered in this chapter, or through contemporary community data methods covered later (in chapter 6), such forms of community-based work showcased the fervent commitment practitioners have long had and cultivated to orient data and knowledge practice toward ends other than profiling, profit making, and predicting narrow forms of survival.

Largely forgotten today, Hull House was broadly recognized at the turn of the century not only for its development of nineteenth-century urban settlement architectures and its novel blending of a community and educational center in the heart of Chicago's West Side, but also for its parallel innovations in data methods and infrastructures led by feminists and largely "amateur" researchers who were decentered from the elite academy and dominant knowledge institutions of the day. Today, historians underscore how, in the decades prior to the US legalization of women's suffrage, Hull House "coordinated and led a massive network" of diverse justice-centered organizers who were "more egalitarian, more female-dominated" (Deegan 1988, 3–5) than either the British model for a settlement house or US university models that had come before it. Built from the work of feminist, immigrant, queer, and prolabor researchers, Hull House's network pushed back on the prominence of social Darwinist and eugenic paradigms of the day that pitched public anxieties around the changing demographics of US society and the proximity of poor, ethnic minority, and immigrant classes. The proposals for Hull House's incorporation into the University of Chicago issued by its founding president William Harper and Department of Sociology head Albion Small underscore how impactful Hull House and its knowledge-based endeavors were already perceived to be by the final decade of the nineteenth century. Historians credit Hull House and settlement researchers for advancing varied methods in social scientific data collection (Deegan 1988; O'Connor 2002; Sklar 1985)—from the social survey and questionnaire to applications in data visualizations highlighting neighborhood accounts and lived experience—that "pioneered for American sociology many of the strategies now taken for granted by academic sociologists" (Lengermann and Niebrugge-Brantley 2002, 11).

Far from seeking approval or authorization from established institutions, Hull House's international feminist researchers advanced new data methods and architectures in active refusal of dominant knowledge institutions and

their roles in enabling the intensification of social Darwinist paradigms. At the turn of the century, as eugenic researchers heightened public anxieties around non-Anglo Saxon immigrants in the United States and their connection to social unrest, Hull House researchers pointedly critiqued dominant knowledge institutions for their failure to confront problems of social stratification, nativistic class division, and labor exploitation (with their gendered, racialized, and classed dimensions), and for allowing eugenic framings of urban poverty and “disorder” to be justified as inevitable outcomes of “natural” social and racial hierarchies. By the turn of the century, US campuses, universities, local municipalities, and institutions of the nation’s cultural establishment were not only visibly accommodating eugenic advocates, but would also become some of the most prominent channels for elite classes to promote and amplify eugenic fervor in the name of national order and preservation. Eugenic researchers’ proximity to US elites and knowledge classes further provided them access to expanding governing circles that by the turn of the century had already allowed their data collection efforts to proliferate with commissions from local and state-level public offices. Such developments fed feminist convictions for the need to develop new, independent research infrastructures that would work to not only foster critical forms of knowledge production that mainstream institutions had marginalized (if not altogether silenced), but would also tie the process of empirical data collection to alternative forms of civic accountability and reform-oriented relations beyond the authority of established elites and academic professionals.

This chapter reviews the novel set of pluralistic research methods that Hull House residents developed to document and visualize local data, including in the *Hull-House Maps and Papers* volume that quickly placed them at the forefront of new social science techniques. Such approaches, as feminist historians note, played foundational roles in establishing fields such as urban sociology, social work, occupational health and safety, and workplace inspection in later decades (Deegan 1988; O’Connor 2002; Schultz 2006; Sklar 1985). More than a century ago, while eugenics was surging in national popularity (discussed in chapter 1), immigrant and feminist data researchers at the Hull House project posed early questions about the intersection of power and data, the knowledge practices of dominant institutions, and their impact on diverse marginalized communities. Critical of the standard epistemological infrastructures by which data on marginalized communities accrued, and that allowed dominant institutions to maintain stature in society despite their lack of public accountability and the flagrant exploitation

of society's most vulnerable sectors that continued undeterred, Hull House researchers refused to be integrated into the institutional establishment. What they pressed for instead through their local engagements in Chicago's 19th Ward were alternative research infrastructures whose endeavors would not be defined through the norms and claims of research professionals nor the ideals of "objective" science—particularly that tied to a White, elite, male-dominated academy and state bureaucracy. Rather, they imagined what I call here "relational infrastructures" that organized data work around new networks of political collaboration whose research-based endeavors could be led by the very actors marginalized by mainstream knowledge institutions. Moreover, Hull House's feminist researchers defined the success of their research engagements not so much by the scale of data collected or conventions of academic prestige, but around the capacity to pluralize coalitional relationships and orient collaborative knowledge practices toward the transformation of broader social structures.

While the US settlement house movement drew increasing public attention to turn-of-the-century public crises, including hazardous labor conditions and the exploitation of the working poor, immigrant, and Black and female laborers, Hull House's commitment to developing distinctive collaborations, along with its critical orientation to established institutions, enabled its unique success in advancing urban and social welfare reforms that came to define the era. Its work in campaigning for key legal reforms, including the eight-hour workday, a minimum wage, and the elimination of child labor, championed what historians today underscore as "a new ethical paradigm" (O'Connor 2002) that transformed knowledge and public understanding of poverty. This approach emphasized poverty's roots in unemployment, low wages, labor exploitation, and political disfranchisement of vulnerable gendered, raced, and classed populations, families, and households, and "more generally in the social disruptions associated with large-scale urbanization and industrial capitalism" (O'Connor 2004, 18). Its advocates thus emphasized collective responsibility and social justice over dominant social Darwinist and eugenic models of the day that naturalized social hierarchy and framed poverty as an inevitable part of society, the fault of the poor themselves, and the result of individual pathology, moral failure, or biological destiny. Hull House residents took leadership in the drafting of new reform legislations at city, state, and federal levels, channeling their work toward disentrenching dominant ways of framing marginalized households and families from established knowledge infrastructures of the state and academy. They

worked instead to create new infrastructures where socioeconomic inequity's causes could be seen and treated as systemic and tied to the exploitative practices of corporate capital—rather than rooted in individual failings or biological destiny.

This chapter revisits the late nineteenth century to attend to the long history of feminist data practice and to likewise underscore the legacies of work committed to imagine and insist upon the possibility of making knowledge infrastructures and data futures otherwise. It explores how central to the innovations of the collective of female, queer, and immigrant authors organized under Hull House was their cultivation of novel forms of intersectional politics and solidarity infrastructures that grounded their alternative data work as necessarily relational. While such relationships were actively embraced and foundational to the knowledge practice of Hull House researchers, such critical forms of organizing were marginalized and increasingly banned within elite academic campuses. Following a review of academic politics at the time of *Hull House Maps and Papers*' release, I turn to the relational infrastructures that came to define the data work of Hull House's feminist researchers included in the *Maps and Papers* volume. I contrast this with the objectifying techniques and systematic surveillance used to dataify and produce popular data visualizations of poor and immigrant households and enclaves—in particular, the 1885 public health map of San Francisco's Chinatown that justified US eugenic immigration bans at the turn of the century. While eugenic data visualizations aimed to expedite civic amputations to optimize the survival of the “fit,” the data methods developed by the feminist, queer, and immigrant researchers of Chicago's Hull House pressed for explicitly community-based research infrastructures to support diversified ways of seeing “working households” and to insist upon the possibility of new systems of knowing through relations and reform work directly grounded in the residential districts of working families themselves.

REFUSING DOMINANT INFRASTRUCTURES AND THE EUGENIC ACADEMY

US universities were among the first sites in the nation to cultivate and organize around the promotion of eugenics, with at least 376 universities and colleges, including Harvard, Princeton, Columbia, Berkeley, and Cornell (Cohen 2016b; Miller 2020), teaching eugenics in courses by the

early decades of the twentieth century. Distinguished figures, including Oliver Wendell Holmes Sr., then the dean of Harvard Medical School, publicly endorsed eugenics in national publications like the *Atlantic Monthly*. There, he wrote in 1875 of eugenics' promise in predicting criminal behavior and "deep-rooted moral defects" of individuals that were surely as tied to genetic inheritance, as Galton had already "so conclusively shown," as genius and talent in individuals were (Holmes 1875).

Eager to put eugenic ideals into national practice, Harvard alumni¹ and faculty came together in 1894 to found the Immigration Restriction League as a network to advance legislation to enforce racialized immigration quotas, obligatory literacy tests for immigrants, and the sterilization of "unfit" citizens. Harvard President Charles William Eliot (president from 1869 to 1909) and his successor, A. Lawrence Lowell (from 1909 to 1933), as well as Bowdoin College President William DeWitt Hyde (also a Harvard alum) notably served as vice presidents for the League. Eliot even became a vocal promoter by helping the Immigration Restriction League's membership grow rapidly to hundreds of Harvard alumni and members of the East Coast elite through public endorsements. By the late nineteenth century, the elite US academy had become such a significant channel for eugenics promotion that institutions like Harvard could be called a eugenics "brain trust" by contemporary historians. With so many administrators, faculty, alumni, and multiple presidents at the forefront of the movement, it was no stretch to call eugenics part of "the intellectual mainstream at the University," where "scarcely any significant Harvard voices, if any at all, were raised against it" (Cohen 2016a).

Enthusiasm for eugenics was echoed across the leadership circuits of other US campuses, too. When Stanford's founding president, naturalist David Starr Jordan, was recruited to head the private California university in 1891 after having served as the youngest president of the University of Indiana, he had already begun to teach courses on Darwin and the theory of natural selection at Indiana. There, he had "becom[e] increasingly convinced" (Gunderman 2021) of eugenic ideals around genetics' powerful influences over human fate. By 1898, Jordan would write of his distress over "the dangers of foreign immigration [that] lie in the overflow of hereditary unfitness" (Committee to Review Namings in Honor of Indiana University's Seventh President David Starr Jordan 2020). In coming years, he would gain prominence and renown not only for his "widely re-printed" pro-eugenics treatise in *The Blood of the Nation* (1902), but also

for his long-standing leadership and dedication to the institutionalization of eugenic policy that centrally defined the last four decades of his career. He would use his stature and advocacy to, among other things, get the world's first forced-sterilization law enacted in Indiana in 1907. California soon followed in 1909. In 1928, Jordan would help found the Human Betterment Foundation in Pasadena—to compile and redistribute information on the benefits of forced sterilization policies to other states, as well as to ensure that California's sterilization program could serve as the nation's leading model. The Foundation's initial board organized a range of California's intellectual elite into an influence engine that included Justin Miller, dean of the College of Law at the University of Southern California; Paul Popenoe, a Stanford graduate and future cofounder of the *Ladies Home Journal*; and David Starr Jordan, who was by then chancellor of Stanford University. Later members would include Lewis Terman, the Stanford psychologist best known for creating the Stanford-Binet test of IQ; Robert Andrew Millikan, Chair of the Executive Council of Caltech; William B. Munro, Harvard professor of political science; and Herbert M. Evans and Samuel J. Holmes, professors and faculty of anatomy and zoology at the University of California, Berkeley. Among the Foundation's credits was the release of the book *Sterilization for Human Betterment: A Summary of Results of 6,000 Operations in California, 1909–1929*, with Macmillan Press in 1929.

Elite academic institutions' leadership in eugenics would only grow through the early decades of the twentieth century. Oliver Wendell Holmes Sr.'s son of the same name, Supreme Court Justice, Harvard alum, and fellow career eugenicist Oliver Wendell Holmes Jr., would infamously preside over the *Buck v. Bell* case of 1927 that sustained the legality of states' forced sterilization of US citizens in state care. Following the founding of the Eugenics Record Office (ERO) by Harvard's Charles Davenport, the Immigration Restriction League partnered with the ERO to realize not only a new literacy requirement bill for immigrants in 1917, but also to see to the passing of the Immigration Act of 1924 that historically imposed severe national quotas to keep non-Anglo European immigrants out of the United States. Targeting Jewish, southern and eastern European, and Asian immigrants in particular, it would allow immigration from northern Europe to increase significantly, while Jewish immigration fell from 190,000 in 1920 to 7,000 in 1926, and with immigration from Asia—already severely restricted from the Chinese Exclusion Acts from the 1870s onward—almost completely cut off until 1952 (Cohen 2016a).

Undoubtedly, when Hull House opened its doors to the households of the 19th Ward in 1889, its residents were well aware of how much rapid urban growth, unrest, and the “immigration problem” had come to define debates and opinion among the nation’s intellectual elite. By the final decade of the nineteenth century, cities like Chicago had seen their size more than double, with Chicago’s population growing from 503,165 to 1,099,850 between 1880 and 1890 (Reiff 2005). By 1890, over 40 percent of all Cook County residents were foreign born, with 78 percent of individuals classified by the census as “white” being either foreign born or children of immigrants. Districts like the 19th Ward were among Chicago’s most densely populated areas, where varied new southern and eastern European households settled (Fischer 2014). The expansion of US settlements at the turn of the century corresponded with the height of immigration from non-Anglo Saxon nations and growing eugenic anxieties among US elites around the declining percentages of immigrants from Great Britain, Germany, and Scandinavia. By the final decades of the nineteenth century, labor unrest and organizing within the city’s manufacturing and working classes that mobilized large numbers of immigrant men, women, and children from ethnic communities had come to define Chicago. From the period between the US Civil War and World War I, no other city in the nation exceeded it “in the number, breadth, intensity, and national importance of labor upheavals” (Schneirov 2005). In the latter part of the nineteenth century, Chicago had come to be recognized as the nation’s center of labor organizing, as general strikes that had been growing in the city since the 1860s culminated into a coordinated national strike on May 1, 1886, that organized eighty-eight thousand workers in 307 separate strikes around the country to demand an eight-hour workday (Thale 2005). As national headlines followed around Chicago’s Haymarket Affair of 1886 and the Pullman Strike of 1894, anti-labor repression and sentiment among the nation’s elite would grow, becoming even more entrenched and intensified.

Within just a few years after its founding, the University of Chicago, and its Department of Sociology, too, had gained a reputation for their “particularly repressive record” (Deegan 1988, 167) on prolabor sympathies among faculty. At the turn of the century, as “Chicago’s business community poured vast sums into the university” to secure it as a site “controlled by the monied elite” (Deegan 1988, 170), varied cases of academic freedom would emerge that resulted in the firing or forced resignation of professors. Historian Mary Jo Deegan documents the cases of three University of Chicago sociologists

that were removed from the department before 1918, writing that “all the people whose rights to free speech were constrained practiced a certain type of sociology” (Deegan 1988, 168) that promoted the rights of workers. Sociologist Edward Bemis’s firing in 1895, after he had expressed prolabor opinions during the Pullman Strike of 1894, became known as the first controversy over academic freedom in sociology (Bergquist 1972). Bemis was a visitor to Hull House at the time who had been publicly critiquing monopolies and advocating for government ownership of public utilities, including those owned by Standard Oil, for years before his hiring at the University of Chicago. For his advocacy, he became the object of critique by conservative business leaders and campus faculty that prompted multiple warnings from the University of Chicago’s leadership.

President Harper publicly made his admonishment known for prolabor sympathies, and for Bemis specifically, in his remarks delivered at Chicago’s First Presbyterian Church in 1894: “Your speech at the First Presbyterian Church has caused me great annoyance. It is hardly safe for me to venture into any Chicago clubs. I am pounced upon from all sides. I proposed that during the remainder of your connection with the University you exercise great care in public utterances about questions that are agitating the minds of the people” (Bergquist 1972, 387). University of Chicago economist J. Laurence Laughlin urged Harper to take stronger action than verbal reprimands, writing to Harper in the summer of 1894 that “[Bemis] is making very hard the establishment of a great railroad interest in the University. . . . [I]n my opinion, the duty of the good name of the University now transcends any soft-heartedness to an individual. . . . [Let] the public know that he goes because we do not regard him as up to the standard of the University in ability and in scientific methods” (Bergquist 1972, 387). By the end of the year, Bemis was officially discharged. Over the next several decades, other working University of Chicago sociologists and active supporters of labor rights—including Charles Zueblin, who was one of the few male authors included in the Hull House *Maps and Papers* volume—would be fired or asked to resign from the University of Chicago. Across the nation, as university leadership worked to manage the prolabor sympathies of their faculty, the increasing restrictions around academic speech and growing number of firings of professors for their political views would prompt the founding of the American Association of University Professors in 1915.

Largely absent from the majority of the era’s cases, however, were faculty dismissals for endorsements of eugenics. Harvard University President

Charles William Eliot could feel so protected in advocating for eugenics that he would, alongside Stanford's David Starr Jordan, play a prominent role in building public appetites in the United States for forced sterilization laws—the world's first, and that were seen as eugenics' most radical policy innovations at the time—well into the 1910s and 1920s. Even the 1900 firing of Edward Alsworth Ross, fellow eugenics promoter and friend to Stanford President David Starr Jordan, resulted less out of objection to his views on eugenics—and his professed embrace of conspiracy theories that blamed Chinese and Japanese immigration for White “race suicide” (Eule 2015)—than from concern over his making such remarks before a labor union in an effort to rally prolabor sentiments in San Francisco (Samuels 1991).² Despite his vehement proclamation in his 1900 speech that Whites should “turn [their] guns upon every vessel bringing Japanese to our shores rather than to permit them to land” (Eule 2015), Ross's dismissal from Stanford was able to gain wide public sympathies among the lettered elite of the nation in the months following, with editorials and articles published in hundreds of newspapers to defend Ross, and seven other Stanford professors resigning to support him (Mohr 1970).

It was this version of a culture of “academic” privilege and “freedom”—channeled not merely through the individual knowledge practice of the elite White male faculty working at university campuses, but stabilized, protected, and reproduced through the larger infrastructures that surrounded them—that the Hull House researchers refused at the turn of the century. Their intentionality in growing and developing an alternative model of knowledge culture in critique of the elitist, White male academy is demonstrated by their dedication to foster a space that didn't just defend an abstract version of scholarly independence, which they had seen could be used in defense of eugenic and labor positions alike. Neither did they claim their work to be merely in the name of a decontextualized version of “academic freedom” that could be weaponized against minority actors. They worked instead to orient Hull House's projects and practices to the growth of relational infrastructures—ones that pluralized alliances and fostered intersectional solidarities for researchers and neighborhood collaborators around an explicitly anti-nativist, feminist, and prolabor politics and reform agenda.

They labored to generate actively connective spaces that could foster alternative means for intersectional knowing and collective being under shared conditions of rapid change. Organized around efforts to develop pluralistic approaches to local data practice, their growing gains in political reforms

spoke for the possibilities of drawing together the diverse commitments of actors working across differential vulnerabilities. The *Maps and Papers* volume served as their first signal and mobile testimony to broader publics for what such a coalitional form of intersectional knowledge work could produce. And it materialized too their belief in how work to respond to and create new accountabilities for what knowledge work revealed could look otherwise when organized through relational infrastructures.

FEMINIST RELATIONAL INFRASTRUCTURES AND REACCOUNTING FOR “HOUSEHOLD”

Over a century following the height of the US settlement house movement, contemporary feminist science studies scholars and critics of “big data” economies turned to history to underscore the hidden forms of political work organized through large-scale, long-running infrastructures. Describing the complexes of research practice that could accrue over time through the stabilizing work of dominant research institutions and bureaucracies, Michelle Murphy (2017) credited infrastructures for consolidating and “making real” certain forms of knowledge around the “economy” and “population” in the early twentieth century. The so-called “epistemic infrastructures” she wrote of, that included buildings, standards, forms, resources, affective orientations, and power relations, “created the dense numbers and data about population for the sake of the economy,” naturalizing notions of “differential life worth” while at once turning life into something newly calculable. And as “assemblages of practices of quantification and intervention conducted by multidisciplinary and multi-sited experts,” she added, they could transform what were once experimental practices for quantification and intervention into pervasive twentieth-century infrastructures. Global agendas—from development projects to global health, poverty relief, and imperialism—channeled through such infrastructures could thus come to appear so natural and inevitable that, in Murphy’s words, “it can it be hard to imagine the world without them.”

Feminist science studies scholar Susan Leigh Star brought early attention to how the remarkably overlooked and even boring nature of infrastructures (1999) could disguise the power of their ordering functions. Drawing attention to infrastructures as understudied systems that underpinned modern life—whether railroads and power plants or digital processing systems and

workplace information platforms—she called for new methods to explore the imbrication of infrastructure and human organization. Reminding her readers of the “fundamentally relational” (1999, 380) nature of infrastructures, she would write of their ability to organize and architect human action and activity at scale. Even while they were conventionally treated as mere substrates and background to some real action presumed to be located elsewhere, information infrastructures, by Star’s read, channeled power by inscribing every conceivable form of variation in practice, culture, and norms into the foundations of technological design (1999, 389), embedding them into categories, conventions of legible practice, and taxonomies of permissible and standard (and nonstandard) use. Even while such embedded programs, designs, and classifications were challenging to perceive, Star reminded readers that to recognize the hidden work of infrastructures was to recognize infrastructures as themselves malleable, changeable, and reprogrammable forms—even if they required additional knowledge, time, resources, or “a full-scale social movement” to change.

Such framings reverberate through Hull House’s *Maps and Papers* volume and its work to draw attention to the overlooked efforts of nineteenth-century relational infrastructures and the long history of feminist efforts to remake shared imaginaries through intersectional knowledge practice. Released in 1895 and credited to the “Residents of Hull House” as its collective author, the *Maps and Papers* volume was the first collaborative project and publication to speak for the pluralizing politics behind its methods. Composed of essays by ten authors—eight of whom were women, two of whom identified as US immigrants, and only two of whom had university training in economics or politics—it opened with a short “Prefatory note” from Jane Addams that stressed the dialogic nature of what they imagined the volume might activate, writing that the authors “offer these maps and papers to the public—not as an exhaustive treatise, but as recorded observations that *may* possibly be of value.” It cited UK author Charles Booth’s color-coded wage maps of London—the first of their kind, published in 1886—as an inspiration. But Hull House’s *Maps and Papers* volume also added compelling forms of qualitative data to Booth’s visuals by highlighting data drawn from other varied methods—from direct testimony from the 19th Ward’s residents to household surveys—and by drawing emphasis to issues of gender, race, ethnicity, and age as key factors in the economic survival of households. By modeling how such techniques added context to data and could powerfully impact the research findings and the visualizations that resulted, Hull

House's maps came to be recognized as a landmark publication. Historians would recognize it as the first of many social surveys later conducted in the 19th Ward and a precursor to the more "sophisticated" sample survey methodology that had yet to emerge, which leading sociology departments, including that at the University of Chicago, would instead be credited for in coming decades (Bulmer, Bales, and Sklar 2011; Deegan 1988; Harkavy and Puckett 1994; O'Connor 2002; Schultz 2006; Sklar 2011).

Moreover, the *Maps and Papers* volume and authors had played key roles in the passage of the Sweatshop Act of 1893 in Illinois that became a model for other US states. Hull House resident Florence Kelley, in particular, recognized the potential in leveraging local data and organizing relations from the 19th Ward to see to the passage of the landmark bill. Kelley, who had arrived at Hull House as a single mother of three, graduate of the University of Zurich, and friend and translator of Friedrich Engels, had worked for the Illinois Bureau of Labor Statistics before she became the first chief factory inspector of Illinois. Her work with a coalition of varied labor groups and women's associations—including the thirty organizations united under the Illinois Women's Association (representing diverse political factions, from women's suffrage groups to working women's trade unions)—led to the drafting of the Sweatshop Act (Skar 1985). The bill not only established gender- and age-based protections for women and children, outlawing the employment of children under fourteen in factories and limiting the hours that women could work, but it also created the state's first Factory Inspection Department to regulate general conditions of manufacturing that disproportionately impacted immigrant women and children, whose labor was exploited under sweatshop systems (Knight 2005).

The *Maps and Papers* volume's content reflected such intersectional political commitments of its feminist researchers, with chapters on Chicago's "Sweating System," "Wage Earning Children," and "Cloakmakers' Expenditures," which introduced some of the first published studies on US sweatshops, the working conditions of adult men and women, as well as child labor. Other chapters addressed Czech and Italian community life in Chicago and "The Settlement's Impact on the Labor Movement," with the collection offering one of the first documentations of the systemic exploitation faced by immigrants and the working poor that highlighted gender and age as factors. Details on the daily "conditions of life"—from the amount of air, light, and space available for individuals and families in tenements, to the schedule of work and sleep that families were required to maintain to sustain

survival wages—were paired with empirical, but, until then, largely invisible or ignored data on the economic system of Chicago sweatshops: the varying hourly rates for making a buttonhole or stitching hems, the process of premature aging caused by work conditions, the deformities and occupational diseases contracted by child workers, and the lasting effects of industrial injuries seen in working men and women.

But it was the color-coded Wage Maps of the volume, along with the written chapters by its authors, where Hull House's multimethod approach to social surveys could most compactly be seen. A collaborative creation of Alice Sinclair Holbrook, who had studied math and the visual arts, and Florence Kelley, the maps testified to the potential to apply statistical and visual techniques as a tool for social reform. And they testified, too, to their utility in challenging the dominant gender, class, and racialized social categories that anchored the world of White US reading publics of the day. Their use of "households" as the measuring unit for income in their Wage Maps, for instance, was an intentional categorization that underscored the essential contributions of women and children to family income. The volume authors specified that each "household" indicated could represent either an entire "family of wage earners" or a single wage earner. Anticipating the gender, class, and race biases of a White, middle-class reading public of the era, they explained their disruption of the standard use and dominant understanding of the "household" category, noting that while readers might find it unusual to code a single wage earner—assumed to be a single working man—in the same way as a family "head" with other dependents, the authors explained, "[I]n this neighborhood, generally a wife and children are sources of income as well as avenues of expense; and the women wash, do 'home finishing' on ready-made clothing, or pick and sell rags; the boys run errands and . . . the girls work in factories . . . or sell papers on the streets" (1895). Accordingly, they advocated relinquishing the standard practice of treating wives and children as "dependents" rather than as contributors to household income. As they wrote, "[T]he theory that 'every man supports his own family' is as idle . . . as the fiction that 'everyone can get work if he wants it'" (1895, 61).

Holbrook further wrote that the context that the written commentary provided the accompanying maps aimed to make their visualized data more "intelligible" to readers by doing more than just appealing to their reason and intellect. Rather, underscoring the affective quality of both the maps and their accompanying notes, Holbrook explained that they offered

data *and* context “with the hope of stimulating inquiry and action” in the reader and to evolve new thoughts and methods toward the development of not just a detached “scientific” research model, but a model with an invested “humanitarian” transformation-oriented objective to investigation (1895, 58). She elaborated on decoding the visual data and translating the human stories behind the wage maps’ abstract classification system, writing, “[T]he black lots on the map . . . [represent] an average weekly ‘household’ income of \$5.00 or less, or roughly, families unable to gain . . . together [even] \$260 dollars a year.”³ Illustrating a typical case, she further explained, “[A worker] employed on the railroads from twenty to thirty weeks in the year [receives] \$1.23 a day; that is . . . \$150.00 to \$225.00 a year on the average. [But this is] not an income of \$4.32 a week, or even \$2.88 a week, throughout the year, but of \$7.50 a week half the year, and nothing the other half . . . [due to the] irregularity of employment.”⁴

Placing extra emphasis on what she intended to not be missed by her readers, Holbrook added that the blocks colored blue “embraced families” earning from \$5.00 to \$10.00 a week—what would translate to USD\$174 to USD\$348 in weekly earnings in 2022⁵ (a value below the national poverty line of \$18,310⁶ in annual income for even a two-person household in the United States in 2022)—or what she stated as “probably the largest class in the district.”

EUGENIC DATA AND VISUALIZING DANGER TO WHITE FAMILIES

With good reason, the Hull House researchers took pains to explain their reports and mappings, recognizing that what they argued was far from the mainstream for lettered publics’ understanding of poor, working class, and ethnic enclaves in the late nineteenth century. Hull House researchers’ data work operated in direct contrast to and refusal of the dominant social Darwinist paradigms that continued to reinforce readings of poverty and racial and social hierarchy as inevitable features of society. Comparing the Hull House efforts with the data publicly circulated by city officials, particularly on the US West Coast,⁷ where new migration and immigration patterns had rapidly changed urban demographics, demonstrates how public and medical authorities mobilized eugenic methods to track such changes and report their impacts on “fit” US-born White populations.

In San Francisco, varied government-sponsored investigations were undertaken from the mid-nineteenth century onward to map the growing presence and proximity of Chinese residents and enclaves in the city,⁸ stressing them as a source of “terrible pollution of the blood” and “hereditary diseases” in “rising generations among us” (Farwell, Kunkler, and Pond 1885, 14). Between 1854 and 1885, at least five studies were commissioned by the city of San Francisco to document the growing dangers to the physical, moral, and genetic health of the city posed by the filthy, disease- and criminality-prone Chinese (Shah 2001).⁹ Such reports stressed not merely Chinese enclaves as unparalleled breeding grounds for vice, immorality, crime, and disease, but also argued for the imposition of heightened forms of control on Chinese residents as a means of containing the threat they posed to degrade the future health and progress of the city and its “well-born” White populations. Ensuring that intensified forms of surveillance, regulation, and restriction would be maintained on Chinese immigrants as a special category for over half a century, they would come to play critical roles in the passage of the series of US Chinese exclusion acts that grew increasingly expansive from the 1870s onward.

Underscoring the irrefutability of the evidence and data that spoke for the subhumanity of the “Mongolian race,” city health officers like C. M. Bates would directly liken the Chinese to “cattle or hogs” crowding together in filth and moral squalor. In his 1869 municipal report, Bates would attest that the Chinese “habits and manner of life [were] of such a character as to breed and engender disease wherever they reside” (1869, 233). And he warned that without some form of heightened intervention by authorities, “some disease of a malignant form may break out among them and communicate itself to our Caucasian population” (1869, 233). Just two years later, in 1871, Thomas Logan, the secretary of the California State Board of Health and a nationally reputed physician that served as president of the American Medical Association, commissioned an investigation of San Francisco’s Chinatown to track the “hereditary vices” of the Chinese, predicting that their “engrafted peculiarities” preordained Chinese residents to physical and moral sicknesses (Shah 2001, 28).

By 1885, San Francisco’s Board of Supervisors would release its most comprehensive study to the public: a 114-page report on the conditions of the multiethnic “Chinese quarter.” This allowed surveyors to be employed to accompany city officials as they visited “every floor and every room” to ensure that the “conditions of occupancy . . . are fully described” (Farwell, Kunkler,

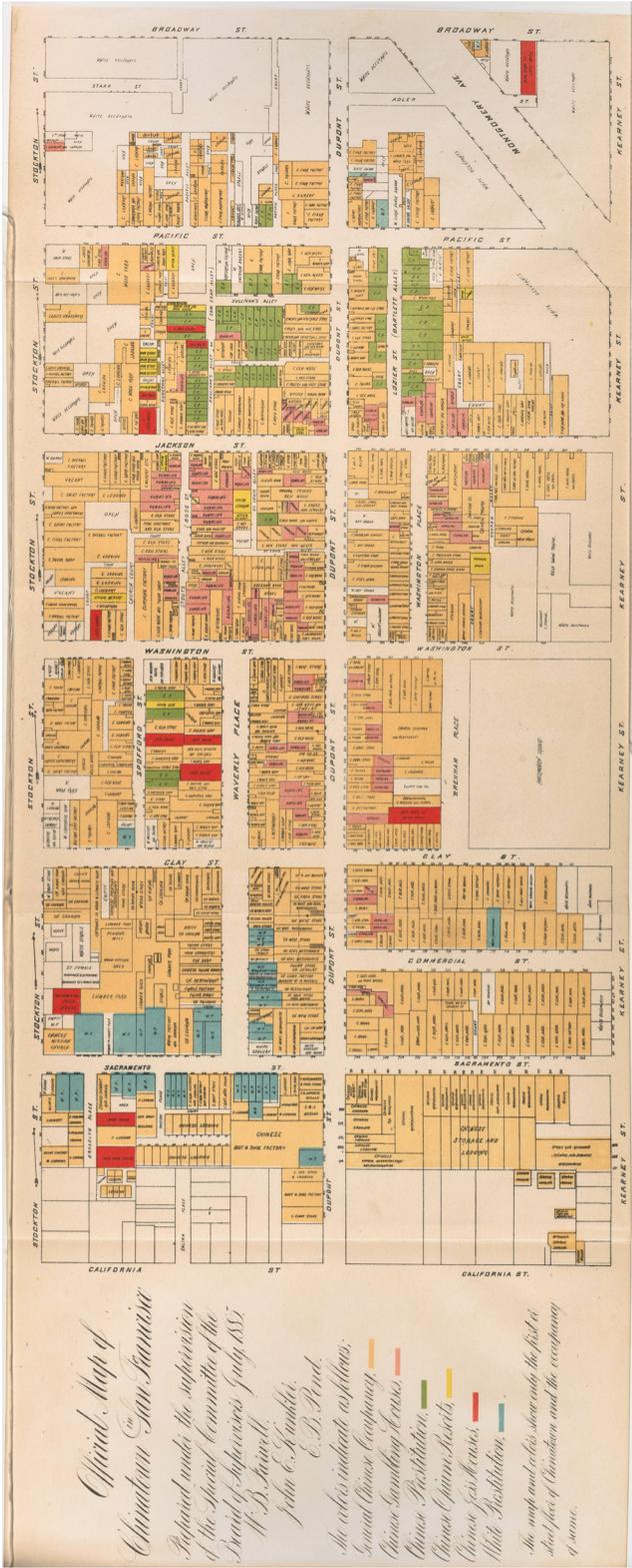


FIGURE 6. Official Map of Chinatown of San Francisco, prepared under the supervision of the Special Committee of the Board of Supervisors, July 1885, by W. B. Farwell, John E. Kunkler, and E. B. Pond. The legend highlights “Chinese Prostitution” (green), “Chinese Gambling Houses” (pink), “Chinese Opium Resorts” (yellow), “Chinese Joss (Worship) House” (red), and “White Prostitution” (blue). (Courtesy, Cornell University—Pj Mode Collection of Persuasive Cartography)

and Pond 1885, 1). Authored by city supervisors Willard Farwell, John Kunkler, and E. B. Pond,¹⁰ the report built on nearly two decades of what historian Nayan Shah called the “systematic surveillance” of San Francisco’s Chinatown (2001). He notes that while “businesses and residences occupied by Irish, Italian, Portuguese, Mexican, Canadian, and Anglo Americans continued to thrive in so-called Chinatown,” they were “of little interest to the health inspectors” (Shah 2001, 25). The authors confirmed in the report’s opening pages that the increased control, “constant watching and close supervision [of] the residents of Chinatown” had forced “less obnoxious” habits among the Chinese. But they elaborated that Chinatown still stood “as a constant menace to the welfare of [well-born, US] society . . . and always will, so long as it is inhabited by people of the Mongolian race” (1885, 4). It included as evidence the first “Official Map of Chinatown in San Francisco” that resulted from the city’s commission. Covering a twelve-block city area and permeated with color-coded blocks representing sites of “Chinese Prostitution,” “Chinese Opium Resorts,” and “Chinese Gambling Houses,” as well as nearby sites of “White Prostitution,” the map readily demonstrated the spread of vice and “the great, overshadowing evil which Chinese immigration has inflicted upon this people” that is “inseparable from the very nature of the race” (1885, 5).

The authors of the 1885 investigation took pains to stress the novelty of the data—qualitative and quantitative alike—and revelations uncovered through the exhaustiveness of the methods they deployed. Highlighting the “system of computation” (1885, 6) they developed, and that a study of this kind necessitated the empiricization of the scale of contamination coming from Chinatown, they noted their work as a first-of-its-kind census of an immigrant enclave and its impacts on the broader population. They drew attention to their comprehensive—and emphatically invasive—techniques of documentation, including requiring “every building in the district . . . [be] visited, examined, [and] measured,” with the number of rooms and bunks and “the number of men, women and children of Chinese origin *who sleep* in the district” enumerated (emphasis theirs; 1885, 6). Inserting a visual chart to tabulate the number of bunks per block that their diligent surveyors’ work had uncovered, they described an elaborate relay of shared bunks that allowed “thousands of Chinamen” to rotate through compacted sleeping schedules, attributing the condition not to any system of labor exploitation, but instead to the “universal custom among the Chinese to herd” (1885, 6). They used a separate table to visually classify Chinese women and children in Chinatown

into one of three categories and to lament that less than 10 percent of the women and children in Chinatown—or fifty-seven women and fifty-nine children—were “living as families.” In the narrative accompanying the table’s quantifications, they further decried the lack of a discernible male household head or a nuclear structure for the 761 Chinese women and 576 children they counted as “herded together with apparent indiscriminate parental relations, and no family classification, so far as can be ascertained.” Specifying a third category for Chinatown’s Chinese women and children, labeled as “professional prostitutes and children living together,” they narrated they had counted some 567 women and 84 children living in such “revolting” conditions of “intermediate family relations” that it was impossible to tell “where the family relationship leaves off and prostitution begins” (1885, 9).

The authors likewise drew attention to the eyewitness accounts they deployed and that echoed the midnight journeys into Chinatown and medical travelogues published in newspapers and magazines of the era. Such passages were used to visceralize data and project the culpability of Chinese immigrants to urban deterioration. For instance, among the varied “discoveries” Farwell, Kunkler, and Pond stressed as emerging from their investigative work was the “number of degraded” non-Chinese women working as “white prostitutes” in Chinatown and the conditions of the social relations they maintained. In a separate section in the report that they dedicated to “white prostitution” alone, they anticipated shock and alarm from their audience as they shared in its paragraphs that “the point that will impress itself more strongly on the ordinary mind is that these [white] women obtain their patronage entirely from the Chinese themselves” (1885, 15). Even more “disgusting” (1885, 16), they continued, was the discovery of White women “living and cohabiting with Chinamen” (1885, 16) as wives or mistresses.

Emphasizing the special attention required by Chinese prostitutes as a particular “menace” to be controlled, the authors used their report to reify the anti-Chinese misinformation of the era that targeted Chinese women. Their report thus requoted 1877 testimony from the Board of Health’s Dr. H. H. Toland (Trauner 1978), as well as testimony from police officer James Rogers, who stated that “most of the Chinese houses of prostitution are patronized by Whites” (1885, 12), that ninety percent (1885, 13) of venereal disease in the city came from Chinese prostitutes, and that White male patrons as young as “eight and ten years old” (1885, 12) had contracted diseases from Chinese brothels. Such anxieties drove the report authors to intensively classify the social relations of the Chinese and fed their drive

to publicize Chinese immigrants' affront to US White middle-class domesticity and morality. The racialized and gendered logic of Farwell, Kunkler, and Pond's population census thus created, as Nayan Shah writes, "an assessment of Chinese society driven by statistical evidence" (2001, 40) that not only revealed the Chinese as undoing models of White, middle-class propriety, but that predicted the degradation of White families and the future "fitness" of American society through proximity to the Chinese. Nothing less than the "inaugurat[ion of] new rules and new policies, under which [the Chinese] must be brought," were needed, Farwell, Kunkler, and Pond vehemently argued, with new, heightened regimes of racialized and gendered surveillance imposed on Chinatown "if they are to continue to remain among us" (1885, 5).

Anticipating the emerging market in eugenic-themed books, whose sales in the early twentieth century would turn leading US eugenicists such as David Starr Jordan and Madison Grant into best-selling international authors (Regal 2004), Farwell would republish the Special Committee report, its map, and an additional one-hundred-page work as a three-part collected volume titled "The Chinese at Home and Abroad" in 1885, with A. L. Bancroft, the first major publisher in California. Bancroft ran newspaper advertisements throughout the United States, and in ads tailored for West Coast papers in particular, the volume was praised as being "the Book of the Hour!" for "showing the peculiar characteristics of this repulsive people" that "proves the appalling danger of retaining this heathen race among us."¹¹ Farwell, Kunkler, and Pond's emphasis on the Chinatown map's visualization of data to dramatize the "incontrovertible" danger to the White public would likewise bear early lessons for US eugenicists in coming decades. This included Madison Grant, who would use varied maps to visualize national migration patterns in his best-selling 1916 book *The Passing of the Great Race: Or, The Racial Basis of European History*.

As covered in chapter 1, eugenicists readily recognized the power of their data visualizations. During the US congressional hearings that led to the passage of the historic 1917 and 1924 immigration restriction acts, eugenic researchers covered the walls of the US congressional hearing room with expanded versions of Madison Grant's maps. Harry Laughlin of the Eugenics Record Office, the leading US eugenics policy and research body, presented various tables and statistics to the US committee debating the 1917 act to visualize the data from his study of populations, classified by ethnicity, at 445 public institutions, and establish the "fact" of degeneracy among immigrant groups who threatened to "dilute the bloodstream

of America.” Dramatizing the “fact of race suicide” among well-born US Whites and the growing flood of immigrants from nations with undesirable and degenerating traits, eugenics data visualizations helped produce the wave of political support necessary to pass the historic acts in the United States that established, for the first time, heavily restrictive national quotas and literacy requirements from immigrants from almost all nations, save a handful of designated “Nordic” and Anglo-Saxon nations (Black 2003; Okrent 2019).¹²

Like other surveyors of Chinatown of the era, Farwell, Kunkler, and Pond oriented their report toward “reasoning” for a heightened version of eugenic social policy among the White lettered classes of San Francisco. This included not just amplifying literacy around the danger that the “unfit” classes posed to healthy White families, but also fortifying institutions to ensure the protection and “preservation” of White elite households, as well as the segregation, expulsion, and hyperregulation of poor and unfit classes this entailed. They would thus end their report by asserting that the weight of evidence led them to recommend that the Chinese should be driven out of San Francisco with the full backing of law enforcement and city officials, given that “our laws [are] necessarily obnoxious and revolting to the Chinese and the more rigidly this enforcement is insisted upon and carried out the less endurable will existence be to them here, the less attractive will life be to them in California. Fewer will come and fewer will remain. . . . Scatter them by such a policy as this to other States” (1885, 67–68). In striking contrast to the localized studies of Chicago’s ethnic enclaves undertaken by Hull House actors, Chinatown surveyors deployed data collection and explicitly racialized visualization methods that aimed to establish a popular literacy around immigrant enclaves as a direct source of vice and contamination. By their emphasis, immigrant quarters should be read as sites of danger, particularly to “healthy” White, US-born populations, rather than as sites of systemic exploitation and a symptom of the modern advancement of a racialized and gendered capitalism. Immigrant classes themselves were inherent sources of moral, physical, and intellectual sickness, whose poverty and “subhuman” standards of living were empirical testimonies of the depth and inevitability of their pathology. And if there were new governing infrastructures to be built, they should be oriented not toward increasing oversight and regulation of institutions with economic or political power, but toward the surveillance of poor and contaminating migrant classes themselves, whose proximity to “well-born” Whites ensured future social degeneracy.

PLURALIZING RELATIONAL COMMITMENTS
AND SITUATED ACCOUNTABILITY
IN INTERSECTIONAL DATA PRACTICE

In contrast to eugenic approaches to research that popularized segregationist forms of data methods and visualization, the methods developed through the local social surveys of activist researchers, like those organized around the Hull House *Maps and Papers* volume, worked to establish a framework where poverty could be investigated as a problem of political or social economy rather than an inherent trait of the poor. Household exploitation, low wages, un- and “under-” employment, long hours, hazardous work conditions, and the lack of oversight of the practices governing the distribution of income and wealth could be understood as the primary sources of poverty. Such a framework allowed investigators to examine the political economy of gender, race, and class by placing emphasis on the discriminatory policies that shaped the labor market and that directly impacted working households and family members of all ages. Filtered through nineteenth-century feminist methods and commitments to intersectional organizing, the social survey asserted a powerful argument to join research with a form of justice-oriented institutional reform. Researchers and residents at Hull House advanced such a practice, as historian Alice O’Connor writes, “by devoting as much energy to displaying and publicizing as to amassing the data; by using it as the basis for local organizing and community action; and by making research a collective endeavor that engaged the energies of amateur as well as professional social scientists” (2002, 27).

Feminist and labor historians note that it was the coalitional nature of Hull House—centered on fostering not just a collective network of life, friendship, and relationality among its primarily female-identified residents, but also on cultivating a multifaceted network of diverse reform-oriented activists and organizers—that enabled it to gain a distinctive political efficacy. Kathryn Kish Sklar describes Hull House as a “social vehicle” (1985, 670) that provided feminist researchers with a space for independent political action that could intervene in, while remaining outside of, the control of White male-dominated institutions and associations. Kelley and the authors of the *Maps and Papers* volume found in Hull House a space that multiplied intersectional relationalities and alternative forms of support that exceeded the norms of dominant institutions. Through it, they could foster research relationships and political collaborations with a diverse array

of other reform activists and organizations—including male leadership from varied labor associations and professional bases—while still grounding their activity in a feminist- and queer-led community that accommodated other means to support research lives among marginalized practitioners. Kelley described in personal letters how Hull House provided a refuge for herself and her three children (then ages four, five, and six) after she had escaped an abusive marriage. She would likewise credit its community for helping her find boarding, employment, child care, and an alternative “family life” (Sklar 1985, 661) over a decade of her career not only as she completed work for the *Maps and Papers* volume, but also as she worked to draft the 1893 Sweatshop Act, serve as the state’s first chief factory inspector, and lead its office’s twelve-person staff to oversee prohibitions against tenement workshops and enforce other new labor regulations.

Hull House researchers’ refusal to allow their relational infrastructure to be incorporated into the university demonstrated their understanding of the critical work of their project as something that could best advance by remaining independent of dominant knowledge institutions of state or academy. Addams would stress in the preface to the *Maps and Papers* volume that what qualified and authorized its studies were the “situatedness” of their “observations”—and the important detail of the authors’ “actual residence” in the 19th Ward. As Addams put it, “[T]he settlement method of living among the people and staying with them a long time” was a technique where recording observations might bear added value precisely “because they are immediate, and the result of long acquaintance.” In contrast to what was just beginning to emerge in the 1890s as legitimate “social science” in the academy—built around an increasingly apolitical and objectivist model of social science—Hull House’s *Maps and Papers* argued for a critically oriented form of social knowledge that was the direct result of feminists’ and diversely allied researchers’ integration of investigation and advocacy. Social science methods, by Addams’s argument, could be imagined to serve a more intentional form of local “constructive work” that prioritized cultivating new forms of intersectional coalitions and moved against “sociological investigation” as a primary justification.

Such a struggle over the terms of research on poverty would indeed come to define the shifting terms of social science knowledge professions in the United States in the early part of the twentieth century. What had centrally accommodated reform-minded social investigators’ aims to extend the boundaries of antipoverty research to issues of political reform, trade unions,

and community-based organizing gradually came to be a more detached, professionalized model of technical, social, “scientific” inquiry. As O’Connor writes, the model of poverty knowledge that emerged in the early decades of the twentieth century “became more and more about [the behavior of] poor people and less and less about culture or political economy” (2001, 16). The early decades of the twentieth century would mark a shift toward academic and professional institutions, like the University of Chicago’s Department of Sociology, as generating the dominant paradigm in poverty research. With an emphasis on theory-based, objectivist research as the appropriate knowledge base for policy, University of Chicago sociologists solidified academic infrastructures for sociology as a scientific profession and grew a research and training department that aimed to emulate the experimental techniques of the natural sciences. Leading professors in the Department of Sociology (like Robert E. Park and Ernest W. Burgess) and their students treated local neighborhoods more as labs for research than as sites for political organizing, collaboration, or industrial reform, and poverty was read as an inevitable by-product of modern cities, social disorganization, cultural lags, or individual behavior, rather than rooted in a racialized and gendered form of industrial capitalism.

Historians note that by the late 1920s it was this model that largely displaced Progressive-Era reform as a source of expertise, while reinforcing a growing professional and gender divide between academic social science and feminized or “amateur” reform research. Hull House contributions and research methods would come to be framed as “social work” applications and “social administration,” rather than as sociology or social science (concretized in the University of Chicago’s 1920 incorporation of a School of Social Work that was originally founded by Hull House alum Edith Abbott, Grace Abbott, and Sophonisba Breckinridge) (Deegan 1988; O’Connor 2001; Schultz 2006). The claim to scientific objectivity was increasingly codified as depending on technical skills, methods, information, and professional networks that historically excluded marginalized sectors of society, including groups most vulnerable to poverty themselves, including women, people of color, non-Anglo immigrants, and working classes. As O’Connor writes, “It is this disparity of status and interest that make poverty research an inescapably political act . . . putting poverty knowledge [practitioners] in a position not just to reflect [on] but *to replicate* the social inequalities it means to investigate” (2001, 11).

To create alternatives entailed building relational infrastructures where active organizers could not only interact through Hull House, but where a host of other spaces and activities would be developed and oriented to the neighbors and residents of the 19th Ward and their interests in advocacy, reform, and organizing. Among the programs it fostered were college extension courses (that drew some hundreds of students, largely young women diversely employed in public schools, factories, shops, and offices by 1895), a summer school, a students' association, a reading room and library, several clubs for trade unions (including the Bindery Girl's Union and a men's Typographical Union, both founded in the Hull House), an Eight Hour Club (dedicated to the passage of the Factory and Workshop Bill), a 19th Ward Improvement Club that met with "active members" from the Illinois legislature to advocate for issues ranging from street cleaning and public baths to coops for heating and coal, and a Working People's Social Science Club that drew in globally renowned speakers (including Susan B. Anthony and John Dewey) to a "neighborhood forum on social and economic topics."

As a relational infrastructure, Hull House generated varied alumni who went on to serve as reform-oriented public leaders who helped found varied national organizations dedicated to social change. This included the Women's Trade Union League (WTUL), the National Consumers League (NCL), the National Committee on Child Labor, the National Association for the Advancement of Colored People (NAACP), and the Progressive Party. Among the authors of the *Maps and Papers* volume alone, Florence Kelley would go on to become the first chief factory inspector of Illinois and later go on to the National Consumers League. Isabel Eaton would go on to work with W. E. B. Du Bois as the only appointed assistant for the historic *Philadelphia Negro* study, conducting a door-to-door examination of the ward and helping collect over five thousand personal interviews. Among other Hull House alumni, Julia Lathrop helped found the Chicago Juvenile Court before she became the first director of the US Children's Bureau in 1911 and later drafted the Sheppard-Towner Infancy and Maternity Protection Act (passed in 1921). Physician Alice Hamilton pioneered the study of the toxic effects of chemical exposure in workplaces among the "dangerous" trades that especially targeted women, immigrants, and minority workers. Grace Abbott helped draft the Social Security Act of 1935 and worked to later promote the US Fair Labor Standards Act of 1938. Sophonisba Breckinridge and Edith Abbott founded the School of Social Service Administration in

1903, which was incorporated into the University of Chicago in 1920. And while many of their names never became household familiarities, feminist historians today underscore how the infrastructures they helped develop—from new welfare policies, acts, and regulations to civic organizations and unions—continue their work today (Fitzpatrick 1990).

They arguably fostered more accountable forms of scientific practice and methods (Harding 2006; Haraway 1988) that would work to redefine fundamental categories around the human and to recognize the intersectional forms of explicitly raced, gendered, classed, and colonial forms of power that narrowed its terms of inclusion (Wynter 2003). Such a mode of “situated knowledge” practice would be as interested as much in what we know (as a matter of scale) as how we collectively come to know it together (Haraway 1988), a science in which not just *responsibility* but the more relational stance of “response-ability” toward fellow beings becomes key (Barad 2012; Haraway 2008). Here, the compatibilities and interdependencies of diverse forms of accounting and data, and of calculative and interpretive approaches alike, might be bridged. Beyond developing merely empirical infrastructures to extend and normalize research findings, Hull House researchers’ work to build relational infrastructures fostered new research methods as forms of interconnective, intersectional being as conditions for knowing. Like the forms of situated knowledge that feminist science studies philosopher Donna Haraway argued for, such modes of localized, grounded seeing intentionally documented empirical worlds “from below.” They operated in distinction to the “God’s eye trick” of a distant and ultimately “unaccountable” scientific practice that came to occupy social studies, which increasingly placed primary interest in the “technical work” of amassing and assessing new “data” and thus could continue to absolve itself of response to (or response-ability for) their social implications and impacts on vulnerable populations.

In the Era of Big Data, a “God’s eye” view of the world has found a new contemporary architecture to argue for its supremacy as a means of seeing and knowing the world. Big Tech companies’ forms of data capture extend a hyperdetached, contextless mode of seeing from “nowhere” that naturalizes an ambition to know the world via a sheer breadth of scale and volume in big data. In contrast, relational infrastructures ground their methods and practices for collaborative knowing in other means of being that prioritize context, copresence, and accountability. Relational infrastructures not only underscore the need for recognition of mutual interdependencies between

agents and subjects of knowledge-making, but also call for a means of grounded response and *response-ability* to dismantle systems of exploitation and dispossession together. Far from reading their modes of local, situated engagements as limitations or liabilities in scale that weakened or hampered the goals for an abstracted “universal” science, these situated methods could instead be read as explicitly strengthening accounts of the empirical world and cultivating more accountable approaches to how researchers even come to claim knowledge at all.

And as will be covered in the following two chapters, such work continues on in a range of strategies channeled through justice-oriented data coalitions today.

*The Coalitional Lives of Data Pluralism*INTERGENERATIONAL FEMINIST RESISTANCE
TO DATA APARTHEID

IN THE MONTHS LEADING UP TO the US Supreme Court's decision to overturn the 1973 *Roe v. Wade* decision, city streets all across the United States began to be seen pulsing with waves of green. That summer, as the court handed down its decision to dismantle fifty years of legal protection around abortion rights in the United States, feminist and reproductive rights advocates began filling sidewalks and streets with a sea of green, wearing the recognizable green scarves that Latin American feminists had been donning for nearly two decades to call for the right to legal, safe, and free abortions in varied national contexts across the continent. Across cities large and small in the United States, demonstrators marched and chanted with green banners and released green smoke into the air, rechanneling the symbolic acts that had marked Latin American feminist actions from the capital city streets of Buenos Aires and Bogota to the provinces of the high Andes. Now, in the marble hallways of the US Capitol building and on the streets outside, congressional representatives could be seen wearing the same green scarves that had turned Latin American city streets into a new symbol of coalitional feminist futures.

For good reason, US reproductive rights activists were loudly invoking solidarity with movements in Latin America. In the summer of 2022, the US Supreme Court's *Dobbs v. Jackson Women's Health Organization* decision turned the United States into only one of only three nations in the world (with Poland and Nicaragua) that had heightened restrictions to abortion access in the twenty-first century. In Latin America, however, a feminist tide was pointedly making landmark political gains and was turning the region in the other direction. In December 2020, after a multiyear-long debate, Argentina's senate voted to legalize abortion. Less than a year later, in

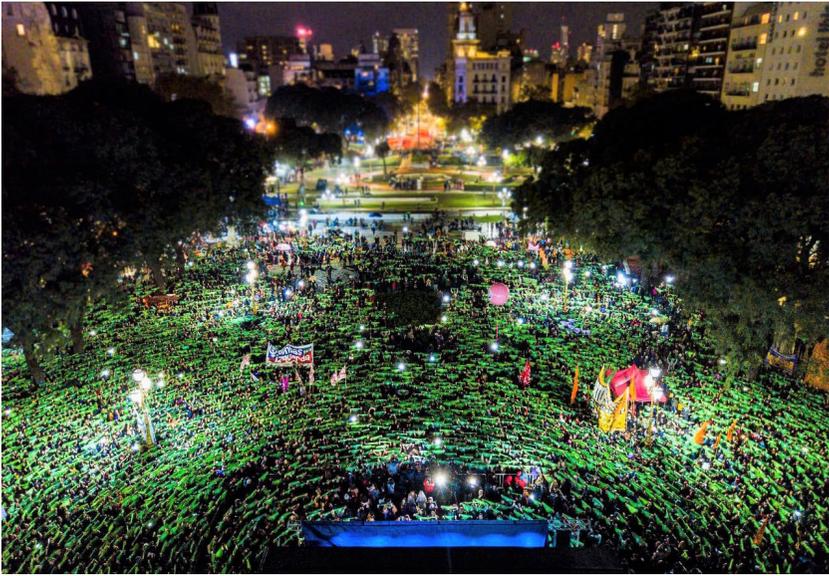


FIGURE 7. Photo of the feminist march in support of abortion rights in Buenos Aires, Argentina, on June 4, 2018, taken by the drone of the *Prensa Obrera*. (By *Prensa Obrera* / <https://youtu.be/Dp3soA2oDLY?si=7P7ftNorm-oCXQYg>)

September 2021, Mexico's Supreme Court voted to decriminalize abortion. And in February 2022, Colombia's constitutional court followed, marking feminist victories in three of the largest nations in Latin America, where Catholic majorities had once made such political futures seem unthinkable. Now, in Colombia, the 2022 court ruling established some of the most expansive legal protections for abortion (second only to Canada) anywhere in the Americas. Feminist organizers in country after country across the region, that is, had begun to use their newly gained momentum and legislative successes to press for a host of added reforms as central to their platform. This included calling for *mandatory* sex education courses in public schools and integrating transgender, queer, and disability rights perspectives into national curricula.

In the United States, news headlines emphasized the symbolic power of protestors' contemporary coordinations around abortion rights that rechanneled the Green Wave in diverse contexts across the regions. Articles made scattered mentions of acts of solidarity with US protestors, where Latin American feminists donned long red robes and white hoods, in visual reference to the dystopian future popularized in the English-language novel-turned-television series *The Handmaid's Tale*, as they stood vigil in front

of US embassies to protest the Supreme Court's decision. But among Latin American feminist networks, discussions remained focused on explicitly more strategic dimensions. Their exchanges made clear that protest had grown into something more than merely a means to channel an outcry of collective defiance, grief, and frustration. For feminist activists and scholars across the continent, protest had become a means to speak back to and challenge the exclusionary knowledge and norms reproduced by dominant institutions—from the state, legal, and religious authorities to corporations and elite universities. Their challenge was not only against the expansive forms of violence associated with the long-standing framing of abortion as “criminal,” but also for the deadly consequences that resulted from the structural marginalization and systemic underrepresentation of feminist standpoints from centers of power. Using the common resource of public space and a diverse assembly of bodies, they called such institutions to account. In site after site across the continent, the transformed streets turned into a symbolic force of refusal that exposed the insufficiency of dominant institutions that presumed to know, speak for, and “recognize” the gendered lives of women, the working poor, and other marginalized populations, and that powerfully animated the strength of feminist alternatives instead.

Moreover, across online forums and social media channels that had brought feminist collectives together across the region, organizers underscored how the recent gains around abortion protections were part of ongoing mobilizations that, for nearly two decades, had drawn together a broad coalition of cross-national, multigenerational feminist activists with diverse social justice actors across the continent. In some national contexts in the region, such coalitions had grown to include hundreds of organizations bridging reproductive rights advocates, anti-gender violence and LGBTQ organizations, unions and labor interests, Indigenous groups, and student organizations to work together as an active, pluralistic coalition (Kulbaczevska-Figat 2021). Such networks worked locally through neighborhood organizations, schools, unions, and other spaces of everyday life to successfully reframe abortion access as an issue that was not just about a bounded set of “women’s” rights in the way that dominant institutions from the state to the church had historically presumed a static, self-contained givenness to the category of “woman” itself. Rather, these networks showed that the issue implicated a range of social justice concerns that related gender inequities with the experience of everyday social violence more broadly. Central to this work was not merely the on-the-ground efforts for building popular coalitions, but intentional

knowledge work. They reframed the violence of criminalized and clandestine abortion as connected to other forms of structural violence around gender—not merely against women as a discrete population, but against diverse marginalized subjects whose own lived experiences evidenced how narrowly the law and liberal constructions of personhood represented and recognized a full spectrum of gendered lives.

This chapter attends to the knowledge work and alternative data practices behind the cultivation of feminist spaces of relating and their building of intentionally expansive coalitions as means to ground a politics of refusal against the long-standing misrecognitions of dominant institutions. Building on chapter 4's observations around nineteenth-century feminist data collaborations, I argue here that such commitments demonstrate not only global feminist imaginaries for a new data pluralism, but also work to actively counter predatory data's extractivist routines (Cifor et al. 2019; Simpson 2017; Tuck and Yang 2014) and threat to vulnerable populations through their growth of dispossessive and segregationist data infrastructures. By attending to the alternative knowledge practices and politics of refusal behind contemporary Latin American feminists' multisited coalition building, I underscore not merely the world-shaping potentials of data engagements driven by global actors other than the large corporate internet firms and Western knowledge institutions that have conventionally been framed—and arguably overnarrated—as the central protagonists behind today's data ecologies. I also explore how Latin American feminists' contemporary data work defies and presses beyond a politics of liberal recognition and inclusion as the paradigm for justice-based reform. They move instead toward what Audra Simpson describes as a politics of refusal, whose “hard-no” around dominant data regimes is grounded in a “deep cognizance of differing social and historical facts” (2017, 9) among marginalized collectives that point to the real need and possibilities of “producing and maintaining alternative structures of thought, politics and traditions away from and in critical relationship to states” and dominant institutions (2017, 2).

Their work thus importantly channels earlier arguments for a decolonial feminist practice as the grounds from which to imagine new forms of justice-centered knowledge work. Such modalities of practice are rooted in what Argentine philosopher María Lugones argued for as a pluralist feminist orientation (Lugones 2003, 2010). Grounded in calls for a “coalitional consciousness” (Sandoval 2000) between global actors in struggle, such pluralist feminist orientations worked to forge new forms of “complex

communication” (Lugones 2006) that could expand and transform conventional modes of relationality between diverse knowledge practitioners (Velez and Tuana 2020). Far from adhering to liberal traditions around pluralism, Latin American feminist orientations around data pluralism channel pluriversal knowledge ethics (Escobar 2018, 2020; Kothari et al. 2019; Morales and Reilly 2023) as commitments to realize what the Zapatistas describe as “a world where many worlds fit” and to counter what Caribbean science studies scholar Sylvia Wynter called the “coloniality of being/power/truth/freedom towards the human” (2003). It fostered a state of being where, as decolonial scholars Ashish Kothari, Ariel Salleh, Arturo Escobar, Federico Demaria, and Alberto Acosta elaborate, “all people’s worlds can co-exist with dignity and peace without subjection to diminishment, exploitation and misery . . . [from] patriarchal attitudes, racism, casteism, and other forms of discrimination” (Kothari et al. 2019, xxviii).

Unabashedly, then, decolonial feminists locate the practice of data pluralism in the space of liminal positionalities and “borderlands” where ideological and cultural “cross pollenizations” (Anzaldúa 1981, 1987) might enable another consciousness for new feminist world building to emerge. Over a generation ago, such orientations aimed to resist and refuse the forms of “single-axis thinking” (Crenshaw 1991) and “intellectual apartheid” (Sandoval 2000) normalized by dominant knowledge institutions—including Western academic organizations and liberal university campuses—that decolonial feminists diagnosed as tacitly reinforcing established social hierarchies. Their perspectives illuminated how dominant institutions diluted oppressed people’s resistance potential by segmenting forms of oppression into discrete, nonintersecting categories (i.e., race, gender, or class in exclusion of other categories) (Gipson, Corry, and Noble 2021). Even as African American feminist scholar Patricia Hill Collins observed that oppressions “cannot be reduced to one fundamental type” and that they instead “work together in producing injustice” (1990, 8), the experiences of feminists of color were continuously reduced by conventional norms of single-axis thinking to one category of oppression in exclusion of others (Combahee River Collective 1981; Moraga and Anzaldúa 1981).

This chapter thus explores how such foreclosures in the potential to forge political solidarities between marginalized populations continue to find resistance from contemporary decolonial feminist work in Latin America. Their critical investments have underscored the evolving means by which dominant knowledge institutions maintain power hierarchies through not

only sustaining a politics of marginalization, but also through a politics of segregation where potential allies and intellectual kin are divided into discrete social categories, subfields, or disciplines, and where such divisions can increasingly be effected through the contemporary application of dispossessive datafication regimes. Decolonial feminists' data pluralism thus underscores the work to generate alternatives to big data's extractive operations that have quietly amplified—and profited from—the division of oppressed populations via proprietary algorithms that segment users into predetermined classification systems. By decolonial feminist accounts, such appropriating operations not only fail to account for the complex, dynamic intersectionality threaded throughout diverse human experiences, but they also reify Western liberal relations of appropriation where competitive individualism and private property ownership operate as the basis for autonomy and freedom, and where property making exists as a device valued for its utility in maintaining and “keeping good order” (Byrd et al. 2018). Thus, as Jodi Byrd, Alyosha Goldstein, Jodi Melamed, and Chandan Reddy put it, appropriation as a voraciously unsated “normative practice” works by projecting property as “always a means to further accumulation, a relentlessly acquisitive relation to land, to being in place, to people, to here and elsewhere” (2018, 4). Big data further entrench hegemonic power relations by naturalizing competitive acquisition between entities as the default condition for growth and existence, and fracturing alternative potentials for “interworld and intraworld communication” (Lugones 2003) between oppressed beings that could be forged outside of Western, colonial knowledge regimes.

By pointing to global feminist imaginaries for a new data pluralism and contemporary experiments in developing coalitional consciousness, I underscore methods to push back against predatory data's instrumentalization and dispossession of human relationships. Decolonial feminists' coalitional work makes explicit—and pointedly refuses—the means by which predatory data preys upon and divides user populations through the dispossessive operations of datafication, as well as the conversion of individual human activity into a series of quantifiable indexes and information-based properties. Critical data scholars have noted that via such processes of datafication, human life can be rendered by Big Tech companies and dominant knowledge institutions into a new form of “raw” material and commodity that invites algorithmic control and manipulation, feeding the growth of predatory data's infrastructures of continuous extractions for profit (Couldry and Mejias 2019a, 2019b). More importantly, decolonial feminists' relational focus demonstrates how it is not

only the manipulation of individual lives on which predatory data's growth depends; rather, they also rely upon the instrumentalization of human relationships and the projected connections (and disconnections) that can be intervened upon and manipulated for continued value extraction. The mapping of such relationships is what allows individuals to be compared and measured against one another, so that distinct forms of "meaningful" action may be exercised over some and withheld over others. Indeed, the automated imposition of predetermined categories and the social relations they imply are what allow complex human lives to become legible (Bowker and Star 2000) to big data and AI systems—even as they reconstitute social hierarchies and amplify social division among populations in the process of such translations. Far from a neutral process, the operations of big data systems today that claim to datafy the human through social filtering, fragmentation, and atomization disproportionately jeopardize marginalized and minoritized populations—rendering the measure of their "difference" as the key metric that stabilizes the status of the majority.

US feminist critical data scholar Anna Lauren Hoffman aptly points to the "discursive violence" embedded within datafication's capacity as assigning different values to human life (Gandy 1993) through logics of quantification and statistical methods (Couldry and Mejias 2019a) and structuring—both socially and technologically—"how various identities and bodies are produced, surfaced, made sense of, seen as legitimate, and ascribed significance" (Hoffman 2021, 3543). Central to predatory data's process of datafying subjects through applications of big data and AI technologies, then, is the work to segment populations under predetermined classification schemes that channel and fix hegemonic notions of difference and thereby effect "ground truths about people and the world" (Stark and Hutson 2022). Predatory data thus rely on the assumption that predetermined descriptive categories and labels drawn from the past can be unproblematically assigned human experiences in the present. Predatory data likewise operate on the assumption that datafied subjects can, in turn, be unproblematically apprehended and accurately contained under such classifications moving into the future (Chun 2021). In the process of creating datafied identities, AI and big data systems not only reify a "reality" to past notions of difference, but also reduce the diverse embodied and lived experiences of individuals into only those components that can be made rapidly legible and meaningful to data-driven systems. Thus, the key to predatory data's processes is the capacity to manipulate not only individual human

identity through assigning predetermined labels, but the capacity to manipulate human *relationships* as well via classificatory groupings that encode “past” social relationships—and automate the reproduction of existing social hierarchies into the “future” of real-world relations.

Of course, the range of modern conceits around the promise of rational observation that ground predatory data’s presumption of the unproblematic reading of subjects as transparent, unitary, and stable entities has long been critiqued by decolonial and science studies scholars alike. The presumed order-making representation of diverse subjects under preestablished classification systems reasserts Western binaries of mind/body, nature/culture, and self/other into the foundation of big data architectures. Such dualisms—what decolonial and feminist scholars observe had globally spread through the imposition of colonial epistemologies—erased varied forms of being and relating that didn’t fit neatly into such binaries, negating their existence through narrow, monolithic understandings of human experience (Mohanty 1984). By legitimizing a hierarchical social order and advancing “unilinear, univocal, unillogical understandings of history” (Sandoval 2000), dualistic frameworks not only marginalized the experience of oppressed classes, but also silenced the diverse forms of agency and critical consciousness that existed outside dominant social and colonial orders. Moreover, as decolonial Indigenous scholar Audra Simpson underscored, such binary modes of reading the empirical world formed the basis of a system of “recognition and misrecognition indebted to deep philosophical histories of seeing and knowing” (2007, 69) that empowered varied acts of past and continuing dispossessions from marginalized peoples. In refusal of such active erasures, contemporary Latin American and decolonial feminists’ on-the-ground organizing works to recognize other means to know and account for the varied experiences of gendered lives that would unsettle the long-standing categorical impositions and misrecognitions of dominant knowledge institutions. Their undertakings to develop an alternative feminist pluralist data practice arguably recognize what Audre Lorde called the vital “interdependence” (1984) among differentially situated gendered lives, where coarticulated logics of resistance defended relations in worlds of “multiple sensing, multiple perceiving, and multiple sociality” (Lugones 2003).

Concerned with developing alternative forms of “objectivity” to resist knowledge practices that spoke with the pretense of universality and the “monologism of the colonizer [that] silenc[es] all contestatory interlocution” (Lugones 2006, 81), decolonial feminists aimed to ground new knowledge

production instead in the process of translating knowledge and expertise held among distinctly positioned actors and potential allies. María Lugones thus stressed that, in contrast to “liberal conversation,” the forms of “complex communication” (2006) that she argued for would thrive not on the presumption of a ready, self-evident transparency of identity, but instead on the recognition of the fundamental opacity and complexity of identity. Complex communication thus draws from the premise that subjects’ identities are never able to be captured simply through a superficial, skin-deep visual scan. Rather, complex communication creates “relational identities, meanings that did not precede the encounter, [and] ways of life that transcend nationalisms, root identities, and other simplifications of our imaginations” (Lugones 2006, 84). It thus functions in liminal sites, at the “edge of hardened structures,” where “transgression of the reigning order is possible” and requires an awareness from engaged actors of one’s own multiplicity and a refusal to attempt to assimilate any engaged identity into preheld, familiar meanings.

This chapter reviews how such forms of polyvalent, intergenerational relationality are channeled through Latin American feminists’ contemporary organizing around gender-based violence and abortion rights and their articulations for an alternative feminist pluralist data practice. Their efforts underscore the growing impacts of data methods developed by grassroots organizers and diversely situated civic researchers to extend research practice beyond large knowledge institutions and corporate engineering labs. In doing so, Latin American feminists demonstrated their commitment to not only engage diverse, pluralistically oriented collectives as central to their justice-based data practices, but also demonstrated how coalition-building figured centrally in the new knowledge futures they imagined. Following a review of Latin American feminists’ contemporary work to open new ways of seeing “expertise” that unsettled traditional knowledge hierarchies and positioned vulnerable populations as agents of data collection themselves, I revisit a history of feminist advocacy for new decolonial knowledge futures. Such imaginings worked toward the cultivation of coalitional consciousness among diversely positioned social justice actors. A generation later, they would become powerfully visible in the distributive data practices that contemporary Latin American feminist networks developed in campaigns around the Green Wave and in the forms of coalition-making that extended from the *Ni Una Menos* (Not One Less) movement. Latin American feminist efforts to decriminalize abortion thus tactically emphasized the common structural nature of varied forms of gender-based violence across the

region and the interconnected experiences of diversely vulnerable populations. Through alternative forms of data work, they would expand their campaigns to successfully press for broadened justice-based reforms in the name of diverse gendered populations and refuse dominant institutions' roles in foreclosing new knowledge futures.

FEMINIST DATA AND THE INTERGENERATIONAL INFORMATICS OF COALITION

The first tweet sent out by Argentinian feminist activists, writers, and academics under the hashtag #NiUnaMenos spread quickly. Following the murder of fourteen-year-old Chiara Paez, who was found buried underneath her boyfriend's house, beaten to death and a few weeks pregnant, the first online signals set off a chain of mass demonstrations within just a few months. By June 2015, in cities across the nation, tens of thousands of marchers from varied socioeconomic backgrounds, political affiliations, and generations flooded city centers to call for an end to gender-based violence. In Buenos Aires, demonstrators marched to the Palace of the Argentine National Congress wearing green scarves, intentionally used to recall the white scarves worn decades earlier in the late 1970s by the Mothers of the Plaza de Mayo when they began gathering to protest the disappearances of their daughters and sons under the right-wing military dictatorship that ruled during the country's Dirty War.

Parallel protests were launched by feminists all across the region. In Peru, more than fifty thousand filled the highways marching toward Lima's Palacio de Justicia—in what the national press called the largest demonstration in Peruvian history. In Chile, more than eighty thousand marched in protests in 2016, with subsequent marches shutting down streets in Santiago. In 2017, some nineteen universities were forced to temporarily close after complaints of gender-based harassment from students and faculty. By 2018, this grew to more than twenty-five higher education institutions throughout Chile, and included, for the first time, several high schools where students had organized. From the initial focus on sexual harassment, the protesters started to call for universities to address the exclusion of women and LGBTQ populations in leadership, their missing presence as assigned authors in syllabi, and the thinness of protocols for dealing with accusations of sexual harassment.

Indeed, from the beginning of the recent feminist political resurgence in Latin America, feminist coalition-building—and intersectional approaches to ending not just feminicide as a specific form of violence against women, but also a multiplicity of structural violences against women and gendered minorities that enabled a quiet epidemic of harms against them to be normalized—was evident. In the years leading up to the contemporary Green Wave, diverse feminist and social justice reformers organized Ni Una Menos as a movement that forged a broad coalition between previously segmented social campaigns. Beginning as a movement to protest domestic violence and feminicide as hate crimes against women and feminized subjects, Ni Una Menos continued to broaden the voices represented within it, growing to encompass participation from grassroots groups, NGOs, and political parties. From the families of victims to seasoned organizers, protestors filled city centers to speak out against the diverse forms of violence faced by gendered populations, whose experiences were differentially shaped by the politics of class, race, age, and dis/ability. Refusing to prioritize a single version of violence against “women” in any narrow construction, Ni Una Menos instead channeled calls to end the varied forms of gender-based violence that impacted the lives of the working poor, LGBTQ, Indigenous, and Black communities and their access to basic resources, a living wage, and indeed, reproductive rights and freedoms. Framing their vision for “intersectional alliances” and the forging of what they termed “new subjectivities” in the *carta organica* (organizational charter) for the Argentinian network, Ni Una Menos organizers stated,

We bet on a polyglot, multilingual, wayward, fugitive force, a federal and international Network, that arises from the network between different groups capable of uniting under basic agreements, but . . . capable too of many separate fights . . . [across] the territorial differences that expand and enrich the heterogeneity of our agendas and demands. . . . We are committed to undoing the fences and crossing the borders in which patriarchal society confine us . . . [to] thinking inside and outside national limits, to build[ing] a feminist perspective on all inequalities . . . [recognizing that] reducing ourselves to the role that gender assigns us is also a form of alienation (NiUnaMenos.org 2017).

Latin American feminists’ intersectional approaches to organizing thus contrasted sharply with contemporary US approaches that have grounded recent pro-choice organizing and arguments in liberal frameworks around individual freedoms and choice, and the privacy of decisions made between

a patient and doctor. Latin American feminists emphasized abortion as an issue of broad social relevance to public health and justice-based interests alike. Stressing how the poor and minoritized populations were most likely to encounter unsafe conditions for abortions, they placed a spotlight on structural conditions where, as one popular demonstration chant put it, “Las ricas abortan, las pobres mueren/The rich abort, the poor die” (Pozzo 2020). Dubbing their national campaign as one for the Right to Legal, Safe and Free Abortion (Campaña por el Derecho al Aborto Legal, Seguro y Gratuito), feminist activists argued that without legal abortion, unsafe, clandestine abortions would continue and would remain one of the leading causes of maternal death around the world.

In Argentina, feminists leveraged data to stress that criminalizing abortion would create differential safety barriers for pregnant people, particularly those living outside of large cities or relying on the public health system. Data circulated by varied civic organizations thus emphasized the socioeconomic and regional biases that quietly exacerbated abortion access in Argentina. The Centro de Estudios Legales y Sociales (Center for Legal and Social Studies) stressed data that revealed that while middle- and upper-class women are able to access relatively high-quality, sanitary conditions and rarely suffer postabortion complications, “[p]oor women, and in many cases teenagers, are the ones who must expose themselves to precarious facilities and practices.” Feminists cited reports from global reproductive rights research organizations like the Guttmacher Institute that showed some 40 percent of clandestine abortions result in complications that require treatment, with the highest rates of maternal mortality typically caused by illegal abortions in the regions characterized by the highest poverty rates in the country. They likewise circulated data from the World Health Organization estimating that up to 13.2 percent of maternal deaths every year were attributed to unsafe abortions, that 75 percent of abortions performed in Latin America between 2010 and 2014 were unsafe, and that most maternal mortalities could be avoided through sex education, the use of effective contraception, or the provision of safe, legal abortion and proper emergency treatment. By using data to move the discussion away from frames grounded in personal freedoms or questions surrounding the viability of life and providing evidence that it was the poor and working class who died at disproportionately high rates due to clandestine abortions, Latin American feminists drew focus to collective interests around social and economic justice implicated in abortion’s decriminalization. As Latin American feminists argued, the

decriminalization of abortion was essential for the full protection for human rights, which entailed the right to life, health, physical integrity, and dignity, and freedom from cruel, inhuman, discriminatory, and degrading treatment.

Thus, the data tactics adopted by Green Wave organizers to promote new forms of public literacy and visibility around abortion access as a social justice issue echoed the parallel tactics developed to grow *Ni Una Menos* years earlier. *Ni Una Menos*'s cross-national, multigenerational alliance of feminist forces, which included artists, journalists, organizers, and academics among the movement's diverse knowledge agents, creatively leveraged data to make femicide and related forms of structural, gender-based violence a shared "matter of concern" across the Americas. They circulated reports from recognized global policy sources, including groups like the Femicide Watch group of the United Nations Studies Association, who demonstrated that while murder may be on the decline globally, femicide is on the rise, with the estimated number of femicide victims in 2017—eighty-seven thousand—nearly equal to the eighty-nine thousand people killed worldwide in armed conflicts that year (with the key difference being that the vast majority of femicide victims were killed by people they knew). They also reminded publics that while the United Nations first recognized femicide as an international crime in 1976, nearly half a century later there remains little public literacy around the varied forms of femicide that were outlined then by the UN; these included not only intimate partner-related killings, but also "honor" and dowry-related murders, forced suicide, female infanticide, and targeted killings of women in war.

Alongside such resources, Argentine feminists circulated local and national grassroots activists' own newly formed data resources around femicide. This included Argentina's first National Index on Sexist Violence (*El Primer Índice Nacional de Violencia Machista*), drawn from the citizen-run "Argentina Counts Sexist Violence" campaign, which circulated an online survey of 186 questions via affiliated *Ni Una Menos* accounts. They also shared resources from other citizen-run projects launched by researcher activists around the world, such as Annita Lucchesi's *Sovereign Bodies*, which included mappings of murdered and missing Indigenous/Native women in Canada and the United States that Lucchesi launched as a student at Alberta University, as well as the *WomenCount* project organized by Dawn Wilcox in Texas, which, since 2017, has crowdsourced the collection of data on femicides in the United States stretching back to the 1950s.

In the one-hundred-page report that followed Argentina's survey, its coordinators—Ingrid Beck, a feminist journalist credited with being one of the early organizers of Ni Una Menos's 2015 events, and sociologist Martín Romeo—indicated how their efforts built on such works of past feminist data efforts in the country: “One of the central complaints the #NiUnaMenos movement of June 3, 2015 established was the creation of a National Registry of Femicides—a task undertaken until now (and since 2008) only by the civic association, Casa del Encuentro. Days after the [June] protests and as a response to their demand, Argentina's Supreme Court created the National Registry of Femicides, developed by the Women's Office of the Justice System” (Beck and Romeo 2016, 9). About sixty thousand responses were received from women and transgender women from all over the country, with nearly 86 percent of respondents reporting they had never begun or completed a university degree. Beyond the state's compiled data that a femicide occurred every thirty-seven hours in the country, the survey results revealed the heightened normalization of related forms of gender-based violence. Over 97 percent of respondents reported suffering some kind of gender violence, 20 percent reported being raped, while only 5 percent said they reported the attacks to police. The survey's coordinators underscored that the respondents' education, socioeconomic, and gender-identification backgrounds heightened victimization rates, with 25 percent of poor women and 72 percent of transgender women reporting being the victim of rape. Despite the project's broad reception, its coordinators insisted that the project remain necessarily independent from public or private institutions, which they defined as entangled in facets of gender-based violence. As specified on Argentina's Ni Una Menos's website, violence against women and gendered minorities is seen in domestic violence; but it is also seen in the violence of the market, debt, and capitalist property relations, in the violence that results from discriminatory policies against LGBTQ people, mass incarceration, and criminalizing migratory movements, and indeed, in the violence that results from abortion bans and the lack of access to free health care.

Even as media networks celebrated such activist milestones in data collection, Latin American feminist collectives underscored how their work had only started to scratch the surface, and how little, indeed, had begun to be recorded. They echoed critical race and feminist data studies scholars who have stressed the long silence of “missing bodies”—and the extensive stories and voices excised from “official” records and datasets (D'Ignazio and Klein

2019; Onuoha 2018) that come to archive a narrow set of dominant interests as the base from which knowledge gets derived (Trouillot 1995). Consistently, feminist data activists emphasized that the scale of data they collected was less their objective than other commitments around refusing relations of domination and cultivating alternative infrastructures for accountability in knowledge relations. Their efforts thus aimed to empower other pathways for how we come to settle “given knowns” about the real world in its varied gender-based dynamics, particularly in an age increasingly defined by “big data.”

FEMINIST RESISTANCES TO DATA APARTHEID

Over a generation ago, US third world and decolonial feminists were among the first to voice critiques over how dominant forms of knowledge practice separated and divided the intellectual labor of people of color, feminists, and other marginalized peoples. Observing the intellectual and disciplinary divisions maintained by dominant knowledge institutions, they critiqued university systems for maintaining such atomizing architectures that socially segmented relations and prevented minoritized scholars from building resistant practices together. Furthermore, they called for new orientations that could undo the forms of “intellectual apartheid” (Sandoval 2000) that undermined future potentials for multifaceted solidarities. Such new orientations would press beyond the dominant forms of seeing and filtering relations that had been imposed under what María Lugones called “the modern colonial gender system” (Lugones 2010). Under that system, pluralistic notions of sex and gender, like other forms of intimate and everyday relating, were silenced and erased, so that only the “hierarchical and dichotomous” (Lugones 2010) social categories necessary to sustain conditions of colonial rule remained legible. Such erasures not only negated the varied lived experiences of oppressed and subjugated individuals, but they also actively worked, as decolonial feminists argued, to circumvent and prevent the open possibilities for oppressed peoples to collectively interweave new forms of social life, resistant practice, and intimate relating together.

Decades before predatory data became embedded in everyday spaces driven by big data’s social filtering and classification functions, decolonial feminists pushed back on how modern knowledge infrastructures misrecognized, reduced, and invisibilized the plurality of their experiences. Pressing

for more inclusive languages that would recognize the multiplicity of forms by which feminists of color and diversely minoritized populations came to know and experience the world, they worked to develop new frameworks to foster alternative orientations to self and others. Gloria Anzaldúa famously argued for epistemologies rooted in the space of the “borderlands” as a site of “racial, ideological, cultural and biological cross pollenization” (1987, 99) from which a new “alien” consciousness could emerge. Such a consciousness could draw from its mixed, cross-pollinated positionality as a creative and generative space for new knowledge production. Or as Anzaldúa wrote, “La mestiza constantly has to shift out of habitual formations; from convergent thinking, analytical reasoning that tends to use rationality to move toward a single goal (a Western mode), to divergent thinking, characterized by movement away from set patterns and goals . . . [t]he new mestiza copes by developing a tolerance for contradictions, a tolerance for ambiguity. . . . She has a plural personality, she operates in a pluralistic mode . . . [that can] sustain contradictions, [and] turns the ambivalence into something else” (1987, 79). In conjuring a borderland thinking, Anzaldúa drew focus to the “split” consciousness described by decolonial scholars and intellectuals—from W. E. B. Du Bois to Franz Fanon, Audre Lorde, Chela Sandoval, Paula Gunn Allen, and Trinh T. Minh-ha—as productive sites, ideal for diagnosing contemporary political conditions and for challenging the stability of modern orders to enable other futures to emerge.

Over a generation later, decolonial feminists’ imagining of such explicitly pluralistic, coalitional knowledge practice has renewed salience, as predatory data’s algorithmically driven platforms and “predictive” architectures have massified reductive classification schemes. Surveillance studies scholars in particular have underscored how the expansion of big data assemblages has enabled the datafication of subjects to grow, multiplying the creation of decorporealized data doubles (Haggerty and Ericson 2000), whose digitally assigned identity markers and “values” accommodate algorithmic sorting, classification, and prediction. Indeed, as these scholars have pointed out for more than a generation, the datafication of subjects—and now the translation of them into new algorithmically processable selves—is no innocent act (Gandy 1993). As Anna Lauren Hoffman points out, “[T]he disaggregation of people in the form of data is never merely descriptive [but] is always implicated in broader systems of power, norms, and normalization” (Hoffman 2021, 3544).

US critical race and surveillance studies scholar Simone Browne thus underscores the simultaneously discriminatory and self-estranging logics

that underpin datafication under contemporary surveillant assemblages. Writing on the algorithmic capture and reprojection of racialized identities through data systems, she critiques what she calls operations of digital epidermalization. Such processes, she writes, “alienat[e] the subject” by producing an alleged “truth about the racial body and one’s identity (or identities) despite the subject’s claims” (2015, 11), while reifying racially determined boundaries. Algorithmically “inferred” from individuals’ online interactions, datafication’s identity assignments are applied over individuals without regard for subjects’ voluntary identification or sense of personal history. By imposing what he calls an “algorithmic caricature” by various identity classifiers, US critical data studies scholar John Cheney-Lippold describes datafication’s identity assignments as “corrupting” individuals’ own sense of identity by fabricating a convenient (even if false) “univocality that flattens” (2017, 8) the complexity of self-knowledge and lived experience. Cheney-Lippold observes, for instance, how Google’s platform reads his use patterns in ways that classify him as an “older” “woman” in its system. While the purpose is to translate the breadth of human experience into “measurable types,” massively applied datafication systems (such as those used by Google and mainstream social media companies on their users) encode, deploy, and project “traditional” classifiers across their platform. All users are mined for data to enable such platforms to fix (and later target) the identity of their users and define “types” around what platforms determine are meaningful value-making markers—from what it means to be a “man,” “woman,” “gay,” “straight,” “old,” “young,” “African American,” “Hispanic,” “Democrat,” “Republican,” “citizen,” “foreigner,” “criminal,” or “terrorist.” However, it is the lives of already politically marginalized, vulnerable, and oppressed users whose “algorithmic caricatures” place them at highest risk for real-world harm and discrimination. Rather than taking such harms seriously, predatory data’s agents treat such risks as collateral damage that can be tolerated so long as value continues to be extracted and the larger technical system still evolves and thrives.

Even in the face of evident harms to minority users, predatory data willingly continues to scale platform operations in the name of system evolution, irrespective of their indexicality to the “real lives” of subjects in the empirical world. Their primary fidelity is to instrumentalize patterns of behavior that can essentialize identity markers into concrete, measurable—and thus algorithmically manipulable—data records, so that subjects can be rendered processable into what Luke Stark calls the “scalable subject” (2018), or

versions of their digital selves that lend themselves to the system's scalability. While critical data studies scholars have emphasized datafication's impact on individual users' identities and the conversion of individuals into malleable and manipulable "data doubles," a predatory data framework draws added attention to datafication's work to turn the *relationships* that surround and define individuals into artifacts of control and interventions. This is the case whether the relationship pertains to a past or future version of the user to themselves, to the actors they are invisibly and automatically grouped and associated with through datafication, or to the vast spectrum of past, present, and future others whom users already, or might have, defined themselves in relation to. It is not individual users or the integrity of the relationships they define that predatory data prioritizes, however. They are operationalized instead to optimize other dominant interests—whether commercial gain (Stark 2018) or public safety and national security (Amoore 2009). Their work to segregate and sort populations (Gandy 1993) thus creates and entrenches valuations on the human that remain hidden behind proprietary data systems, even as they casually fix projections of "essentialized" types and hegemonic forms of relating that can encode "misrecognition" into the everyday architectures of digital life.

Beyond alienating and fragmenting subjects' sense of self, predatory data's instrumentalization of human relationships stratifies and fragments populations across "given" forms of relating and predetermined social hierarchies. Decolonial feminist critique reminds us that datafication's violence targets not only the integrity of self-knowledge (and the relationship of self to identity), but also the relationships between and among actors, stabilizing divisions grounded in given hierarchies and foreclosing potentials for other forms of relating to emerge. To circumvent the stratifying impacts of predatory data—and the conceit that they can come to accurately "know" or safely prescribe a self to individual users—requires far more than "correcting" datasets or recoding algorithmic solutions to provide "fairer," "anti-discriminatory" forms of assessment. As Anna Lauren Hoffman argues, such attempts to redesign or audit algorithmic systems in the name of "fairness" have to date only replicated one-dimensional, single-axis forms of reading oppression that overfocus on the disadvantages vulnerable populations experience, while leaving unanalyzed the systematic production of privilege (2019). Furthermore, the application of redesigned algorithms in the name of "fairness" and "anti-discrimination" still projects, as she writes, a "'ground truth' of static and pre-given—rather than contingent and constructed—social

categories” (Hoffman 2019, 1). Such categories as functions of proprietary algorithms, she stressed, still disable marginalized populations from exercising critical intervention.

To forge alternatives to big data’s predatory operations, I point to decolonial feminists’ technological interventions to “see from below” and their arguments to foster a “coalitional consciousness” that were theorized over a generation ago as a means to cultivate “dissident forms of globalization” (Sandoval 2000). Framing a contemporary world and living selves already suffused with boundary-defying information technologies, feminist science studies scholar Donna Haraway drew directly, too, from decolonial feminists’ theorizing to develop the “blasphemous” political method of the cyborg (1985). For Haraway, both the cyborg and the forms of oppositional consciousness argued for by Chela Sandoval and US third world feminists offered a timely means to imagine new progressive futures responsive to a world shifting “from an organic, industrial society to a polymorphous, information system” (1985, 80). Such a future could look beyond framings of revolution and change still centered around Western ideals of the rational individual subject. In such a context, decolonial feminists’ rejection of a politics grounded in a search for pure, natural origins and organically reverent, “essential unities” was ideally poised to respond to what Haraway diagnosed as a growing need for mixed and messy coalitions, affinities, and joint kinships that could press for new futures where the world could at last be imagined as moving beyond Western conceptions of “gender” with their foundations in binaristic thinking. Such new kinships, however, would be far from automatic. Rather, as Sandoval underscored, they would require dedication to developing “technologies” and “skills that permit the constant, differential repositioning necessary for perception from ‘subjugated standpoints’” (2000, 175)—or, as she put it, citing Haraway, developing the techniques and technologies committed “to see[ing] from below” (2000, 175). Such skills would insist on new kinds of social exchange that have the power to forge a dissident transnational coalitional consciousness across dispersed global sites and bring forth a new kind of “objectivity” and knowledge practice grounded in the shared translation of knowledges among distinct communities. Indeed, as Lugones argued, “One does not resist the coloniality of gender alone. One resists it from within a way of understanding the world and living in it that is shared. . . . Communities rather than individuals enable the doing; one does with someone else, not in individualist isolation . . . being in relation rather than dichotomously split over and over in hierarchically

and violently ordered fragments. These ways of being, valuing and believing have persisted in the response to the coloniality” (Lugones 2010, 754).

FEMINIST DATA’S DISSIDENT FORMS OF GLOBALIZATION

This chapter has not offered a conventional historical excavation of either Ni Una Menos’s cross-continental movement or Latin American feminists’ decades-long abortion rights struggle. I have not attempted either to provide any comprehensive mapping of the contemporary flourishing of feminist, collaborative data initiatives. Adopting a cross-generational lens to trace decolonial feminists’ commitments to developing new tools and techniques to dismantle the architectures of intellectual apartheid, I have aimed to demonstrate how such work continues through the coalitional knowledge practices of contemporary Latin American feminist networks. Through their coordinated public actions around the Green Wave and Ni Una Menos, Latin American feminists have actively challenged the narrowness of what dominant institutions had represented as given knowledge about the gendered lives of marginalized populations. Through their social campaigns and their creative, coalitional work around data in recent years, they were able to broadly animate and scale out demands for structural transformations that would eventually prompt a wave of legal transformations across the region. As importantly for organizers, their coalitional efforts allowed new demands for alternative forms of refusal and accounting—and interrelating among knowledge practitioners and the represented alike—to flourish.

Their work, however, appears far from finished. In the short time since the legalization of abortion was won in Argentina and set off a cascade of regional legal reforms in late 2020, Green Wave channels have remained as active as ever. Their work since has quickly turned to raising awareness of the limits of legal gains by themselves and highlighting the varied active cases across national contexts where abortion’s criminalization persists. Among them was that of Miranda Ruiz, a young doctor in the small city of Tartagal, Argentina, who was accused by the family of a patient of having performed an abortion without the patient’s consent. Another case involved a thirty-year-old woman and mother of two in Esquina, Argentina, who was known only as “Ana” in online campaigns and was charged with homicide after delivering a stillborn child. Despite the lack of medical evidence supporting the accusations against either woman, both were imprisoned—Ana

for eight months—before charges were eventually dismissed. Feminists note their cases are emblematic of the unevenness of the law’s recognition across the country, where more than fifteen hundred criminal cases were opened against individuals—thirty-six against medical professionals—for abortions and other obstetrics-related events in the first year after the law’s passage.

Such developments have brought networks to respond by adding new research objectives to new works that monitor abortion access across the nation in recent years. In their continued campaign work, feminist organizers have come to stress the centrality of information politics, underscoring how a lack of access to basic information, such as abortion rights and law, where to access safe abortions, and regarding the procedure itself, can enable significant lapses in protections. But they have also opened questions about the limits of the law without larger accompanying structural changes, pointing to reports of the lack of training and information around abortion and its legal protections, as well as the lack of medical professionals willing or able to provide service or answer basic questions regarding abortion, particularly in rural and economically marginalized regions (Mason-Deese 2022). They have also noted indicators such as the lack of basic information even at health care facilities, pointing to recent studies from Project Mirar of the Center for the Study of State and Society, and Ibis Reproductive Health, who launched a new abortion access tracking tool in 2021 and whose data stressed the continued experience of abuse and harassment by women and other feminized subjects in the medical system, underscoring how such experiences were especially high among young, adolescent, Indigenous, poor, and working-class patients (Romero et al. 2021). Beyond pressing for information access alone, feminist anthropologist Liz Mason-Deese notes, “[T]he movement continues to call for improvements to the country’s health care system so that quality abortion care will be truly accessible to all” (Mason-Deese 2022). The National Campaign for the Right to Legal, Safe and Free Abortion’s calls for gender-sensitive training for all health care teams in parallel have demanded increased funding for the public health system, especially in underserved areas, with a focus on women’s health. And while feminists have noted the significance of a new hotline for sexual and reproductive health run by the state’s Ministry of Health—which received nineteen thousand abortion-related inquiries in the eleven months following the passage of the new law—they have also noted abortion-seekers’ continuing reliance on organizations like Socorristas en Red (Lifeguard Network), a feminist and transfeminist network that were sought out to accompany more than fifty-six

hundred patients in abortion and postabortion care in the same time period (Romero et al. 2021).

Outside the health care system, feminist campaigns in recent years have energized initiatives to integrate updated curricula on sexual and nonreproductive rights into public schools' standard sexual education pedagogy. Their work has entailed creating and promoting updated curricula, with a focus on bodily autonomy and knowledge about rights and responsibilities, hosting discussion around the abortion law and how to access safe and legal abortion, as well as trainings of teachers and school staff to facilitate the implementation of curricula to empower students around their rights. Refusing to prioritize a single version of violence against "women" in any narrow sense, Latin American feminists' calls to end the varied forms of gender-based violence were consistently connected back to the lives of the working poor, LGBTQ, Indigenous, Black, and youth communities who were directly implicated. Their work to cultivate new global feminist imaginaries around data pluralism implicated a range of social justice concerns that related gender inequities with the continuity of everyday social violence against disempowered gendered populations more broadly. Moreover, their enacted critique of predatory data's global spread and threat to vulnerable populations, and the concrete global political precedents they have earned through their novel approaches, demonstrate the world-shaping potentials of data engagements driven by global actors other than the large corporate internet firms and Western knowledge institutions who have been overnarrated as the central protagonists behind today's data ecologies. Indeed, in public spaces all across Latin America, feminists continue to declare that another future is possible.

And as the next chapter covers, they have been far from alone in such situated endeavors.

*Community Data*PLURI-TEMPORALITIES IN THE AFTERMATH
OF BIG DATA

IN OBSERVING THE GROWTH OF digital divide frameworks across the two decades she has dedicated to civil rights and social service work in East Central Illinois, Stephanie Burnett has become well practiced at what information and technology studies scholars would recognize as a certain “broken world” analysis (Jackson, Pompe, and Krieshok 2012; Jackson 2014; Tsing 2015). Well before we began working together on community data projects in the region, Stephanie had already diagnosed the magical thinking that had come to be pervasive in computing initiatives targeting marginalized households and Black and Brown communities through so-called “digital divide” initiatives. She recalls how quickly the belief spread that such programs were catalysts for change for marginalized households in the United States, and how convictions seemed to quickly compound, even while there remained a basic absence in tracking the actual impacts of the information and communication technology (ICT) programs funded.

Across the years of her work with local families—first as a young social worker counseling youth in the Boys and Girls Club, then in after-school advocacy a decade later, and now, as a mother of three herself, working in public housing with the Housing Authority of Champaign County (HACC)—she has cultivated a patience for the messages of digital boosters and private sector funders. Such messages would later get echoed from an ever-wider spectrum of funding entities, from state institutions to public offices and foundations, who increasingly joined tech companies in endorsing a focus on “closing gaps” in digital skills and technology access as the best expedient (over universal child care, health care, basic income, or criminal justice reform) to combating inequality. More than simple incantations of project goals, such messages were invitations to step into the innovation timescape

channeled by ICT projects. With their emphatically future-fixated, progress-insistent percussions, ICT projects registered a special promise for public service workers, whose care work has come to define “unproductive time.” There, in contrast to innovation time, time is expended to “merely” support vulnerable lives and those unable or unwilling to generate new value through change (Puig de la Bellacasa 2015). Emphasizing innovation and future-readiness endorsed by funders, ICT-centered projects insisted upon the promise of transformation—of converting matter at hand from less to more productive value-making states. But for Stephanie, their messages, imbued with growing references to “data-driven” techniques as the cornerstone of state and tech companies’ knowledge work, registered differently. For her, they underscored the lack of evidence to bolster the boosterism surrounding ICTs as tools for reducing social and economic inequality. As she put it, naming one longstanding breakdown, “There’s no real trying to see how people are benefiting from gaining access [to technology]. . . . You have all this money available, but it’s still not [clear it’s] getting to the people who need it.”

The amplified funding from her vantage instead fed outsized expectations that local organizations could do the “impossible” with ICT hardware or service provision, even when compressed time lines and minimal program funds were involved. In communities like East Central Illinois, where poverty rates for local counties like Champaign and Vermillion had hovered for decades above state and national averages (at 14.9% and 20.9%, respectively, compared to state and national averages of 12.1% and 12.8%, according to the US Census Bureau’s 2021 American Community Survey data), such magical thinking seemed to hold special sway. Her eyes widened recalling a recent \$12,000 state-based grant received to expand broadband connectivity for two thousand low-income households she worked with after joining the HACC. She added, naming another breakdown, “We were supposed to do all these miraculous things. But it was only \$12,000 [for one year]. It was just kind of impossible.”

She recounts pivoting to another strategy—one that aimed to address the explicit absence of data by investing funds in a local community-scaled survey tailored to HACC households. Even if small, such an effort might offer a localized snapshot and begin to establish a baseline understanding of broadband practices and needs among underserved households (in the way that efforts around the US Census Bureau’s American Community Survey had begun working to do since 2013 for locales with populations of sixty-five thousand or more). Importantly, it might also begin to create some oversight

around the unspoken future-based fixations and evident breakdowns in dominant institutions' ICT programs. In other words, it might allow expectations to be reset around the local reality and operational tempos working households—rather than the funders' imagined users—actually encountered on a day-to-day basis. Stephanie describes one need for the reset work in the survey's design: "If we asked our residents if you have internet access, people will say yes. But they're not talking about a broadband connection at home with a laptop. . . . Most, 70 to 75 percent, were using their smartphones. For everything. . . online classes, work, applying for work, for benefits, even their children being able to get assignments done at home."

For more than a decade, feminist and postcolonial scholars have critiqued the selective tracking of ICT programs in economic development contexts and the condition of default missing data (Onuoha 2018) that has resulted around them. Repair studies scholars note how an emphasis on the "new" in scholarship on ICTs has emphasized diffusion rates and growth statistics, over accounts of the breakdown of products and services when they fail to meet local needs (Jackson, Pompe, and Krieschok 2012). Furthermore, such emphasis on diffusion does not account for the extent of organizing that is required to repurpose, manage, or sustain the use of old and aging technologies among populations with diverse and often underserved needs. Critical information studies scholars point to how little evidence, then, there has been to prove that investments in digital skills and ICT and data access are reliable means to producing widespread economic mobility. And they have instead observed how the growth of economic stratification, homelessness, and stagnating wages followed the expansion of high-tech economic development plans (Eubanks 2011) and the growth of technology sectors (Greene 2021) across varied US cities.

The persistent absence of basic tracking measures around the failures of ICT programs in the wake of such trends speaks volumes about where breakdown is deemed worthy of being left uncounted and unseen. Much like the simultaneous rise of digital monitoring systems targeting marginalized populations undeniably reveals where errors and breakdown are guaranteed to always be made to count. From systems that assess eligibility for social services to those enforcing compliance with law enforcement, such widespread and commonplace designs speak loudly about whose errors are allowed to count, where responsibility must be extracted, and whose failure becomes a matter of permanent record.

Stephanie's insistence that technology programs and their design assumptions be subject to questioning was a modest means to push back on the veneer of inevitability that accompanied the missing data around breakdown in ICT programs and to turn the given accountability framework on its head. For her, channeling program funding into data collection opened an opportunity for a temporal reset, one that could begin to resist the void of oversight around funded ICT deployments and disrupt the compounding assurances that there is no value in revisiting and interrupting a productivity-paced deployment when it came to tracking ICT failure among underserved populations. Her pushback questioned the logic that the only worthwhile temporal orientation would be a forward moving one, redirecting funders' intentions for a unidirectional plan for service delivery toward a means for critical feedback and a chance for local residents and organizers like herself to activate another kind of conversation around technology. Her redirection defended not only a conviction that there was indeed something more to see and account for, but also defended local residents' right to redefine the pace of projects so that they might be represented on other terms—including ones that could push back on funding institutions and the "knowledge" they presumed to stabilize around ICT breakdown and success—and by extension, care and collaboration.

Stephanie's dedication to translating the lived experiences and practical knowledge of local underserved residents into tools that could challenge and temporally reset the invisible assumptions baked into technology programs has, in recent years, led her to seek out new collaborations and research cooperations around data beyond domains focused on low-income housing. It's how she and I came to work together as partners in a broadband equity research project hosted at the University of Illinois, shortly after she joined HACC. Along with media justice organizer and Cunningham Township supervisor Danielle Chynoweth (featured in chapter 2), after-school program advocate Kimberly David of Project Success of Vermillion County, and public health advocate Julie Pryde of the Champaign Urbana Public Health Department, we formed a local research team in 2020 to work with local households to address unmet broadband needs in East Central Illinois and to map data in ways that might push back against the hardening future-fixated consensus that funders and dominant knowledge institutions narrowly reified.

These efforts by community organizers to use data work to redirect ICT programs toward a community-based form of technology assessment and

oversight are not solitary outliers. Across a growing range of local sites, community data projects have emerged as responses to the failure and breakdown of dominant knowledge institutions to meaningfully speak for local communities' needs around technology and to address the complexity of historically marginalized populations' experiences around datafication (Holden and Van Klyton 2016; Kennedy 2018; Lewis et al. 2018). Spanning grassroots projects, intersectional organizational coalitions, and novel research-oriented partnerships, their efforts are channeled through a diverse range of structures that share a commitment to retemporalizing data work around a vitalization of community life. Refusing to adhere to dominant ICT paradigms defined by the digital economy's hyperproductionist time and progressive imperative (Puig de la Bellacasa 2015), where drives to extract greater value and efficiency propel compulsions for individual optimization and restless self-improvement, they choose to invest in another kind of knowledge practice instead. Insisting that a future of technology access and use might still be imagined to defend the empowerment and collective vitality of historically marginalized communities, their work channels questions around what happens when community renewal, collaborative living, and connective interrelation—rather than efficiency, rationalization, and individual competition—become the organizing logics and tempos behind the design, use, and repair of information technology and data-driven infrastructures. They necessarily ask, too, how can we begin to account for the damage inflicted via data practice when urgencies around individual optimization and productivity are maintained as priorities above all else?

This chapter attends to the growth of such projects, and the coordination they have brought together, to retemporalize data work and the dominant innovation imperative that surrounds it. To retemporalize data work today would mean decentering the givenness of the “move fast and break things” pace of competitive innovation that has driven big data and AI-based industries, and channeling and repacing data work toward a vitalization of community life instead. Gaining recognition in recent years for broadening the inclusion of new publics in debates around the politics of data, and underscoring the power of situated data practices to advance calls for accountability (Chan and Garcia forthcoming), community data projects have drawn from critical traditions in intersectional feminist (Garcia et al. 2022; D'Ignazio and Klein 2019; Rosner 2020), Black (Benjamin 2019, 2022; Gaskins 2021; Milner 2020), Indigenous (Carroll et al. 2020; Christens 2018), decolonial (Couldry and Mejias 2019a; Hassan 2023; Lin 2023; Milan and Treré

2019; Ricaurte 2019; Yang et al. 2023), and labor-allied (Irani 2015; Nguyen 2021; Roberts 2019) data practices to demonstrate the disproportionate harms that contemporary datafication systems have had on marginalized communities. From a diversifying range of contexts, their voices multiply frameworks—from data sovereignty (Global Indigenous Data Alliance, US Indigenous Data Sovereignty) to abolishing big data and data capitalism (Data for Black Lives), vernacular technology (Boston South End Technology Center), counter data (Datos Contra Femicidio/Data against Femicide), data body defense and consentful technologies (Our Data Bodies, Detroit Community Technology Project, Los Angeles Community Action Network), and anti-spying organizing (Stop LAPD Spying Coalition, Mijente), among others, that counter narratives of datafication in the age of big data as a preminent engine of universal progress.

This chapter speaks to the growth of community data initiatives as they have worked to mobilize collective efforts to cultivate new tempos around data that can speak back to a history of harms that have resulted from the extractive, segregationist logics of dominant data systems. Focused on community data practitioners' temporal investments, this chapter builds on chapter 4 and 5's explorations of the varied forms of data work—including developing relational infrastructures and cultivating coalitions for data pluralism—that marginalized populations have undertaken to refuse and remake the terms of dominant knowledge institutions across generations. Following a review of community data's pluri-temporal defense work in relation to techniques of care time, broken world thinking, and collaborative survival that feminist and postcolonial studies scholars have explored, I address in this chapter how such temporal arts reverberate across the justice-oriented commitments of community data practitioners as they have worked to develop localized, community-responsive models of situated data practice as critical alternatives to dominant knowledge institutions. I then bridge a conversation with the past, tracing the roots of community data's growth to past justice-oriented and locally engaged social movements, where critical orientations against anti-pluralistic data methods were channeled into calls for structural and institutional reforms in the United States in the nineteenth and early twentieth centuries. I close this chapter by returning to East Central Illinois, reflecting on how spaces outside of (and often said to be "left behind" from) innovation's accelerated productionist time can cultivate local tempos that channel into commitments to retemporalize data work around ethics of patience, care, and accountability. This includes a project I partnered with as a faculty member at

a US-based public university. The research effort demonstrates the potentials of community data collaborations to instantiate accountability acts and temporal resets at state-level public offices and universities. Even while fleeting, they carry reminders that such acts have the potential to accrue into meaningful transformation if commitments to community life and renewal were centered by knowledge institutions as situated actors themselves.

As an exercise of solidarity with community data, notably, this chapter gives voice to community data practitioners' accounts of the harms and graduated violences that have accrued across a history of extractive relations, segregations, and silenced voices in technology and data work—as well as how such histories are collectively recalled, accounted for, and recorded through acts of collaboration. Far from seeing extractive exploits as outcomes uniquely tied to the spread of contemporary data and technology systems, community data initiatives connect such trends to a history of technical developments that have been driven by the narrow interests of dominant knowledge institutions and their long-standing exclusion of, and disinvestment from, community interests in the pursuit of global scale and profit. This chapter is a call for greater attention to the local and to forms of situated investments in critical data practice as productive sites for cultivating strategies on how to push back on datafication processes that have often been abstracted at the level of the global and a projected universal time. It is a reminder of how long marginalized populations have worked to mount local defenses and to speak through forms of critical practice to steer knowledge processes toward other futures and away from the inevitability of globally extractive, segregationist forms of datafication. This chapter is a call to listen to the strategies fostered to insist on pluri-temporal relationalities—and not just productionist time's percussive insistence on control and profit—as the projected aims of technological design and data work. And it is a reminder of the possibilities that emerge when we attend to the interconnective cultivations community data practitioners have brought to life across generations.

COMMUNITY PRECARIETY AND THE EXPULSION OF REGRESSIVE TIME

At first blush, technology initiatives and innovation paradigms don't make themselves obvious as counter-forces to community life. The continued stream of investment technology initiatives have poured into designated

productive sites and economic centers, after all, appear alongside celebrated instantiations of community-focused ICT programs and high-tech diversity programs that provide the cover of equality of interest and inclusion (Hoffman 2021). Amplifications of Big Tech leaders' messages that their data-driven products can deliver "community" to broad global bases of digital users and consumers (Zuckerberg 2017)—while simultaneously optimizing individual personalization (Pariser 2011)—can make the "falling behind" of growing classes of marginalized populations and the regression of those who simply can't "keep up" to the periphery appear as if they were inevitable, natural outcomes, rather than programmed stratifications and designs that filter and elevate the future-worthy from those deemed undeserving of investment and irredeemable of value-extraction.

But if community data practitioners inhabit the time of aftermath—of attention to and care for what was left behind—they remind us how inhabiting such time spaces can be (or perhaps, necessarily must be) a connective affair. Their efforts echo postcolonial and feminist technology studies scholars who have underscored the centrality of care time, repair worlds, and multispecies survival to break out of the master narratives of individualist progress and competitive growth that have dominated innovation paradigms. While such work frames our present as a time of life "after" broken worlds, it also defies a straightforward narrative of decay and hopeless social, economic, and ecological ruination, underscoring instead how worlds of tentative hope—in the ecologies of "collaborative survival" (Tsing 2015) and counter-breakdown—have emerged despite the "weight of centrifugal odds" (Jackson 2017). They press us, then, toward cultivating new "arts of noticing" and "subtle arts of repair" practiced around socio-technical infrastructures, inviting us to sustain a wonder and curiosity for the ongoing work that allows collective living and shared worlds to be maintained in the face of precarity, instability, and indeterminacy. Their lenses offer a means to see outside the binary of large-scale growth or destruction and collapse (at least for all but the narrowest classes) as inevitable temporal trajectories. And they move us beyond the figure of the rational individual, which has been heroized for too long as Western history's key to economic growth, progress, and intellectual and political enlightenment, and as the best bet for the future of democracy, science, and economic abundance alike.

Underscoring emergent collaboration, they point us instead to sites and actors who span the multispecies world of Matsuzaka mushrooms: the burned landscapes where "humans, pines and fungi work together to take

advantage of bright open spaces and exposed mineral soils . . . [and] make living arrangements simultaneously for themselves and others” (Tsing 2015, 22); the favela LAN Houses where semistable digital access spaces and social meeting grounds are maintained by owners and residents through “a mix of personal relations, informally acquired knowledge, and cheap parts” (Nemer 2022, 52); and the permaculture and biodynamic practitioners who engage with food web-friendly soil care techniques recognized “as innovations [even when] . . . some of the ‘new’ technologies that they implement are a thousand years old, integrating knowledge from contemporary indigenous modes of re-enacting ancestral cosmologies” (Puig de la Bellacasa 2015, 709). These are figures who operate under a mix of temporal orientations, not always forward moving, and who labor against dominant productionist tempos and urgencies (Philips and Matti 2016; Puig de la Bellacasa 2015) that insist on extracting ever-more value and efficiency. Their interest instead is to push against such dominant forces to create care time and cultivate resistances that, despite all, gather intents in efforts to “stay with” (Haraway 2016; Martin, Myers, and Viseu 2015) the ever-growing terrains and tempos of the un- and under-valued.

Like the varied actors and relations that populate such sites, those that situate the work of community data practitioners remind us of the landscape of complex relations that are necessary to coordinate (and cultivate) to bring together stability in the face of pervasive unpredictability and uncertainty. They underscore the expanse of agents and forces whose interests must be negotiated to bring together meeting grounds—across and despite differences—that forestall breakdown. This labor of creating coordination and managing complexity across social, material, and temporal divides required for countering breakdown is constant. It demands a sustained vigilance and art of rapid responsiveness that generally goes unrecognized, even though it is unrequired in contexts where formal systems and dependencies keep unpredictability and uncertainty to a minimum. The labor of counter-breakdown and coordination, and the contradictory invisibilization of its presence despite its constant extraction from marginalized classes, is part of the “ordinary violence” channeled through contemporary data infrastructures that emphasize speed, scale, and volume over all other assets. It is a through line that maintains inequity as a central logic of our contemporary technology cultures and that has ensured that exploitation, oppression, and cultural imperialism remain primary driving forces in the information age (Eubanks 2018; Greene 2021; Nemer 2022; Noble 2018).

Community data's work to retemporalize data work in a contemporary age of big data is not simply a matter of slowing down time. Rather, it entails a fundamental recognition of how dominant models of datafication that have fed big data regimes have eroded temporal worlds. They work to expel unproductive time and exterminate regressive temporal orientations—ones that in the most pernicious framings are allegedly not merely wasted time, but work as degrading, retrogressive forces that block the future itself from proceeding. The authors of the popular text *Big Data: A Revolution That Will Transform How We Live, Work, and Think* (2013), Kenneth Cukier, data editor of the *Economist Magazine*, and Oxford Internet Institute professor Viktor Mayer-Schönberger animate such a logic, underscoring the hard but necessary exterminationist decisions that will have to be made to unleash big data's revolutionary potential. Projecting big data's arrival as "the moment when the 'information society' finally fulfills the promise implied by its name," they write that its potential is conditional upon society "shedding . . . its obsession for causality" and interest in "knowing why"—prioritizing instead a new epistemological commitment for "predict[ing] the future." In such a radical remaking, they tell us, outdated fixations around "knowledge as an understanding of the past" must be excised, so that the power of knowing through "simple correlations" can be unleashed—"not knowing why *but only what*" (2013, 7). In big data's existential time scape, innovation is not simply a process that opens new futures, but becomes a conditional future itself—one whose outcomes rest on the contingency of radically reformed information practices and the prompt expulsion of regressive tendencies, including those of now outdated knowledge professions.

The editor-in-chief of *Wired* magazine, Chris Anderson, provides another snapshot of this exterminationist logic of big data temporalities at work. Pressing his audiences to ready themselves for what he described as the radical transformations of "the Petabyte Age," he stated that it would bring about the rapid demise of knowledge and data methods from "out-moded" disciplines. As he wrote, "Out with every theory of human behavior, from linguistics to sociology. Forget taxonomy, ontology, and psychology. Who knows *why* people do what they do? The point is they do it, and we can track and measure it with unprecedented fidelity. With enough data, the numbers speak for themselves . . . [in this new] world where massive amounts of data and applied mathematics [now] replace every other tool that might be brought to bear" (2008). He spoke boldly for not only the active embrace of new knowledge paradigms oriented around the pursuit of big data and

future prediction, but also for the very virtue of a radical unmaking of past disciplinary methodologies, out-evolved by more efficient, universalist tools for data processing. Under such projections, almost all modes of knowledge practice on human behavior—“every theory” from linguistics to sociology to taxonomy, ontology, and psychology—are argued to be out-evolved by more efficient tools for universal data processing. In this new world order, resources for knowledge making are only wisely spent when invested narrowly in growing the mechanisms for tracking and measurement, enabling processes oriented toward allowing data and numbers to simply “speak for themselves” and on amplifying and prioritizing questions of the *what* while silencing those fixated on the past around *why*. To expend resources on anything else would be an unnecessary distraction that would only crowd information ecologies with more “noise” at best, and at worse, advance epistemological suicide.

Community data’s commitment to retemporalize data work, however, should remind knowledge professionals that the work to expel and exterminate “regressive” temporal orientations has been long going. Community data practitioners’ work underscores how dominant models of datafication have deleteriously impacted community life, eroding temporal worlds as the harms of datafication have disproportionately impacted marginalized classes. Sharing values and goals with broader data justice and data activism movements worldwide (Dencik et al. 2022; Redden, Brand, and Terzieva 2020; Milan and Van der Velden 2016), community data initiatives highlight how contemporary data systems and a long history of data violence couple to amplify the harms marginalized communities have faced in the era of big data—from an expansion of forms of economic exploitation and identity-based discrimination to the loss of privacy and autonomy, political manipulation, and physical violence (Benjamin 2019; Cottom 2020; Couldry and Mejias 2019a, 2019b; Eubanks 2019; Hoffman 2021; Noble 2018; O’Neill 2016; Onuoha 2018; Ricaurte 2019). While community data initiatives have gained notice for interventions in technology policy debates, their critiques go beyond policy reform, by targeting the politics of dominant knowledge institutions—that is, powerful commercial, academic, and state actors whose creation of data-driven knowledge sets and data voids alike have accelerated the control, commodification, and classification of populations (Crawford 2021; Davis, Williams, and Yang 2021; Sadowski 2019; Zuboff 2019). Like justice-aligned data journalism projects that have focused efforts around translating datafication processes to diverse publics (Tere, Hintz, and Owen

2022), community data projects highlight the need to cultivate new methods to engage diverse stakeholders and to respond to the varied temporal orientations of marginalized communities.

What distinguishes the engagements of the community data practitioners is the commitment to not merely respond to but also to stay, be, and think with particular marginalized communities, while retemporalizing data work. Their defense of community life is grounded in the work of situating data practice within a temporal order that unfolds outside of the accelerating, efficiency-demanding, universal temporal regime insisted upon by big data. From such a vantage, datafication processes can be read not so much as necessarily abstracted processes whose global takeover and grip on the future is already a given; instead, they can be recognized as uneven and locally contingent processes that get differentially paced and shaped across locales by the specific forms of resistance and investment of time and care by situated actors. From this vantage, dominant knowledge institutions don't exist as decontextualized global forces, but are understood and treated instead as entities whose stability relies on sustained coordinations across specific sites (of particular research clusters, commercial divisions, or public offices, among other extensions), where local forms of disruption or dissent can still meaningfully register.

And much as community data practitioners have demanded more nuanced framings of data and technology, they have likewise resisted simple readings of "community," grounding their work instead in understandings of communities as complex social bodies made up of a plurality of actors who are nonetheless bound and sustained by an active reproduction of shared space, values, interests, or concerns. Community thus refers less to a homogenized body of organically unified actors and more to a complex network of actors whose coherence can only emerge from the sustained labor of coordination and investment of care work. This labor, from the dominant productionist vantage of innovation time that insists upon the extraction of ever-greater value and efficiency, can only be dismissed as reproductive (rather than genuinely productive) labor. Practitioners acknowledge that while some communities are tied to local space and place, others span across a network of sites that activate a common sense of belonging through a cultivation of situated forms of relating and renewals of connection. They recognize that while communities, from the outside, might appear homogeneous, differences exist within that are constantly negotiated and that can result in relative forms of privilege and marginalization. Community, seen from this vantage then,

is not presumed to be a natural given entity, but is a form of relating that requires work, care, and time to cultivate. And so, too, can its existence be made vulnerable and precarious, despite such investments.

Community data efforts underscore the deleterious impacts that the accelerating segregations and automated classifications of contemporary data systems have had on the pluri-temporal coordinations of communities across varied formations. They highlight how the amplification of discriminatory and stratifying operations under datafication have threatened the continuity of community life that extends through pluri-temporal vibrancy and the safety of marginalized populations to securely cultivate new interrelational connections (Adams 2021; Crooks and Currie 2021; Emmer et al. 2020; Eubanks 2018; Gangadharan 2015; Madden et al. 2017). They draw focus, then, to the overlooked precaritization of community-driven social connectivity, as the forms of collective coexistence they foster across a plurality of relational capacities are increasingly undermined.

REPLACING DATA FOR INTERRELATIONAL CONNECTION

Far from seeing data harms as discrete outcomes tied only to the spread of contemporary datafication systems, community data initiatives connect such trends to a history of technology developments that have been driven by the interests of dominant knowledge institutions and their long-standing exclusion of, and disinvestment from, community interests in their pursuit of global scale and profit. Community data is thus grounded in an enduring critique—at least over a century long (Battle-Baptiste and Rusert 2018; Chan 2020)—of dominant knowledge institutions' roles in amplifying social vulnerability. Such harms extend from dominant knowledge institutions' projection of universal knowledge production, despite their failure to meaningfully know, speak for, and address the lived experiences of diverse marginalized populations. Community data initiatives' renewed calls for more accountable knowledge practices and research infrastructures instead recognize the importance of local context in developing and analyzing the impacts of data systems in ways that center the priorities, voices, and histories of lived experiences of marginalized communities (Akinwumi 2023; Benjamin 2019; Costanza-Chock 2018; D'Ignazio and Klein 2019; Eubanks 2011; Gangadharan and Niklas 2019; Gaskins 2021; Irani et al. 2010; Lewis et al. 2018; Shaikh 2023; Walford 2018). Echoing calls to more intentionally

center context in design (Escobar 2018; Gangadharan 2020; Irani et al. 2010; Lee and Petty 2021; Rosner 2020), community data work has underscored the growing tensions around the historic exclusion of marginalized populations from determining how dominant knowledge institutions use, collect, and selectively filter data, even as such communities have remained among the most common subjects of data extraction (Arora 2016, 2019; Eubanks 2018; Greene 2021).

Community data initiatives respond to the need for new forms of situated data practice and community-accountable research infrastructures as alternatives to the control, commodification, and classification of populations by commercial, academic, and state actors (Haraway 1988). In doing so, activists, organizers, and researchers who engage in community data initiatives speak for the possibility of alternative knowledge practices that counter the polarizing and socially stratifying impacts of datafication and the restless imperative of a universal innovation time. They redirect data processes toward a renewal and strengthening of community relations and self-determination—refusing critical scholarly frameworks that position data as inevitably harmful, while also refusing frameworks that see technology and data production as democratizing simply for being placed in the hands of communities (Ahmed 2012; Crooks and Currie 2021; Fuchs 2013).

Community data work is conditioned on a sustained commitment to redirect data practices toward a defense of communities' open capacities for collective coexistence and pluri-temporal relational connectivity. Such redirection efforts entail not only prioritizing greater accountability to marginalized communities and redefining power relations around data practice, in response to long-standing critiques of the exclusion of communities in knowledge production, but they also entail redefining of the very terms of data work itself, shifting the focus away from elite actors (Kennedy 2018). Prioritizing a reinvestment into community life and local relations results in data practices that exceed the terms and interests of dominant knowledge institutions: community data are often small, contextual, qualitative, and creative; highlight storytelling, community documentation, and memory work; and are grounded in locally based archives and situated histories. What matters is not the scale, speed, and volume of data captured, but the possibility of meaningfully engaging the lived experiences of marginalized community members. What is valued are the diverse means to recommit to an empowerment of local community life through activating local forms of relationality, connecting collective histories, and committing to the

patient—and often unpredictable work—of cultivating new relationships of reciprocity and accountability.

In distinct contrast to dominant knowledge institutions' ventures, community data initiatives do not solely value data for their economic value or competition- and independence-enhancing utility. They instead draw intentional focus to the social aspects and relational potentials inherent in the infrastructures (Star 1999) and collective research processes that surround data. Community data projects look distinct from site to site, being responsive to local needs, potentials for relationship building, and problems around data infrastructures and datafication systems. As such, community data initiatives take on a range of functions, from promoting reinvestments into community life and marginalized communities' pluri-temporal relational capacities (Escobar 2018) to developing inclusive and locally engaged research methods to extend accountability to communities and enhance new channels of self-determination around data and technology. While distinctly shaped by their local contexts, community data initiatives emphasize shared priorities around situated forms of interrelating and community-centered research practice that underscore how patient forms of data work strengthen knowledge practice by fostering conditions for shared accountability.

And even while contemporary developments have brought new focus to community data work as emergent phenomena tied to recent digital developments, practitioners often view their efforts as interlinked with past justice-oriented reforms and data work stretching back more than a century. Community data efforts draw from a range of earlier justice-based reforms and social movements' data methods—from abolition movements, intersectional feminism and anti-sexual violence campaigns, and immigrant and labor rights organizing to movements for Indigenous sovereignty in varied regional national and local instantiations, among others. By drawing on prior justice-based reform efforts, community data practitioners underscore long histories of alternative data methods that bridge the work of activists, community members, and scholars to counteract oppressive forms of knowledge power. They further draw focus to the varied alternative knowledge infrastructures and resources developed by the collaborative work of generations of marginalized actors (Gaskins 2021), which have frequently been overlooked and invisibilized by innovation narratives that narrowly celebrate the “disruptive” profit-generating products of high-tech firms and the inventions of lone (and typically White, male, and Western) “genius” individuals or heteronormative, male-dominated institutions (Broussard 2018; Crawford

2021). Under such frameworks, marginalized communities are excluded as agents in knowledge production and more likely to be framed as sources of problems to be solved, or as sites or objects of experimentation from which data needs to be extracted (Cifor et al. 2019), than as knowledge agents.

By contrast, community data practitioners recognize marginalized communities as having long been central to the development of new knowledge practices and data methods focused on the needs, interests, and concerns of the people most directly harmed by dominant norms of knowledge production. Whether through the late nineteenth-century feminist and immigrant-authored surveys and labor studies of Hull House (Chan 2020), the early twentieth-century data journalism of Ida B. Wells, the data visualizations and sociological publications of W. E. B. Du Bois (Battle-Baptiste and Rusert 2018), the statistics-based nursing advocacy and medical reform work of Florence Nightingale, or the mid-twentieth-century origins of accessibility design and educational research (Brown 1992), community data practitioners link their work to past interrelational coordinations and organizing efforts led by marginalized communities that challenged and redefined the norms of dominant knowledge institutions. Significantly, they point to how such past, locally centered collaborations of critical data practitioners not only generated new data methods, but also demonstrated the potential to seed larger social and institutional transformations, underlining the vital role of alternative knowledge infrastructures in such work. Sites such as Chicago's Hull House, W. E. B. Du Bois's Atlanta Sociological Laboratory, the Black Panthers' national network of People's Free medical clinics, and immigrant communities' alternative health clinics demonstrated the range of possible research-based outputs in the United States alone when the priorities of innovation or growth were displaced as priorities in research practice. Supporting the extension of justice-based infrastructures, such sites highlighted the rich possibilities of alternative research futures that have been imagined through fostering retemporalized understandings of data as a relational knowledge resource and expression, not merely instrumental or utilitarian.

Such efforts underscore how local communities and grassroots networks have long worked to cultivate alternative knowledge infrastructures to enable a form of data work that might be more accountable to marginalized communities (Chan 2021; Eubanks 2011; Gaskins 2021). Whether developing mutual aid networks such as in Indigenous, Black, and LGBTQ health networks or feminist safe houses (Brown 2017; Spade 2020), improvising work-arounds for technological systems that do not meet diverse

needs (D’Ignazio and Klein 2019), or figuring out how to scale existing resources to provide nurturing and care (Precarity Lab 2020), such groups committed time and care to foster multisectoral collaborations at local and global scales to uncover and redress the negative impacts of dominant data practices on marginalized communities (Amrute, Singh, and Guzman 2022; Carroll et al. 2020; Gorur 2023; Irani 2021; Kukatai and Taylor 2016; Lewis et al. 2018; Nguyen 2021; Petty 2018; Ricaurte, Nájera, and Maloof 2014). They are active reminders of the long-standing work of organizers who occupied care time, cultivating and coordinating a shared patience across networks of difference to negotiate and hold together varied time scapes. Existing as alternatives to predatory data tempos, they forged paths to break away from an insistence to always move forward and faster, or to simply accept being left behind. Each call for accountability they architected together was hard won, but if they could accrue, they might layer into meaningful, lasting reforms. Recognizing such opportunities, then and now, required a willingness to “stay with” the process in order to refuse the restless tempo of innovation and to step into another patience.

COMMUNITY DATA IN EAST CENTRAL ILLINOIS’S AFTERMATH TIME

Noticing the work of retemporalizing data by community data practitioners in the contemporary can be challenging. It requires that we commit to denaturalizing the imperatives of innovation time and that we reorient selves to a different kind of patience for recognizing the varied forms of collective work that have emerged to counter innovation time’s violences. It means we recognize, too, how innovation imperatives have long drawn from other logics of segregation and stratification to feed global growth, parasiting on and amplifying such hierarchies as needed in the name of creating greater efficiencies for those deemed most “future worthy.” And it means dedicating time to cultivating new means of accounting for the local forms of vitality sustained through community data when care time—rather than the conventional profit-generating tempo of innovation’s productionist time—is the rhythm adopted to orient collaborators’ “value” creation.

Community data practitioners’ care work around data reminds us that the ever-intensifying calls of innovation to reorient all data practice toward an acceleration of production-oriented efficiencies have not extinguished

all other temporal orientations associated with data practice. Listening to community data practitioners, then, allows us to create space—temporal, social, and otherwise—for the active defense of pluri-temporalities that they channel through data collaborations as care work that decenters and denaturalizes the imperatives of datafication’s innovation imperative. This final section returns to East Central Illinois to hold space for the care time invested through local data work and the research partnership I was a part of with Stephanie Burnett and other regional leaders in social services and community organizing to address the broadband equity needs of diverse marginalized households in Illinois. The labor of care time and multitemporal relational cultivations invested around data work make plain how much data is read as more than just “raw material” to exploit—with greater speed or scale—in the interest of profit generation. They reveal the variety of data formats and tempos that can be drawn from to develop critical alternatives to innovation time and its violent percussions, including through the archives of personal memory and the lived experiences of historically marginalized community members. More than just markers of the past, such records help inform and connect us to the alternative futures community data practitioners imagine for data cultures and the possibilities of their practice as a means of enacting technologies of care.

For instance, when Stephanie speaks about what she credits for fostering her own critical orientations to contemporary data technology projects, it doesn’t take her long to reground herself in her hometown of Danville, a city in East Central Illinois that, like so many others, is rarely read in relation to hi-tech futures, even as it is threaded through with multiple temporalities. Indeed, from the vantage of innovation’s high productionist time, Danville would be a city that would be said to have been largely “left behind” decades ago, outpaced by a global economy increasingly temporalized around computation’s ceaseless processing time. Danville was once a growing industrial center, with coal beds and a railroad hub that supported its growth as a manufacturing site in the nineteenth and early twentieth centuries, drawing a thriving African American population that still makes up a third of the city’s population of thirty thousand. The city began to see its population dwindle as mines closed and later as midwestern manufacturers like General Motors began to depart. But in the midst of such outward migrations and following her graduation from Cornell University over two decades ago as one of the first members of her family to earn a college degree, Stephanie recounts how she returned to Danville, explaining the decision by simply

stating, “Yeah, Danville changed a lot after the [GM] plant closed. It was a totally different place.”

While dominant economic narratives resigned Danville to the past of industrial time and rationalized migration out of the city, from Stephanie’s narration, Danville’s transition to the explicit “afterlife” of productionist tempos spurred another kind of decisive moment and marked the city’s movement into a space inviting restoration and repair from neighbors like herself. From such vantage, it could be read not so much as a site that was “left behind” or one that receded into unproductivity, but as a space that instead defied innovation time’s binarization of worlds into future-oriented and regressive. For neighbors and residents like Stephanie, it was a site worth returning to and investing in for a different kind of orientation around the “future”—one where the lived experiences of residents and the commitment to a present sense of community and survival now allowed temporal spaces of care time to patiently emerge. In sites like Danville, in stark and quiet contrast to innovation culture’s relentless insistence to keep moving forward in pursuit of future opportunity (Puig de la Bellacasa 2015, 694), anxiety over the risk of falling into unproductive time dissolves.

This comes to mind as Stephanie recalls her first memory of her family’s decision to stay in Danville, which came after her father’s job of forty years was transferred to another GM site out of state following the Danville plant’s closing in the 1990s. Noting her father’s own cultivated patience, she recounts his practice of weekly commutes from Central Illinois to a GM plant in Defiance, Ohio, and how he would repeat this travel across midwestern states for years to keep Stephanie and her siblings from being uprooted from school and their network of family relations in Illinois. And she recalls how the same steady commitment came into play as he later enrolled in night courses year after year to gradually accrue course credits until he was able to complete a bachelor’s degree. “It took him ten years,” she says with admiration. In the time since, as she worked with Black and Brown youth at the Boys and Girls Club, with underserved youth and families in largely rural schools and after-school programs at Project Success, or in public housing program development at the Housing Authority of Champaign County, she has cultivated her own steady, committed approach to her work. She paces her “progress” around the relational and focuses on the repetition of working side by side with households, most often to create temporary work-arounds for systems that fail to adequately align with household capacities and routinely punish households in failing to anticipate temporal and economic barriers. “I see

families who take an hour-and-a-half trip on the bus just to get here to drop paperwork off” because they lack means to access email digital forms. In the end, she says, “It costs money [for households just] to get [and maintain] benefits. People who don’t have the money to get all the steps they need done [to simply apply for benefits], don’t get the benefits. It’s a double-edged sword.”

Such recognition is partly what seems to ground the version of patience she has chosen to cultivate around the outsized projections and promises of technology programs. Even when the program funders’ focus on the “new” means that they miss obvious opportunities to recognize the absence of other, more basic infrastructural needs, such as transportation, child care, or housing, Stephanie stresses she has not given up on partnering around technology: “My main thing is trying to make sure that our families in our communities and our children are set up for success. I’m always going to be on board with that.” Her cultivated patience stands in stark contrast to the calls for “future readiness” and projections of heightened crisis and urgency to act “now” that feminist science studies scholars underscore as diminishing the “present of action” (Puig de la Bellacasa 2015, 694) and that funders’ and innovation culture’s future-focused orientations rely on. In the space of care time, however, the present is instead “distended, thickened with a myriad of demanding attachments,” so that, as Maria Puig de la Bellacasa writes, “even when care is compelled by urgency, there is a needed distance from feelings of emergency, fear and future projections in order to focus on caring well” (2015, 694).

Far from simply automatic, the work of cultivating care time also entails work to suspend the ever-pressing demands to prepare for the future and to create instead the space and means to focus on commitments to the past and present alike, including through architecting acts of accountability. This ethic is adopted by the local research team that was formed by Stephanie and myself for a community data project around broadband equity in 2020, which included media justice organizer and Cunningham Township supervisor Danielle Chynoweth, after-school program advocate Kimberly David of Project Success of Vermillion County (featured in chapter 3), and public health advocate Julie Pryde of the Champaign Urbana Public Health Department. Working with local households in East Central Illinois, we aimed to undertake data collection around unmet broadband needs in ways that might push back against funders’ and dominant knowledge institutions’ hardening consensus around a future-readying framing of technology and data needs as already defined and worked to reorient the temporal presumptions embedded into programs’ dominant access-focused frameworks.

The accountability work that community data collaborations like ours aimed to bring forth didn't occasion instant and heroically revolutionary change. Funded with a \$50K grant from the state of Illinois's new Office of Broadband, we began our work together in 2020 recognizing our limitations. Invested in the means by which institutional accountability on smaller, shorter scales, however, might still be practiced, we committed ourselves to a collaboration—modestly focusing our work on addressing the missing data around technology failures related to support around state-supported broadband initiatives—with the prospect that any gains we might make could carry the potential to layer into other changes and stabilizing reforms.

The data collection process we knew we wanted to undertake thus aimed to collect information beyond the number of new laptops and data access devices distributed to households that state agencies and funders emphasized. Rather than taking the progress-enhancing power of technology for granted or enabling funders' immersion in innovation's time scape to allow us to adopt its future-focused and future-driven orientations uncritically (with their insistence that there were few things passed worth stopping forward-moving projects' advancement for), we aimed to pose other questions. We prioritized, then, allowing marginalized households and community groups to question the unexamined logic behind the access doctrine and to speak directly back to how the spread of digital devices actually impacts them in the short and long term—as sources of potential risk or liability—rather than presuming them to be automatic enhancers to households' quality of life. We further aimed to examine the local impacts of digital divide frameworks in diverse communities and critically attend to the local opportunities missed when technology companies continued to be exceptionalized as unquestioned sources of “universal” solutions for all populations—so much so that any problems or gaps in technology use were typically read more as failures of the marginalized communities and households themselves rather than as failures of technology design, markets, or policy.

Centering local accountability as a value, our team designed a research protocol that mimicked a pilot for the Office of Broadband's statewide distribution plan. Adopting the same hardware provider—the nonprofit PCs for People (PC4P)—that Illinois's Office of Broadband announced it expected to use for a statewide broadband equity initiative and leveraging the federal government's newly launched Emergency Broadband Benefits (EBB) and Affordable Connectivity Program (ACP), as was also anticipated for its projected statewide deployment, we worked with project partners

over the first phase of the project to design a local distribution plan for five hundred low-income households in East Central Illinois (EC-IL). Over six months, we worked with EC-IL partner organizations—Project Success of Vermillion County, Champaign-Urbana Trauma & Resilience Initiative, Cunningham Township, Champaign-Urbana Public Health Department, and the Housing Authority of Champaign County¹—to design and deploy six different events to supply a refurbished laptop and a new hot spot device to five hundred local households they worked with (who averaged annual incomes of roughly \$11,000 in Champaign County and roughly \$23,000 in Vermillion County). These in-person events allowed households to also be enrolled into the EBB or ACP federal government programs launched in 2020 and 2021 to subsidize low-income households’ monthly internet connections and at-home data use.²

On top of Connect Illinois’s anticipated statewide distribution plan, however, our team added a new program feature: a family support and outreach team that would gather ongoing feedback from the five hundred participating households on the support they required in the months *following* their receipt of refurbished laptops and new hot spot devices, and ACP/EBB enrollment. In parallel with our work to design hardware distribution events, we developed a Tech Buddies Program that employed and trained a nineteen-person team (composed of ten UIUC students and nine local community members) to support households’ continued connectivity needs in the months following their receipt of hardware. Once every two weeks, tech buddies extended personalized calls to simply check in with households, answer questions, and address any complications that emerged in the two to six months after a distribution event took place. Sustained feedback from households provided our team with a guide for evolving concerns around households’ data and digital connectivity needs and allowed households to register their own observations around a local test scenario for Connect Illinois future expansion plans. Most importantly, it allowed households to collectively register reports and critiques around unanticipated outcomes—including the unexpectedly high number of hardware and service failures associated with the program’s technology providers—and to pose questions about how policy leaders intended to cope with such outcomes.

The documentation process we established made our team accountable for reporting back to state funders on the liabilities of their anticipated program design. This included the overwhelming instances of hardware failure and problems with renewing monthly broadband subscriptions with EBB or

ACP, which led hot spot devices to fail.³ Roughly half of the tech buddies' total working hours over the course of six months of the program's operation was spent addressing hardware failures alone, which ranged from assisting households in contacting hardware suppliers (either PC4P or T-Mobile) to reporting and replacing nonfunctional hardware⁴ and assisting with EBB/ACP renewal processes online.⁵ Households reported experiencing long and frustrating wait times when attempting to contact providers' own tech support hotlines in hopes of resolving problems themselves,⁶ and they reported that issues that required multiple calls to resolve further compounded their frustrations. While programs like Tech Buddies typically are not included in standard technology initiatives (where access is given the primary or exclusive focus), our final report to Illinois's Office of Broadband (Chan and Smith 2022) stressed how essential the program became in addressing marginalized households' specific needs (whether expediting resolutions around equipment failures or simply providing a personalized channel for intermediation between technology hardware and service providers and households).⁷ We further stressed that community organizations' efforts to highlight the importance of developing meaningful accountability mechanisms to track gaps in support from technology providers demonstrated its importance to the research collaboration's data infrastructure, collection process, and findings—allowing outsized failure rates to be diagnosed and amplified to policy makers in ways that could guide plans for state-scale technology plans.

Like the kinds of archival silences (Trouillot 1995) and missing datasets (Criado Perez 2019; D'Ignazio and Klein 2019; Onuoha 2018) that decolonial historians and feminist information studies scholars have unpacked before, the kinds of historical absences and exclusions in data work that these kinds of community data efforts point to are omissions sustained against a backdrop of data accumulations happening around other “data-driven” plans of the state and dominant knowledge institutions. Far from accidental, missing data are what African American feminist data scholar Mimi Onuoha has described as “blank spots that exist in spaces that are otherwise data-saturated . . . where no data live . . . [even when] it should” (2018). Like gaps in global femicide data or missing accounts of subaltern resistances, they point to the missing records responding to possible but concealed questions and propositions that allow a status quo to remain in place. Adjacent to sites of designated data abundance, the voids that result settle in places when present conditions are meant to go unqueried, keeping the possibility of alternatives in the shadows to obscure another present and future alike. These are not, then,

empty spaces. Neither do they channel justifications for more datafication in the hands of contemporary big data actors and dominant knowledge institutions, as if generating more data would resolve the problem that created the silences around their mattering in the first place. As outlines of queries that might have been—and might still be—asked, missing data are instead carriers of critical potential, reminding us where, as Onuoha writes, “that which we ignore reveals more than what we give our attention to” (2016).

For community data practitioners, the invitation extended is not one to merely fill the void of missing data. Theirs is a call to reformulate the terms of questioning instead, so that it might be possible to ask why what was missing remained that way at all and what might begin to emerge instead if historically marginalized communities determined what questions, terms, and tempos of their asking could be encoded into research and data infrastructures instead?

CONCLUSION

What happens when community renewal, collaborative living, and connective interrelation—rather than efficiency, rationalization, and individual competition—become the organizing logics and tempos behind the design, use, and repair of information technology and data-driven infrastructures? And how do we begin to account for the damage sustained via data practice when urgencies around individual optimization, innovation, growth, and productivity have been sustained as priorities above all else? I argue here that recognizing the import of these questions has been a domain and ethical commitment adopted by more than just information and technology studies scholars. I’ve explored too how cultivating temporal methods for connection and interrelation among such multisited nodes of thinking as responses have been differentially developed by community data practitioners. Their efforts to organize data work around these questions can be one means of refusing the insistences (and seductions) of innovation time and fortifying practices for community repair, survival, and perhaps even accountability in its aftermath.

This chapter has aimed to underscore the work of marginalized communities as sites of solution-making to counter the violences of innovation time and their accelerations through dominant datafication processes driven by industry and large knowledge institutions. Community groups’ commit-

ments to local forms of care work that extend from their data work—even if local and gradual—can heighten new opportunities for accountability acts through situated forms of community data work. Such commitments are obscured in a world where the dominant means to value and recognize real “work”—whether in the economy or politics, or around data and knowledge practices—have turned around the capacity to measure some version of change or quantified value-making. Within digital industry domains, such manner of designating “work” has increasingly demanded that the time and labor investments of “rational” individuals translate into the mastery, dominance, or conquering of large-scaled systems that can convert matter into more “optimal” states. Developing norms to recognize “work” in other domains that have required the kinds of slow, iterative, gradual, and long-term investments that are needed to sustain life and collective being (rather than attempt to optimize them) has been something we have comparatively ignored (like recognizing and tracking long-term impacts, whether around investments or disinvestments in public education and health care, air and water quality, or climate change). We follow numbers around growth and loss, assigning value to such movements as indicators that spur anxiety and crisis, or hubris and celebration, but we invest in and have developed far fewer means to assess what it means to simply stay and to evaluate investments in collective survival and community. And this, despite the fact we live in an age when we can no longer take either for granted as social matterings.

In the face of such developments, community data projects have refused to simply be resigned to the space of regressive time. Community data practitioners remind us of the host of other questions we might ask, and the array of other possibilities and problems we could explore, were attentions and imaginaries not narrowly fixed on the temporal paradigms of innovation regimes. Ever more narrowly defined by dominant knowledge institutions, the given terms on which success and survival, risk and experience, come to be framed and understood under innovation regimes silence and discount the alternative care work fostered through community data. What else might we attend to, foster data accounts around, or create new bonds of affect and affinity around were there not the decoy of finance-driven campaigns around value and value extraction? How then might we remake economies of attention toward other ways of collective knowing with data and encounter mutual experience in pluralistically entangled worlds?

Conclusion

DATA PLURALISM AND A PLAYBOOK FOR DEFENDING IMPROBABLE WORLDS

IN NOVEMBER 2023, BILLIONAIRE TECH MOGUL Elon Musk, among the world's wealthiest individuals and owner of a host of data-driven, industry-disrupting companies, including Tesla, Space X, X/Twitter, and the AI company x.AI, set off a global firestorm with a short message he posted to the X/Twitter social media platform he had purchased just a year earlier. He wrote, "You have said the actual truth" and copied a post from another X/Twitter account. His repost voiced agreement with a racist, anti-immigrant, anti-Semitic conspiracy theory—the great replacement theory—that White supremacist and eugenic propaganda around "White race suicide" had invoked over a century ago in promotion of their radically anti-pluralist, monoculturalist social project. It amplified to Musk's 160 million followers an earlier post from a far-right X/Twitter account that claimed Jewish and left-wing groups sought to "replace the White race" with inferior races from South America, Africa, and Asia. Before receiving Musk's approval, that account had posted earlier that "Jewish communities have been pushing . . . dialectical hatred against Whites" through "hordes of minorities . . . flooding their country."

Musk's repost quickly went viral among neo-Nazi and White supremacist groups, with figureheads such as America First movement leader Nick Fuentes underscoring his actions' resonance with the 2017 Unite the Right Rally in Charlottesville. He stated, "[M]archers [there] said, 'Jews will not replace us!' . . . [Now] Elon Musk . . . [is] regularly talking about White genocide, anti-White hatred and the role of Jewish elites!" (Crosse 2023). Noting the impact of Musk's increasingly routine endorsements of White genocide conspiracy theories online, he added, "You open up one of the social platforms and it's so hot so fast it changes public opinion virtually overnight,

and really in our favor” (Anarchist Federation 2023). Indeed, earlier that year, Musk claimed, without providing any substantiation, that ad revenue on Twitter had decreased 60 percent due to critiques and pressure on advertisers from the Jewish nonprofit the Anti-Defamation League (ADL). Insisting he would not fall victim to this form of persecution and channeling his best attempt at White billionaire fragility, Musk accused the ADL of “trying to kill this platform by falsely accusing it & me of being anti-Semitic” (Novak 2023). He added he planned to sue the ADL for lost X/Twitter revenue (Milmo 2023).

Several months later, as corporations including Apple, Disney, Warner Bros. Discovery, Paramount Global, Comcast, GM, Sony, Verizon, and IBM announced that they would suspend advertising on X/Twitter following Musk’s amplification of White replacement conspiracy theories, Musk doubled down. Broadening his accusation of organizations working to “kill” and “blackmail” his company, he explicitly extended his anti-pluralist paranoia to the corporate sector as he spoke on stage at the *New York Times* DealBook Summit. He said, “What this advertising boycott is going to do is . . . kill the company. And the whole world will know” (*New York Times* DealBook Summit 2023). Promising to document the so-called corporate assassination of Twitter/X’s otherwise value-generating platform, he ensured his comments made global headlines as he repeated how little he assessed the comparative value of boycotting companies to be. And he alarmed audiences by not only repeating his depreciation of such companies’ actual worth but stating with indignant emphasis—and in profanity-laced terms—what he thought those companies could “go [do to] themselves.”

Musk, of course, seemed to be doing just fine on his own in single-handedly setting the social media company he had purchased only months earlier on a fast track to self-destruction. He had, within a few months of assuming ownership of Twitter/X, fired 80 percent of its employees, dissolved the company’s Trust and Safety Council and the verification system that helped authenticate accounts, and reactivated the accounts of known US White supremacists and their sympathizers, including Alex Jones, Tucker Carlson, and Donald Trump. And he had made headlines for his predatory relationship with female employees, and his creepy insistence that “civilization” will crumble if “we” (as in techno-elites) don’t have more babies (Palazzolo & Safdar 2024).

When it comes to amplifying eugenic messages in the twenty-first century for monocultural remaking—and normalizing disinformation on White

persecution and the “reasonable necessity” of segregation and even political violence against uncontained minority threats—datafication platforms, prediction systems, and the profit-seeking actors behind them have unquestionably played defining roles. And Musk, for all his frequent outbursts, has been only the tip of the iceberg. In the wake of globally expanding AI industries and investments from Silicon Valley to turn their prediction systems into complete models for social reality, techno-eugenics and the impacts of predatory data have only intensified.

Indeed, at the height of the new millennium’s so-called data revolution, eugenic-age zeal for targeted minority segregations, excisions, and even wholesale population exterminations in the name of majoritarian self-defense have returned with a global vengeance. At a time more flush with data streams and self-consciously defined by technological advancements for a new era of AI-driven revolution, how has techno-eugenics seemed to so quickly rise to define the present as predictable content on the world’s most popular data platforms and to such an extent that their visible dominance now often reads as mundane? How is it that both within and outside the West, contemporary datafication systems have become ample (even anticipated) channels for distributing radically anti-pluralist extremism? Such dynamics have spread new variations of old eugenic conspiracy theories that once again claim race replacement theory as the true reality pushing majority populations into race suicide.

It is worth asking, too, if these dynamics are not the product of the contemporary alone, what’s kept us so fixated and frozen on the “now” of datafication and prediction systems’ present harms as if they were. What actors, creative forces, and propluralistic forms of accounting have we missed around these intensifying dynamics as they have reappeared again and again across generations? What has occupied our focus instead? What would it look like to take action and cultivate new, shared practices to center alternative voices as a means of recovering data pluralism and changing the present course of prediction-based platforms? And what have we seen about contemporary AI systems and their associated harms that suggest such tactics for collective intervention and solidarity building against datafication and prediction systems are now more critical than ever?

This conclusion is an invitation to explore such tactical possibilities for what I argue for as “improbable worlds.” I underscore improbability here as not based on a politics of possibility. Indeed, this conclusion highlights that however exceptional it might seem to confront the challenge of predatory

data's expanding infrastructures in the present, we have never been alone in the fight against data harms—and the struggle against them remains vibrantly possible across a range of contexts. Improbability instead is used to refer to—and refuse—statistically determined forms of likelihood based on assessments of probable, majority-based outcomes. Such approaches are commonly used by data-driven and AI industries today to produce predictive assessments that work by projecting “probable outcomes” for the largest possible set of users. Moreover, keeping populations blind to other “improbabilities,” especially that of the still ever-present potentials for solidarity building around data pluralism, and enabling techno-eugenicists' segregationist logics to remain intact by appealing to majority populations has been a central strategy to enable predatory data's infrastructural advances. Keeping populations separated into a hierarchy of discretely valued classes and making such dividing classifications broadly legible as the dominant system, after all, has been a driving ambition of eugenic agendas across generations. Imagining that techno-eugenic extractions would contain themselves and would only impact discrete minoritized populations, then, has never been a good gamble.

In the twenty-first century, in the wake of new AI-driven prediction system expansions, in particular, there is no question that ever-broader classes are targeted for predatory data's exploits. They are not only subject to continuous monitoring, data profiling, and their extending abuses, but are also targeted for exclusion from the privileges reserved for populations classified as deserving. Whatever protections a relative separation from the “undeserving” or proximity to “meriting” classes were once projected to provide middle classes, it is evident today that, increasingly, security is ever more narrowly justified for only narrower versions of the elite. Now, that is, even general populations (women and youth, for instance, as broad classes) are routinely denied what techno-eugenicists read as the unwarranted expense of user protections online. In other cases, they are simply deemed more profitable for platform owners when such broad classes are disafforded securities. Under such conditions, predatory data's extractions, exclusions, and dispossession are no longer experiences confined to historically minoritized populations alone, but become the foundation of a new generalized logic impacting ever-larger populations and user bases.

Predatory data as an increasingly indiscriminate application to broadening populations, however, also signals new potentials for cultivating shared critical sensibilities and renewed solidarities across conventionally defined

lines of difference. Even as predatory data's infrastructures work to segment populations and amplify the segregating logics necessary to sustain techno-eugenic futures, data pluralist alternatives have never been extinguished. Yet now, as generations earlier, the question has been how to recognize and respond to such alternatives. And how do we do so against the newly intensifying conditions of techno-eugenic outcries, now oriented around the rise of AI as a singularized imperative to future making?

Building on the chapters of this volume, this conclusion maps data pluralism's resilient vibrancy in the context of new AI developments, offering a playbook for strengthening critical literacies for resisting data-driven segregations and fortifying solidarities. The same tactics likewise defend improbable worlds that, as I'll outline here, resist and exceed the operations of AI prediction systems. They underscore how to listen past the amplifying noise of predatory data to recover alternative possibilities of life in common in an age of growing techno-eugenic stratifications and AI-based experiments around prediction that collapse future possibilities into a single, hierarchically organized path.

The playbook offered here starts with an invitation to collectively diagnose and defuse techno-eugenics' segregationist future-casting as a first tactic, recognizing the narrow means by which it amplifies claims for monocultural survival by hyping the existential threat posed by everyone—from minoritized populations to civic defenders of pluralism. It then extends a critique of techno-eugenic claims to stand for life and abundance, even as it calls for ever more limited protections for diverse populations and rationalizes the expendability of users and producers in the AI economy. It closes with a reminder of how the data pluralist project, and the extensions it has cultivated across generations that were covered in this book, have worked to foster alternative sensibilities and common orientations around time, geographies, communities, and organizing epistemologies to counter eugenics' segregating logics as they have persisted across generations. Such creative work and labor are reminders that however much techno-eugenic strategies for colonizing imaginaries saturate mainstream data channels with radical imperatives for monocultural futures and majoritarian probabilities, data pluralist cultivations and investments in improbable worlds continue to multiply. The tactics outlined below channel lessons offered across generations into the contemporary; they also offer a renewal of solidarities in the face of growing, AI-driven stratifications and projections of an exclusively probabilistically driven and defined world.

TACTIC 1: DEFY DATA MONOCULTURALISM

Read against the eugenic strategies of the past century covered in earlier chapters, techno-eugenics' contemporary amplification of majoritarian delusions around the necessity of abandoning democratic ideals to secure future survival rings familiar. Alongside the viral spread of far-right disinformation campaigns on US social media channels, pitched forms of existential paranoia have resurged internationally once again among majoritarian populations, with a key distinction today being the intensified speed and scale of their viral spread. Eager champions can now be found seemingly everywhere as AI-platformized and profit-driven forms of xenophobic extremism and pro-monocultural nationalisms scale online, rapidly crossing site after site across the globe. Conservative political leaders have likewise newly found ready amplification for extremist forecasting across information channels as they mainstream online demands for the eradication of minoritized classes and propluralistic institutions. In the United States, this includes resuscitating once unheeded calls for eliminating the public education system writ large, including the Department of Education itself (Lonas 2023), and energizing campaigns to eradicate "liberal" universities (Binkley and Balingit 2024) that have, not coincidentally, been seen to foster critical public literacies around right-wing propaganda and disinformation.

Such AI-intensified developments now make what for decades remained largely marginal, dormant arguments to demolish propluralistic public institutions into routine content actively amplified on mainstream platforms and in national political campaigns. Indeed, in the months leading up to the 2024 US presidential election, former US Republican president Donald Trump was widely broadcast as he loudly championed White persecution narratives and eugenic claims of US immigrants as "vermin" who "poison the blood of our country" (Kurtzleben 2023; Layne 2023). While such eugenic arguments were just decades ago only heard among radical pockets of free market libertarians and anti-welfare policy right-wing extremists (Bauman and Read 2018), today their automated amplification across media platforms as content in presumed demand among majoritarian populations propels the agendas of White supremacist figures such as Trump into the national mainstream. As one late 2023 post from Trump on Truth Social read in reference to US immigrants, "They poison mental institutions and prisons all over the world, not just in South America. . . . [And t]hey're coming into our country from Africa, from Asia, all over the world" (Gibson 2023).

Throughout Silicon Valley's leadership corridors, too, techno-elite existential paranoia and extermination fantasies have amplified. Routinely, the AI industry's White male corporate heads—from Peter Thiel to Marc Andreessen, Sam Altman, and other enthusiasts of the AI accelerationist movement—project a crisis of Western technological stagnation (Andreessen 2023; Thiel 2023) credited to governments' overprotection of pluralism. From such perspectives, “deranged” government regulations (Andreessen 2023) and democratic policies only work to protect unfit and underperforming populations from projected technological harms. Worse yet, government efforts to check tech companies' advancements to defend underperformers jeopardize the higher-order strength of Western technology leaders and the future of the West's data and AI industries. In what accelerationists define as a “deadly race” for the future of technology and capitalism alike,¹ some have even labeled the current moment as a twenty-first century “Sputnik moment” with its pending threat of US technological demise in a globally escalating AI “arms race.”²

The absurdity of such projections, however, can and should be named as a core symptom of techno-eugenics and its efforts to colonize perceptions of reality through fear mongering. Likewise, the repeated claims around the persecution of tech geniuses and entrepreneurs made by Silicon Valley's most wealthy elites should readily indicate how deeply a profound narcissism and pathological drive for self-preservation propel White male techno-elites' claims around insecurity. While tempting to dismiss, it would be a mistake to not take seriously their effect and their design to distract from the actual vulnerabilities that have amplified for other parties all around. Being forced to focus on techno-eugenicists' survival, that is, means paying less attention to the narrowing terms for survival and support they have created for everyone else.

Defying such terms, then, entails actively refusing the “probable,” measurably majoritarian outcome as the most evolved future. It means defending data pluralism and support for the vitality of not only diverse systems of knowing and accounting for the real beyond techno-eugenic terms but recognizing the deep damage done when reality and the course of history are framed exclusively around the language of competitive survival, hierarchy, and scarcity. Such terms actively work to foreclose alternative futures, keeping publics frozen in the precarity of self-preservation instead. Rejecting techno-eugenic frames thus opens possibilities for registering the present and future on new terms altogether, rather than projecting the wholesale

rejection of technology as the only true alternative to techno-eugenics. Engaging accounts that underscore the persistent possibility of (and deep longing for) solidarity and collective vitalities around data fortifies technological alternatives that, as other data collaborations in this book explore, have never been fully captured by techno-eugenics' monoculturalist agenda.

TACTIC 2: COUNTER TECHNO-EUGENIC SELF-PRESERVATION WITH SOLIDARITY

It is no surprise that in the name of self-preservation techno-eugenic attacks on minoritized populations and on defenders of democratic norms have rapidly escalated. This has been accompanied with depictions of such populations as not so much victims of data-driven harms, but rather (in true eugenic form) the primary perpetrators and threat to the security of majority populations. By today's techno-eugenic allegations, minoritized groups' and democratic defenders' growing reports of online harms and system-wide discrimination on platforms are not merely guilty of drawing investments away from invaluable data-driven platforms and innovations. Instead, by merely reporting online abuses and evidence of bias, minority groups—techno-eugenicists fabricate—demonstrate their willingness to block technological advancement and compromise the existence of profit-making platforms altogether.

Prominent US venture capitalist Marc Andreessen thus penned and circulated a long manifesto in late 2023 to document the “lies” being told by pro-“stagnation,” “socialist enemies” of AI and its corporate developers (Andreessen 2023). By Andreessen's account, AI's “techno-capitalist” accelerationist promoters—represented by leading tech entrepreneurs such as himself—work in defense of “technology, abundance, and life” itself. As he insisted in his manifesto, “anti-merit” forces (that apparently encompass anyone who doesn't endorse accelerationism's vision for a no-holds-barred approach to technology development) threaten to devastate technological acceleration as what he called “the glory of human ambition and achievement” and the realization of the tech sector's potential (Andreessen 2023).

Opening ominously with the warning to beware of the negative messages about technology's destructive power that tell techno-entrepreneurs “to denounce our birthright—our intelligence, our control over nature, our ability to build a better world”—Andreessen's manifesto insisted that the real

truth of techno-capital's evolutionary innovation market was that it "spirals continuously upward" and "makes natural selection work for us in the realm of ideas." Stressing intelligence as the "ultimate engine of progress" now under attack by accelerationism's enemies, Andreessen closed by asserting AI as a force that can save lives. And he darkly insisted that "any deceleration of AI" through regulating Big Tech surveillance or limiting the aggressive datafication of user and producer activity "will cost lives" (Andreessen 2023).

If such shameless reality distortion and polarizing disinformation sounds familiar, it is because it has now become the day-to-day experience of the profit-driven digital content global publics of all ages are now forced to navigate on the very platforms and digital properties accelerationists own and control. Everywhere, it seems, publics have been prompted to rise to defend the existential stakes around stagnation and "wake up" to the only "truth" worth attending to, to see the war being forged against evolution and abundance by "anti-merit," propluralistic forces. This is a war, we are reminded, where nothing less than the fate of the rightful global order—defined in the image of a radically unregulated, unconstrained techno-capitalistic market and the continuity of unchallenged Western and White patriarchal dominance—lays in the balance.

The evident irony of such calls, of course, is that despite the claims of defending life and abundance, everyone and everything proves to be disposable and expendable except the Western(ized), largely White male elites at the very apex of techno-capital's own innovation markets. By AI accelerationists' monoculturalist revision of society, even traditional Fortune 500 companies and advertisers on datafication platforms like X/Twitter can be reminded of their disposability. Only the owners, funders, and leaders of the tech sector's most valuable and allegedly innovative AI properties and data platforms are truly assured or deserving of a share of the full material bounty, credit, and security that is promised in the face of the disruptive change they promote. It is this concentrated cluster of owners and self-appointed, future-oriented visionaries who see themselves as doing the heaviest lifting—and creating the largest value generation and evolutionary push—when it comes to universal datafication and the creation of prediction systems. Parties that stand in the way of such pursuits are themselves only obstacles to life and abundance. The ongoing precarity of and reduced protections for minoritized populations that we've witnessed grow while Big Tech has prioritized a singular pursuit of accelerated innovation cycles and profit-making interests readily demonstrates how broadly such racialized, exclusionary logics run.

Techno-eugenicists, however, still routinely deny charges of racism by defending their actions as driven by other, allegedly higher ideals. Making grandiose claims that they act in defense of innovation and technological advancements around datafication, and that the commercial data-driven platforms they run are built to save humanity (Brooks 2023; Isaacson 2023), they project such systems as now the culmination of technological genius that must, at whatever cost, be enabled to fully realize. By their framings, it has been innovation centers alone that have been behind datafication systems' advancement. And it is they who should rightfully be recognized as the principal protagonists in the history and the evolution of global society. Moreover, their obsessive demands for continual technological revolution have powerfully worked to drown out all other alternative paths for future worlding in the contemporary—so much so that broadcast accounts of the given centers of the data economy in the mainstream media now portray industry and innovation-seeking centers as so fundamental to the evolving digital future that now awaits the rest of the world that to refuse such a future can virtually equate to refusing the future itself.

Even when AI-based deployments have prompted growing concerns over the unprecedented pace of change and the impacts on the security of vast populations and economic sectors around the world, dominant discursive frameworks have continued to reify industry and knowledge-sector leaders' emphasis on the imperative to innovate. Public attention is turned toward a focus on the responsibility of individuals and economic players alike to prepare for an inevitable AI revolution. Quietly excised from such discussions have been questions around what alternatives varied globally distributed institutional actors, policymakers, and knowledge producers might invest in to cultivate other futures. As significant, of course, has been the absence of and silence around a parallel set of questions around not merely what opportunities for intervention there might have been in the past, but what actors and collective actions might have summoned distinct imaginaries around alternative data futures—and who benefits from continuously silencing such past records.

It is clear, then, that to reset imaginaries around other possible worlds and narrative frames will require interventions beyond that of liberal institutions, the experts they employ, and mainstream media networks. It will demand the agency and engagement of everyday actors and communities. It will require alternative ways of understanding collective being in the world based on solidarity and pluriversal intersectionality, rather than the massive

data extractions that techno-eugenicists use to justify their claims to knowledge and prediction, even as they have always failed to represent the fullness of reality or account for the vitality of improbable worlds that continue to emerge.

TACTIC 3: RESIST EXPENDABILITY AND THE PROBABLE FUTURES OF AI

Whatever AI systems' evident failures in prediction and application, however, there is no question that in the coming decades they will continue to apply the designation of "undeserving" to ever-broader populations. Already we have witnessed the kind of unapologetic hostility that once primarily targeted minoritized populations now routinely experienced by general user populations and consumers of technology on data-driven platforms.

As surprising has been the increasingly public shows of abuse that even elite knowledge workers and creative content and intellectual property producers endure from the largest US media companies they work for. The 2023 Writers Guild of America and US actors' union SAG-AFTRA (Screen Actors Guild–American Federation of Television and Radio Artists) strike was emblematic of corporations' public display of expendability of even the most familiar celebrity actors and writers of popular programs. The strike began in the summer 2023 over a labor dispute with the Alliance of Motion Picture and Television Producers (AMPTP) caused by streaming and its effect on residual compensations to artists, as well as other new technologies such as AI in the reproduction of digital likenesses. Even tech workers at Silicon Valley's most prominent companies—once coveted as specialized knowledge workers—have faced abuse from displeased tech CEOs. Recent headlines of high-profile tech companies' (e.g., Twitter, SpaceX, Google) mass firing of high-ranking employees who were critical of company leadership and policies readily demonstrated the expendability (Scheiber 2024; Tiku 2020) of once-coveted expert laborers and producers of high technological value.

Perhaps the most telling development around what the new terms of AI-based inclusion now entail was OpenAI's recent replacement and public shaming of most of its four-person, nonprofit-designed board of directors. The unprecedented move in November 2023 came after the original board—two women and the company's chief scientist, all selected to initially prioritize a separation of AI development from profit-based motives—fired the former

CEO of the company, Sam Altman. Altman's aggressive pursuit of profits and commercial fundraising goals before the nonprofit's founding mission to maintain human-centered principles and safety over profits (Allyn 2023), and growing perceptions of him as an advocate "for rapid AI innovation" (Varanasi 2023), had come to generate unabated concerns over his ability to protect OpenAI's founding mission. Altman, however, was rapidly reinstated as CEO and accompanied by a new board that included ex-Salesforce co-CEO Bret Taylor and former US treasury secretary and president of Harvard University Larry Summers, ensuring strong ties to Wall Street and US policymakers. Altman's reinstatement was hailed as not only a win for Big Tech's profit-based pursuits but for the very no-holds-barred approach to AI developments championed by accelerationists (Mims 2023).

In a world of AI-driven consumption, where the recommendations of algorithms can be read as more decisive than users' independent decision-making in determining outcomes, companies see less and less need to cultivate user loyalties and choice. Similarly, a world of AI-produced or replicated content that is understood to perform comparably to human-produced content has made the value of knowledge work harder to sustain and harder to read as anything more than excessive.

We should beware, however, that AI systems' claims to accurately predict the future of consumer need and producers' output are based on calculations for probable futures based on past data. Such datasets are used to build models of what future outcomes will most likely and probabilistically turn out to be. While the forecasts that result can often be relatively innocuous, even when they might be slightly off mark, there are many scenarios where the desired future outcome is explicitly *not* the probable outcome. This is true not only in the case of predicting the likely reality to be faced by minoritized populations—where datasets are too limited or misrepresentative to innocuously or accurately project future outcomes—but is also the case in contexts that involve the protection of minoritized value systems. These include civil rights, feminism, or decoloniality, where majoritarian values and beliefs (whether around White supremacy, patriarchy, heteronormativity, or colonial hierarchy) can often be overrepresented in existing datasets and predictive models. In such cases, it is precisely the probable outcome that should be avoided from projecting into the future.

Such cases remind us how, in a range of scenarios, it is instead exactly models for *improbable* outcomes that we would want to build into future worlds. Indeed, making room for the emergence of improbable worlds applies

to varied scenarios far beyond platform cultures—for example, to medical diagnostics, where diagnostics for minoritized populations and understudied diseases or populations often fall outside the probable models developed for majority populations. Even the emergence of planet Earth, in a universe where still little evidence for other planetary life is known to exist, appears to have emerged as an improbable world. Collective sustainability, that is, may depend precisely upon improbability.

This should also remind us why given datasets and models that overrepresent majoritarian populations have yielded pernicious impacts. Through biasing toward probable outcomes, prediction systems have provided a means to actively amplify majoritarian worldviews into the future. Little wonder, then, that the overblown anxieties of majoritarian populations, patriarchal nationalists, and far-right radicals in context after context across the globe seem to have appeared so suddenly empowered overnight. In the timespace of AI-based predictive systems, the future is just a matter of following the numbers and projecting probable outcome.

TACTIC 4: REFUSE THE DISPOSAL OF USERS AND PRODUCERS

It is worth pausing for a moment to account for how the amplification of probable worlds has played out in AI-driven predictive systems' ability to make digital users and producers appear suddenly disposable in the information present. For decades following the rise of personal computing, digital users and producers were uniquely valued, pursued, and even fetishized members of the networked economy. Celebrated as new engines of value-generating growth, digital users and their loyalties to new platforms and products were read as metricizable, empirical indexes for verifying the viability of new digital start-ups. Digital producers were heroized too as the creators of spectacularly new forms of economic value, intellectual property, and knowledge that accelerated productivity in ways that surpassed traditional labor.

Today, however, the pursuit of datafication and prediction systems, rather than the cultivation of global userships, is the fundamental technique by which the contemporary digital economy expands and colonizes. As I've argued throughout these chapters, datafication and prediction functions remind us of the inseparably eugenic origins of the information economy. As the twentieth century's first powerful and popular datafication movement,

eugenics spread through promising a means (controlled by the elite male knowledge professionals of their day) to universally measure and predict human value and fitness and the worth they would generate (or cost) into the future. By extending data methods that projected an empirical basis for the present and future value of well-born classes (and the absence of value within the so-called unfit), eugenicists could assure themselves that they were uniquely deserving of privileges denied to others. They could assuage their anxieties that their proximity to increasingly diverse classes would fundamentally threaten existence, defined by their access to exclusive privileges in the present and future. Such explicitly racialized techniques for classifying, stratifying, and creating hierarchies between global populations beyond White patrician elites alone likewise helped eugenics grow its popularity, as its adoption by broad, globally expansive users attested to.

A century later, datafication and prediction in the digital economy has provided an altogether distinct advantage for techno-elites. If digital growth in recent decades had secured a clear path for expansion that relied on the growth of users, personal devices, hardware, and digital consumer markets, twenty-first-century datafication and prediction systems adopt a distinct approach. A past reliance on digital consumers meant that global growth necessitated active online consumers and users—ones who later were celebrated as even enterprising “prosumers” of digital products in an online marketplace. It could include a diverse spectrums of users, so long as they were enthusiastic, consenting participants in an allegedly more democratic kind of digital techno-capitalism.

Contemporary datafication and prediction systems, however, have made a critical break from those earlier logics of digital growth. Most dependent on processes of automated decision-making and massified data collection—and now more efficient because of it—their core functions no longer rely on or require the active consent of consumers to explicitly elect to use specific digital systems. Today, datafication and prediction can occur regardless of whether subjects are active, consenting participants. Datafication, prediction, and classification take place seamlessly, often without notice or market spectacle, and frequently without requiring subjects’ active consent. Automatic facial recognition, body scans, and the use and correlative repurposing of previously collected and archived offline records—whether state and law enforcement records, health and purchase data, or other forms of digitizable identity records—all circumvent a reliance on users’ active, knowing, and elective “participation.” Likewise, their classification and predictions around

the risk they carry take place by overriding a dependence on digital consumers' consent. Without a need to cultivate consumer loyalties and persuade users' adoption, datafication and prediction economies have been made more frictionless, automated, and efficient on the one hand and unapologetically "extractivist" and detached from user preferences on the other.

It is no accident, then, that the contemporary data economy and tools of AI and big data have become the chosen resources for authoritarian, nationalist, and explicitly antidemocratic movements, states, and politics. It should be no surprise either that they have likewise given rise to a growing model of techno-eugenic digital capitalists, who, unlike the "do no evil" internet-as-benevolent messengers of an earlier pre-big data age, can now skip over user persuasion and any pretense of a kinder internet-age capitalism. Identifying and cultivating users' democratic choice can now be replaced with the probable prediction of consumer behavior—so much so that investing in growing the consumer loyalties of diverse publics can come to be read as an excessive, unnecessary feature of markets rather than an obligatory channel for expansion. Now able to operate without the distraction of cultivating user demand and adoption, techno-eugenicists can focus singularly on expanding profitability and getting rid of excessive investments. They can likewise now categorize and calculate investments in users and even creative producers as potentially excessive expenditures, no longer needed in an age of prediction-based AI. Under such calculations, creative producers can increasingly be read as replaceable by AI systems that generate likenesses of creative output based on data amassed on past behavior. Likewise, investing in traditional forms of cultivating user loyalty can be seen as increasingly obsolete when users' preferences and market behaviors become predictable entities under datafication systems. Indeed, early twentieth-century eugenicists argued for a vigilance against such wasteful expenditures early on, introducing their calculation a century ago that some users "were born to be a burden on others."

And yet, however extreme such developments, I stress this is not an argument for returning to past models of capitalist production and consumption or for fortifying the market-based logics around individual consent. Such options would be insufficient for recovering a justice-driven model of pluralism in today's prediction-driven data economy. At best, they would only return publics to economic or legal models that narrowly define protections for vulnerable populations facing eugenic policies and markets. What is needed instead is a politics of feminist and decolonial refusal (Cifor et al. 2019; Simpson 2017) that can reimagine technological worlds and data practice and

that can decenter logics of either economic productivity or legal individualism to ground and resituate relations of shared, renewable accountability. We don't have to stay locked in liberal frames under the pretense that they are the best options against techno-eugenic thinking that we can hope for. Indeed, if anything, the preceding chapters have explored the proximity and occasional overlaps between liberal and eugenic rationales. To break out, I've argued, requires cultivating a historical consciousness around datafication and prediction and an embrace of pluralistic practices that emerge outside the realms of liberal law and markets. It requires tactics (de Certeau 1980), that is, that would work in defense of improbable worlds.

TACTIC 5: DEFENDING IMPROBABLE WORLDS

Despite all odds, improbable worlds exist all around us. They are the statistically or politically minoritized contexts, conditions, and outcomes that in their emergence and existence defy probability and the metrics of scale. In their minoritized status, however, they find a means to thrive in the face of given, dominant systems, drawing support from unlikely and unpredictable resources and allies and cultivating new solidarities for such ends. Although they might exist improbably—with other outcomes more likely by numerical or political measure to emerge—they are not less valuable or meaningful. Whether the emergence of unlikely outcomes such as planet Earth in a universe that's largely hostile to life or the thriving of minoritized communities when dominant forces might condition assimilation or incorporation, improbable worlds powerfully shape the heterogeneity and plurality of possible ways of life and being.

This has been harder to notice, however, in a world increasingly defined by digital systems' amplified projections of probable outcomes and futures. This, after all, has been the impact of new prediction-driven AI systems as they have grown to become mundane, loudly self-signally incorporations into everyday environments. The ever-more prolific real-time recommendations such systems deliver provide their assessments to users based on their calculations around a given dataset and the most probable solution sought by users at scale or (less often) a particular user over time. They are delivered via numerous mapping and consumer platforms, large language models and social media, and digital identification and self-driving technologies, among many other AI-based prediction systems that now operate across varied

everyday ecologies. Probable world solutions, for this reason, bias toward the reproduction of dominant worldviews and what has been or can be statistically most represented in a dataset.

While such recommended outcomes can, in some cases, provide users with recommendations that appear to be the safest bet, there are many others for which generating probable outcomes as projected futures empirically fails when compared to real-world outcomes. In other situations, such probability-based outcomes would be undesired for reproducing majoritarian worldviews, biases, and discriminatory hierarchies. The over- or underrepresentation of either majority or minoritized populations can lead AI systems to over- or underpredict real-world outcomes, for instance. This was the case when the AI system COMPAS, used by judges in several US states, was found to wrongly overpredict Black individuals' and underpredict White individuals' likelihood to commit future crimes (Angwin et al. 2016). This was the case, too, when students of color and with visual impairments at the University of Illinois were found to be overflagged as cheating by the facial recognition and online proctoring platform Proctorio (Flaherty 2021). AI systems' probabilistic readings of user tastes in music and arts-based platforms have led creative producers to even critique how systems are encouraging more formulaic, predictable approaches to composition that have narrowed the possibilities for artistic expression as producers are nudged toward designing for tastes that have been measured at scale (Jax 2023). In the meantime, creative producers are pressed to grapple with the numerous other possible forms of expression and creation that are being extinguished through the quiet work of automated prediction.

Such increasingly narrow, monoculturalist terms for inclusion, legibility, and existence within predictive, AI-driven platforms are among the new pathologies publics now navigate as technological evolution and intelligence return to the majoritarian, probable world terms of techno-eugenicists. However, then, as now, accepting such terms is far from inevitable. There continue to be signs and spaces that indicate just how deeply a defense of improbable worlds that enable and multiply minoritized worldviews would be embraced. I have also argued that such inflated cries of existential crisis and xenophobic paranoia are not only age-old strategies used to justify authoritarian practices and resecure majority populations' dominance. The book signals, too, the rising influence of a powerful new generation of techno-eugenic promoters whose darkly cast depictions of present technological decline now operate alongside the more familiar forms of celebratory hype that for

decades had made industry enthusiasm the dominant force in public framings of technology. Both, however, depend on the spread of a probable world and the continued empowerment of dominant classes as the outcome of AI systems. Little wonder that growing publics have come to call for resistance to such systems for increasing bias and limiting the creative possibilities for an independent, unprescribed future.

This book is a reminder, then, of the vast ecologies of multivalent, multitemporalized forms of data work, practice, and studies that resist the monofuturist projections of AI and big data temporalities through explicitly data pluralist practices in defense of improbable worlds. The diversity of relationalities represented across their multisited, multimethod approaches not only defend data pluralism as a vibrantly active feature of research practices that exceed the norms of knowledge and innovation centers, but work to retemporalize and diversify dominant data regimes. Across such spaces we've seen researchers, artists, and activists cultivate local data relations within a multiplicity of transnational sites, interfacing diverse epistemologies and representing pluriversal possibilities. Responding to local needs, projects can take on a variety of aspects and forms. And bringing data together requires the patience and careful labor of committed relationship building across lines of difference that defies big data's restless adherence to an urgent, production- and extraction-demanding innovation time.

Data pluralist commitments emerge from the recognition of the irreducibly varied data methods, formats, tempos, and histories long cultivated and still sustained by practitioners across local worlds. Calling out the false conceit of technological revolution's—and now big data and AI's—projected universalism, they take seriously not only the violence enacted in attempting to deny or disguise the full diversity of data, information, and knowledge possible through probable world readings and reductions. They also remind us of the situated nature of alternative justice-oriented data practices and the varied improbable worlds they support. They remind us that seeing data from below and grounded within local contexts, and rejecting what Donna Haraway called the “god's eye view from nowhere” (1988), is a necessary ethical stance. It may indeed be our best bet for enabling relations of accountability and collaborative being to be centered in data work and diverse local worlds.

Data pluralists' commitment to retemporalize data work in support of improbable worlds, however, should remind knowledge professionals that the work to expel and exterminate regressive temporal orientations has been long going. Indeed, data pluralism's projects recognize how dominant models of

datafication have deleteriously impacted marginalized communities and collective life, eroding temporal worlds as their harms have disproportionately targeted marginalized classes. This dates back over a century and includes eugenicists' obsessive work to datafy immigrants, people living in poverty, and large populations deemed to be mentally, morally, or physically unfit, degrading, and dysgenic. Sharing values and goals with broader data justice and data activism movements worldwide, however, data initiatives operating in defense of improbable worlds have worked to highlight how a long history of silenced data and the ongoing datafication work of dominant knowledge institutions couple to amplify harms marginalized communities face in the era of big data. These harms include the expansion of forms of algorithmic discrimination to the loss of privacy and autonomy, political manipulation, and in extreme cases, organized physical violence.

Working as agents to formulate alternative data futures, however, defenders of improbable worlds and practitioners of data pluralism covered in this project highlight the need to cultivate new methods to engage diverse stakeholders. They respond to the varied temporal orientations of marginalized communities, in particular. It is the commitment to not merely respond to, but to stay, be, and think with marginalized communities—in what feminist scholars have called the tempos of “care time”—that anchor data pluralists' engagements. Their defense of pluri-temporal, improbable world making is thus grounded in the work of situating data practice in a temporal order that unfolds outside that of big data's insistence on a universal temporal regime. From such a vantage, datafication processes can be read not so much as a necessarily abstracted process whose global takeover and grip on the future is already a given inevitability. It can be recognized instead an uneven and locally contingent process that gets differentially shaped across locales by specific forms of resistance and investment of time and care by situated actors. From such a vantage, too, dominant knowledge institutions that have been recognized as driving big data regimes aren't read as decontextualized global forces. Instead, they are entities for which stability relies on sustained coordination across local sites and activities (by specific research clusters, commercial divisions, or public offices, among other local extensions), where local forms of disruption or dissent can still meaningfully register.

Such work, stretching back generations, is a reminder of how long marginalized populations have invested in mounting local defenses and speaking through forms of critical practice to steer knowledge processes toward other futures that would not center globally extractive, segregationist

forms of datafication as inevitable architectures. This book is a call, then, to listen for the tactics fostered to insist on pluri-temporal relationalities and not just productionist time's percussive insistence on control and profit as the aims of technological design and data work. This is a call to foster a closer recognition of the interconnective cultivations such tactics brought forth that made new possibilities come to life across generations.

Such critical reorientations center the experiences, perspectives, and storytelling (Singh, Guzmán, and Davison 2022) of marginalized populations, and in doing so, advance new frameworks in defense of improbable worlds. These include, among others, calls for the abolishment of big data (e.g., Data for Black Lives), data sovereignty (e.g., Global Indigenous Data Alliance), vernacular technology (e.g., Boston South End Technology Center), counter data (e.g., Datos Contra Femicidio/Data against Femicide), data bodies defense (e.g., Our Data Bodies, Detroit Community Technology Project, Los Angeles Community Action Network), antispying (e.g., Stop LAPD Spying Coalition, Mijente), and collective benefit (e.g., US Indigenous Data Sovereignty). As forms of situated data practice, the local data encounters they foster engage what feminist science studies scholars argued for as situated knowledge practices that recognize the need for fostering partial and embodied modes of seeing to challenge unlocatable and irresponsible modes of knowledge practice (Haraway 1988). They also reveal, I argue, the inherent multiplicity of potentials for interpretation that surrounds any dataset that users are often encouraged to only see as given and predetermined by the lens of probability.

Such commitments to improbable worlds remind us that dislodging our contemporary imaginaries around data-and AI-driven economies and their singular focus on the privileged sites of “high innovation” is long overdue. Such fixations have artificially kept attentions focused on operations taking place inside the exclusively bounded sites of Silicon Valley firms and research campuses behind the architectures used to digitally process user data. The outsized attention given to the extraordinary singularity of speed and scale in information processing that again and again has been championed as the digital age's highest achievement have only reified probable world castings around big data and AI. And in doing so, they draw attention away from the day-to-day repair and restoration work necessary to contend with the global ecologies of exclusion Big Tech has accelerated and the ever-narrowing terms of vitality and security all around.

We need to reject such distractions and empower new imaginaries and freedom dreams—including improbable worlds around global technologies and society alike—that are not driven by the survivalist fantasies and paranoid anxieties around self-preservation of White, Western(ized) technolites and ruling classes. The call here to think across time and space reminds us how much work has been and continues to be committed to dismantle Western technology’s deadly master narrative and to reclaim the aims of pluralistic solidarity, restoration, and repair that diverse marginalized communities around the world have cultivated in data and information work. Other forms of global knowledge futures have long been imagined, too. How to see ourselves in relation and accountable connection to them and decenter the given terms of technology’s individualistic use and competition in the name of new solidarities is the challenge of improbable world building we can choose to step into.

NOTES

INTRODUCTION

1. See epigraph for the full quote and link back to the citation. Thiel was also an early investor in Facebook and was an outspoken supporter of Donald Trump, donating \$1.25 million to Trump's presidential campaign in 2016. See <https://www.latimes.com/business/technology/la-fi-tn-who-is-peter-thiel-20180215-story.html>.

2. See World Population Review, "Facebook Users by Country 2022," accessed May 17, 2022, <https://worldpopulationreview.com/country-rankings/facebook-users-by-country>.

3. See Mark Zuckerberg's 2017 blog post, "Building a Global Community," posted to Facebook.com on February 17, 2017, <https://www.facebook.com/notes/mark-zuckerberg/building-global-community/10154544292806634>.

4. See World Population Review, "Facebook Users by Country 2022," accessed May 17, 2022, <https://worldpopulationreview.com/country-rankings/facebook-users-by-country>.

5. A 2019 Human Rights Watch report cites that 254 incidents of religious identity-based crimes were reported between January 2009 and October 2018, in which at least 91 persons were killed and 579 were injured. About 90 percent (229) of these attacks were reported after May 2014, when the BJP-led government was elected to office at the national level. Of the incidents reported, some two-thirds, 66 percent, occurred in BJP-run states. Muslims were victims in 62 percent of the cases and Christians in 14 percent.

6. As of April 2022, Narendra Modi held the most popular Twitter account of any global head of state actively in office, with 78.2 million followers. Former US president Barak Obama had 131.4 million followers and Elon Musk had 91.8 million followers on the same date. See <https://www.tweetbinder.com/blog/top-twitter-accounts/>.

7. The report cites that in July 2016 Facebook and Myanmar Post and Telecommunications jointly launched "Free Basics" and "Facebook Flex" in Myanmar, which provided access to basic services without data charges on mobile phones, through

free access to a limited number of sites, including Facebook. Free Basics was discontinued in Myanmar in September 2017. As the report states, “The relative unfamiliarity of the population with the Internet and with digital platforms and the easier and cheaper access to Facebook have led to a situation in Myanmar where Facebook is the Internet. It has become the main mode of communication among the public and a regularly used tool for the Myanmar authorities to reach the public.”

8. Facebook launched “Free Basics” and “Facebook Flex” in Myanmar in 2016, products that, respectively, enable subscribers to have a text-only version of Facebook without incurring data charges and provide access to basic services without data charges via mobile phones. The products provide free-of-charge internet service, but with access to only a limited number of sites, including Facebook. Free Basics was discontinued in Myanmar in September 2017.

9. In 2018, *New York Times* reporters noted that some twelve hundred moderators were employed in Germany, where a history of political genocide and hate speech laws require vigilant content review. Reporters noted that in order to achieve the same ratio of users to moderators in Myanmar, Facebook would need to have around eight hundred reviewers in the country. See Roose and Mozur 2018.

10. See Alex Warofka’s post, “An Independent Assessment of the Human Rights Impact of Facebook in Myanmar,” posted to the Facebook Blog on November 5, 2018, <https://about.fb.com/news/2018/11/myanmar-hria/>. Warofka specifically emphasized how the company would work to help “maximize the opportunities for freedom of expression, digital literacy, and economic development” and would point to how Facebook’s policies “are developed with an eye towards international human rights principles, including the Universal Declaration of Human Rights and the International Covenant on Civil and Political Rights.” He would further specify that the company’s membership in the Global Network Initiative committed it “to upholding the human rights standards” set out in the GNI’s Principles and Implementation Guidelines. See <https://globalnetworkinitiative.org/gni-principles/> and <https://globalnetworkinitiative.org/implementation-guidelines/>.

11. See “Update on Myanmar,” posted by Facebook’s Sara Su to the Facebook Blog on August 15, 2018, <https://about.fb.com/news/2018/08/update-on-myanmar/>. Aside from the enhancement of new automated disinformation detection tools in Myanmar, this included solving basic technical challenges in global markets, such as font recognition in non-English languages, and hiring more local language reviewers to handle user reports.

CHAPTER ONE

1. The “ledger” kept by John T. Mason, justice of the peace and constable of Downieville, was started in 1890 to surveil the Chinese population there. In 2022, the Chinese Historical Society launched the exhibit “Chinese Pioneers: Power and Politics in Exclusion Era Photographs” that featured the ledger as part of the collection. The aim of the exhibit, as the CHS stated on its website,

was to present “a visual history of the social, political, and judicial disenfranchisement of Chinese Californians in the decades before and after the 1882 Chinese Exclusion Act.” See <https://californiahistoricalsociety.org/exhibitions/chinese-pioneers-power-and-politics-in-exclusion-era-photographs/>.

2. Injunctions against marriages between the Chinese and Whites developed after a referendum proposed at the 1878 California Constitutional Convention. Nayan Shah notes that a delegate to the convention, John F. Miller, speculated that only the “lowest, most vile and degraded” of the White race were most likely to “amalgamate” with the Chinese, resulting in a “hybrid of the most despicable, a mongrel of the most detestable that has ever afflicted the earth” (2001, 97). Laura Curry likewise writes that “[a]lthough originally designed to prevent relationships between black and white people, anti-miscegenation laws were revised to prevent relationships between Chinese and white people as well . . . [making] the only pathway to citizenship for Chinese people . . . to be born in the United States following the Fourteenth Amendment” (2021, 14).

3. To compile his data, Galton notably selected only Western sources: Sir Thomas Phillips’s “The Million of Facts,” from which 605 entries were analyzed; the biographical dictionary compiled by Mr. C. Hone, from which 1,141 entries were analyzed; Walford’s *Men of the Time*, from which 85 names were analyzed; Bryan’s *Dictionary of Painters*, from which 391 entries were analyzed; and the *Biographie Universelle des Musiciens*, from which 515 names were analyzed. Galton’s method was to count relations between recorded men of “talent”—a ratio that he found to be as low as one in six, where a distinguished man “has a father, son or brother” (1865, 161) of similar distinction. This was offered by Galton as statistical proof for the inheritance of mental capacity, talent, and intelligence.

4. Leveraging his role as a statistician, he narrated to his readers that “[b]etween 1790 and 1830 the nation grew from less than four millions to nearly thirteen millions—an increase, in fact, of two hundred and twenty-seven per cent, a rate unparalleled in history. That increase was wholly out of the loins of our own people” (Walker 1896). He warned, however, that “at the present time, we have not in mind measures undertaken for the purpose of straining out” the worthy from the “degenerating” immigrants.

5. This divided races into Whites, Blacks, and Asians (or Caucasoids, Negroids, and Mongoloids), and further subdivided European Whites into three distinct races—Nordics (from northern Europe and England), Alpines (from central and eastern Europe), and Mediterraneans (from southern Europe, North Africa, parts of Ireland and Wales, and the Middle East).

6. By his assessment, “Romanians were 41 percent more likely than the average American to be criminal. Italians were 57 percent more likely to be insane. Immigrants from Russia and Poland were more than twice as likely to be tubercular. . . . A Serbian [was] six times more likely to be inadequate (in any category) than someone of any other ethnic strain” (Okrent 2019, 581).

7. Published accounts like “The Chinese and the Social Evil Question,” included in the 1871 *Report of the California State Board of Health* by board organizer and

cofounder of the California Medical Association Dr. Thomas M. Logan, likewise circulated medical arguments of the Chinese as “inferior in organic structure, in vital force, and in the constitutional conditions of full development” (1871).

8. By 1873, all vessels arriving from China were further required to dock and have their passengers subjected to a personal examination by the quarantine officer of the San Francisco Board of Health. And a decade later, city regulations were intensified to require that all vessels arriving from Asiatic ports be detained for inspection, fumigation, and disinfection.

9. Underscoring how identity photographs came to be strongly associated with criminality during this period, as “prior to Chinese registration, suspected and convicted criminals formed the primary group of people being photographed by the state for identification purposes” (Pegler-Gordon 2006, 58), photographic historians have stressed how the mere appearance of state portraiture “signaled a subject who fell outside the middling range of respectability” (Pegler Gordon 2006, 58).

10. Aggregated in the 1890s into the *Annual Report of the Commissioner General of Immigration*, individual cases are still compiled today, Luibhéid reminds us, in the *Statistical Yearbook of the Immigration and Naturalization Service*.

11. Peffer details the examination that one San Francisco port authority scripted for the Chinese women leaving from Hong Kong, and to be reissued again upon their arrival at his port, that was used for the generalized rejection of their requests for entry (1986): Have you entered into any contract or agreement with any person or persons whomsoever, for a term of service within the United States for lewd and immoral purposes? Do you wish of your own free and voluntary will to go to the United States? Do you go to the United States for the purposes of prostitution? Are you married or single? What are going to the United States for? What is to be your occupation there? Have you lived in a house of prostitution in Hong Kong, Macao, or China? Have you engaged in prostitution in either of the above places? Are you a virtuous woman? Do you intend to live a virtuous life in the United States? Do you know that you are at liberty now to go to the United States, or remain at home in your own country, and that you cannot be forced to go away from your home?

12. Although the Page Act’s segregationist sponsor, Horace Page, was reportedly disappointed in his initial “[inability] to convince legislators of the need for full Chinese exclusion” (Luibhéid 2002, 34), it would seed more significant impacts in the coming years, setting the stage for not only the exclusion of Chinese men with the 1882 and 1892 Exclusion Acts, but more broadly signaling how, well beyond just the Chinese, “lawmakers could exclude certain racial groups from America if done by relying on a supposedly neutral factor” (Curry 2021, 1) such as criminal or diseased status, naturalized into empirical fact.

13. Formerly known as Toland Medical College.

14. By 1925, another nine states in the United States would pass sterilization laws: Idaho, North Carolina, Alabama, Pennsylvania, Delaware, Montana, Virginia, Utah, and Maine.

15. The first bill, passed in Indiana in 1907 and which stayed in place until 1974, stated that it applied to “criminals, idiots, rapists, and imbeciles in state custody

residing in state institutions.” Some twenty-five hundred sterilizations were carried out in Indiana while sterilization legislation was active—48 percent on males and 52 percent on females—with the vast majority, over twenty-four hundred people, sterilized for reasons of “mentally deficiency” or “mental illness” (Kaelber 2011; Stern 2005).

16. Even in 1938, as news of the Nazi pogrom of Kristallnacht carried out against Jewish homes, businesses, hospitals, schools, and synagogues across Germany and Austria spread around the world, the Eugenics Record Office remained steadfast in its support for the Nazi regime. By then, the Carnegie Institution had begun to signal its concerns with the solidity of the ERO’s scientific pursuits, and its unflinching support for the Nazi Party, and had placed it under extra review for continued funding. Unlike US organizations like the American Eugenics Society and Eugenics Research Association that had begun to distance themselves from race-focused arguments, and even the term *eugenics*, in attempts to distance themselves from Nazis, the ERO and its leadership remained committed to the Nazi program throughout the Third Reich.

17. The Eugenics Record Office’s support for the Nazi regime continued even after the Third Reich passed the Nuremberg Laws in September of 1935 that stripped German citizens of Jewish ancestry of their civil rights, when *Eugenical News* and the Cold Spring Harbor eugenics establishment “propagandized that the laws were merely sound science” (Black 2003, 1065).

18. In the 1970s, Indian Health Service physicians carried out a program of Native American sterilization that, according to the US General Accounting Office, sterilized 3,406 women and 142 men in hospitals in just four cities between 1972 and 1976 (Black 2003).

CHAPTER TWO

1. Part of this shift was less voluntary than compelled. The start of World War II and concerted critiques by anthropologist Franz Boas (1925, 1936) and geneticist Thomas Henry Morgan (Barkan 1992; Rydell 2010; Spiro 2009), among other biologists and social scientists, helped foment what could appear as an official “retreat” from public endorsement and support of eugenics by political leaders and public figures in the United States in the 1930s.

2. This included Bel Geddes’s modern stove redesign in the 1930s and a famed radio redesign by Loewy reported to have increased its sale by 700 percent that was later credited for “arous[ing] wide interest in the new profession” of industrial design (Bush 1974, 311).

3. The Eugenics Record Office’s support for the Nazi regime continued even after the Third Reich passed the Nuremberg Laws in September of 1935 that stripped German citizens of Jewish ancestry of their civil rights, when *Eugenical News* and the Cold Spring Harbor eugenics establishment “propagandized that the laws were merely sound science” (Black 2003, 1065).

CHAPTER THREE

1. Danielle has spent her life proposing an alternative vision for media and technology use to counter its deployment for domination, control, and the bureaucratic veiling of the violence of logics of superiority. “Media and technology, when in the service of participatory democracy,” she writes with Elizabeth Adams in the forthcoming book *Democratize! How We Make the World We Want*, “enable us to communicate globally, feed everyone, labor less, control reproduction, use sustainable energy sources, and recognize everyone in their full humanity.” Back in 2000 she proposed a vision for the Urbana Champaign Independent Media Center that has become definitional for digital justice initiatives—providing “space, resources, and atmosphere to draw community members together to investigate local problems and to design solutions; where collaboration, cross pollination, and serendipitous interaction are encouraged; where youth can participate in a creative ‘third space’ as an alternative to home or school; where consumers can be producers; and where the power of art, media and technology to transform our community could be realized.”

2. See epigraph for the full quote and link back to the citation. Thiel was also an early investor in Facebook and was an outspoken supporter of Donald Trump, donating \$1.25 million to Trump’s presidential campaign in 2016. See <https://www.latimes.com/business/technology/la-fi-tn-who-is-peter-thiel-20180215-story.html>.

CHAPTER FOUR

1. The League’s founders—Prescott Farnsworth Hall, Charles Warren, and Robert DeCourcy Ward—were all Harvard alumni from old New England families and all from Harvard’s graduating class of 1889. Among the alternative names they proposed for their organization before they settled on the Immigration Restriction League was the Eugenic Immigration League.

2. Ross’s speech was reprinted in full in the San Francisco weekly publication *Organized Labor* in its May 19, 1900, issue. Ross would defend himself to Jane Stamford by proclaiming that Stanford President David Starr Jordan, a friend of Ross’s, had asked him to make the speech.

3. Using the Inflation Calculator (at <https://www.officialdata.org/us/inflation>), the value of USD\$5.00 in 1895 would be USD\$173.98 in 2022; and the value of USD\$260.00 would be USD\$9,046.73 in 2022.

4. Using the Inflation Calculator (at <https://www.officialdata.org/us/inflation>), the value of USD\$1.23 in 1895 would be USD\$40.80 in 2022; the value of USD\$150.00 would be USD\$5,219.27 in 2022; the value of USD\$225.00 would be USD\$7,828.90 in 2022; the value of USD\$4.32 would be USD\$150.31 in 2022; the value of USD\$2.88 would be USD\$100.21 in 2022; and the value of USD\$7.50 would be USD\$260.96 in 2022.

5. Using the Inflation Calculator (at <https://www.officialdata.org/us/inflation>), the value of USD\$5.00 in 1895 would be USD\$173.98 in 2022; and the value of USD\$10.00 would be USD\$347.95 in 2022.

6. This is according to the US Department of Health and Human Services data from 2022. See <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines>.

7. In California, the Chinese population had grown from 450 in 1850 to 20,026 in 1852. See Shah 2001.

8. In 1870, as the total population of San Francisco grew to 149,473, the Chinese population had grown to over 12,000. By the 1880 census in San Francisco, the Chinese population stood at 21,745, out of a total of 233,979. See Shah 2001.

9. Historian Nayan Shah documents that these began with the 1854 inquiry by the San Francisco Common Council (the precursor to the San Francisco Board of Supervisors) that reestablished the municipal Board of Health. This was followed by the investigation that resulted in the 1869 report of the San Francisco health officer, C. M. Bates. In 1871, Dr. Thomas Logan led an investigation for the secretary of the California State Board of Health. In 1880, an inspection by the Board of Health declared Chinatown a “nuisance.” The 1885 survey of Chinatown by the San Francisco Board of Supervisors was the longest of the reports.

10. Both Willard Farwell (1829–1903) and John Kunkler (1832–1889) were members of the Board of Supervisors at the time.

11. See the *Nevada State Journal* of Reno, Nevada, on March 5, 1886.

12. The 1917 act broke ground for arguing for and later imposing the first national “test”—a literacy exam designed by eugenicists—to set minimum standards for adequate “character and standards” for new entrants into the United States. Decades of active political advocacy by US eugenicists around immigration quotas to limit entry of migrants from “undesired” nations finally came to fruition with the passing of the 1924 Immigration Act, which drastically reduced immigration into the United States via a “national origins quota”—set at 2 percent of the total number of people of each nationality as of the 1890 US national census. It ensured that the largest number of slots would be reserved for what promoters framed, in direct consultation with US eugenics leaders like Charles Davenport of the Eugenics Record Office.

CHAPTER SIX

1. Intentionally, all organizations were based in the two counties of the six in EC-IL with the highest poverty rates: Champaign and Vermilion Counties, whose poverty rates—at 20 percent and 18.9 percent, respectively, according to 2019 US Census data—are nearly double the US poverty rate of 10.5 percent and Illinois poverty rate of 11.5 percent. Champaign and Vermilion Counties’ 2019 poverty rates were also well above those of the other neighboring EC-IL counties of Ford

(13.9%), Iroquois (12.5%), Douglas (10.8%), and Piatt (5.2%). Importantly, too, all the organizations had rich prior experiences developing or deploying technology-related programs for the households they served before—and none saw technology as either a simple product or a magical, ready-made solution for the layered inequities and diverse challenges marginalized households faced. Far from understanding technology as a static, ahistoric thing “cut off from social relations” (Eubanks 2011, 21), the community organizations that were part of our research team approached technology as ambivalent—and a relational kind of artifact that, as community and technology activist and scholar Virginia Eubanks puts it, “embodies human relationships, legislates behavior, and shapes citizenship” (Eubanks 2011, 21). As community partner Trent Eisenbarth, the technology manager for the Georgetown-Ridge Farm School district in Vermilion County and Project Success collaborator, underscored, when developing technology programs that genuinely engage and respond to the needs of local teachers and families (where nearly one in five families qualifies for SNAP benefits), “[r]elationships are the most important thing. . . . It’s about coming in and listening and building those relationships [and] working side by side . . . to make [technology] a safe place. . . . [It’s] not about coming in and changing everything.”

2. A total of six different distribution events (four in Champaign County and two in Vermilion County) were held, at a pacing of roughly one distribution event per month (except during January 2021, when UIUC was on winter break). Events generally distributed one hundred laptops to households across two back-to-back half-day events. Project partners worked closely in the months leading up to distribution events to plan (a) the selection of an event site that would be accessible and inviting to participating local households and open/ample enough to store one hundred hardware packages while host partner teams (roughly ten to fifteen people per event) worked at a safe distance per COVID-19 protocols; (b) selection protocols with partner organizations to ensure participating households qualified for the EBB or ACP program; (c) the design of communication materials for participating households to ensure they were adequately informed of program benefits, research protocols, and what to bring to a distribution event to finalize their entry into the program; (d) coordination of intake data and the design of a survey for participating household heads to complete at a distribution event; and (e) how to apply lessons from past distribution events to refine the distribution designs with the aim of processing households as quickly and efficiently as possible. It was discovered, for instance, that many household heads could only rely on public transportation, had to find childcare, or had to use work time lunch hours to attend distribution events. To meet households’ needs, the project team worked to plan distribution sites at public bus terminals or places of residence (for HACC residents) and aimed to complete households’ on-site processing in less than thirty minutes (scheduling appointments and asking households to complete some paperwork in advance of events).

3. Of some 120 distinct clients who raised hardware issues during their outreach calls, nearly half (44%) reported critical hardware liabilities that made their equipment inoperable for extended periods of time. This included nonfunctional

laptops (fifteen reports from 120 clients) that required replacement, laptops that functioned so slowly as to appear inoperable or discouraged use (four reports from 120 clients), nonfunctional hot spots (two cases of 120 clients), and a failure to renew Emergency Broadband Benefits or Affordable Connectivity Program subscriptions (thirty-two cases of 120 clients) due to clients not knowing renewal was required, errors/unclearities in the renewal process online despite attempting to renew, clients being discouraged from renewing due to a complicated/unclear process, forgetting required passwords, or forgetting to renew or not receiving reminders sent via PC4P. Households' frustration with the program's hardware failures and long wait times required to resolve or replace nonfunctional hardware resulted in decisions to return all equipment and unsubscribe from the program in at least three of the 120 contact calls in which hardware issues were directly raised.

4. The process could take more than a month, as households had to report the issue to PC4P, have a box with postage paid shipped to them so they could send back broken hardware, and wait for new hardware to be shipped to them.

5. This process could entail a variety of steps, from reminding households of the necessity of a monthly renewal itself to helping households contact PC4P when households forgot the username and password required to sign into the renewal platform or contacting hardware providers when a hot spot was in need of total replacement. Tech buddies were also helpful for more individually tailored support needs. One participant requested help for a digital literacy exam they were required to take to qualify for a job they were applying for. Another participant asked for advice on graduate programs they were interested in.

6. PC4P confirmed that their hotline has a typical wait time of over thirty minutes before a caller would speak to a representative.

7. Tech buddies were also essential for more routine technology troubleshooting around mundane issues, from how to create digital reminders for issues like EBB/ACP renewal in digital calendars to tips on how to charge a hot spot. Because of the outsized need households had to address technology failures, significantly less time than community partners had initially hoped or anticipated was spent addressing other issues technology households could have raised.

CONCLUSION

1. In Peter Thiel's 2009 essay "Education of a Libertarian," published on April 13 in *Cato Unbound*, the monthly publication of the libertarian Cato Institute, the radical libertarian and famed cofounder of PayPal and Palantir Technologies frames the future of a free technology and capitalism as under threat from the misguided investments and regulations of democratic states. This explains the stance he adopts at the opening of the essay: "I no longer believe that freedom and democracy are compatible."

2. The framework largely warns of the threat from Russia and China in displacing US technological and economic dominance through AI developments. See, for

instance, “The West is Unaware of the Deep Learning Sputnik Moment,” written by Carlos Perez, author of *Artificial Intuition and the Deep Learning Playbook*, published in April 2017, <https://medium.com/intuitionmachine/the-deep-learning-sputnik-moment-3e5e7c41c5dd>. See also “A Sputnik Moment for Artificial Intelligence Geopolitics,” published on the Council for Foreign Relations blog in September 2017, <https://www.cfr.org/blog/sputnik-moment-artificial-intelligence-geopolitics>. And see also “Will America Squander Its New Sputnik Moment?,” published in January 2022 by the Washington, DC–based Center for Strategic and International Studies, <https://www.csis.org/analysis/will-america-squander-its-new-sputnik-moment>.

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