
*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,

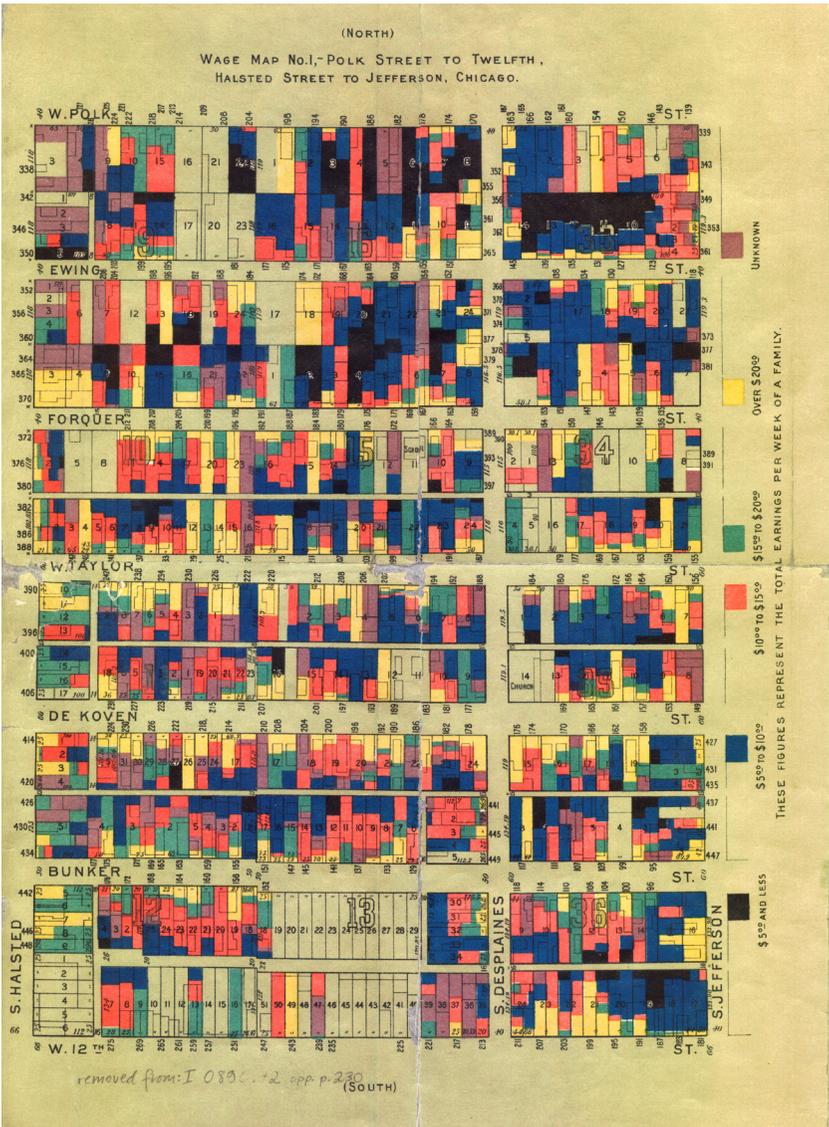


FIGURE 5. A wage map visualizing household income data among the immigrant families in Chicago's West Side, published in the *Hull-House Maps and Papers* volume in 1895, demonstrating the "total earnings per week of a family," up to \$20 per week. (Courtesy, Newberry Library)

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,

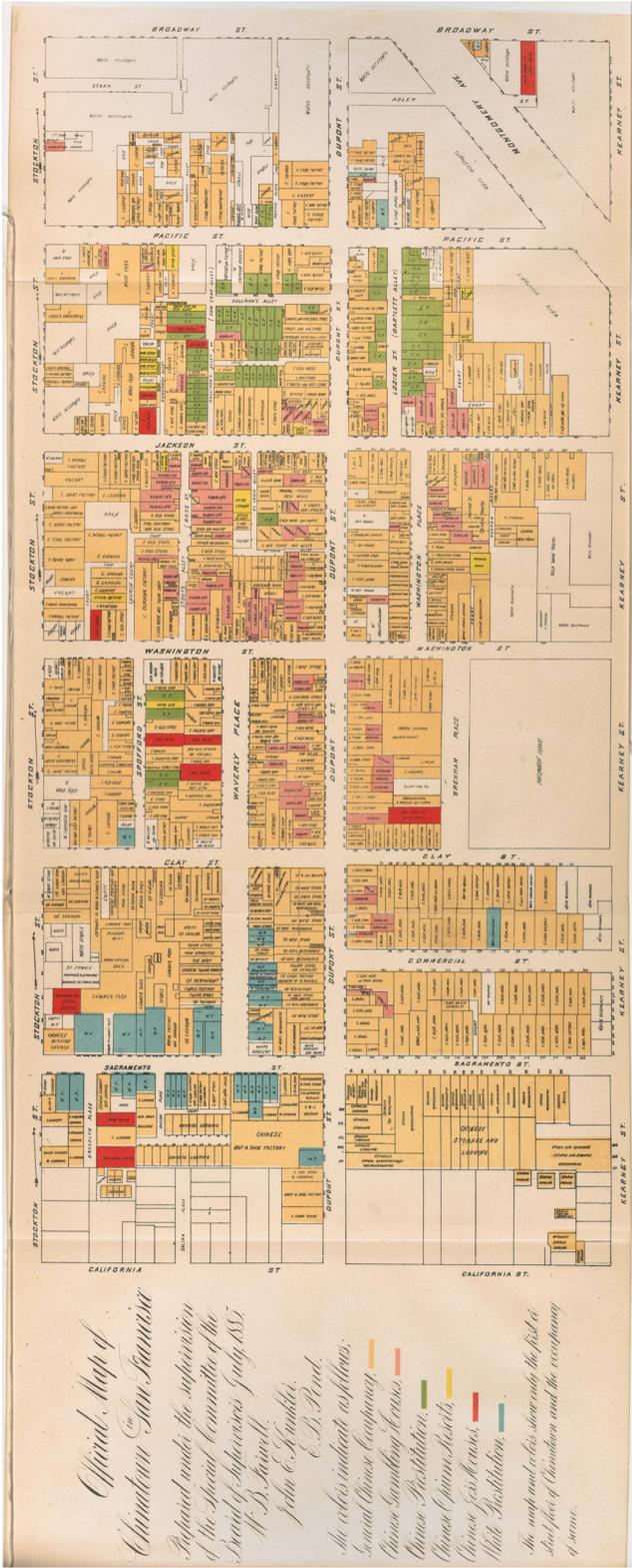


FIGURE 6. Official Map of Chinatown of San Francisco, prepared under the supervision of the Special Committee of the Board of Supervisors, July 1885, by W. B. Farwell, John E. Kunkler, and E. B. Pond. The legend highlights “Chinese Prostitution” (green), “Chinese Gambling Houses” (pink), “Chinese Opium 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.