Managing Risk, Managing Race: Racialized Actuarial Science in the United States, 1881-1948

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The seed of this dissertation was planted in my freshman year at a small liberal arts college in St. Paul, Minnesota. Just before my first spring break, I received an assignment that fundamentally shaped the concerns of the next decade of my life. That spring, sociology professor Martin Markowitz told us we'd be using the vacation to read Melvin Oliver and Thomas Shapiro's *Black Wealth/White Wealth*. He requested we come back ready to explain whether wealth or income tells us more about inequality in the contemporary United States. Bored and with no plans to go to a warm weather destination, I spent the week of the cold Minnesota spring actually reading the book. I read it cover to cover. Then I read parts of it again, and again. Each chapter, each page, even each paragraph challenged me to rethink my view of inequality. It became clear to me that income is a shallow measure, but wealth runs deep. For the first time in my life, I grasped the importance of history. In studying the accumulation of assets I saw the accumulated effects of settler colonialism, slavery, Jim Crow, and more. I'd like to begin this dissertation by acknowledging the deep debt I owe Martin for acting as my intellectual optometrist. He gave me a new set of lenses with which to see the world.

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Dedication

For my mother, my father, and my love.

Abstract

This dissertation investigates how insurers and the United States government relied on the supposed neutrality of actuarial science to justify their racially discriminatory policies. It argues that the use of race as a variable in the statistical assessment of risk transformed the nature of racism and, in turn, ushered racial disparities in health, wealth, and incarceration from the nineteenth century into the twentieth. Specifically, it investigates the explicit use of race in the actuarial formulas of insurers such as Prudential, in prison management and parole-hearing risk assessments, and in the underwriting manual used for the mortgage insurance decisions of the Federal Housing Administration. It finds that already by the dawn of the twentieth century, leading actuaries and statisticians knew that the social and environmental conditions concomitant with slavery, genocide, and indentured servitude distributed risk inequitably among races. However, capital was ambivalent about the wrongs of the past and the state viewed itself as responsible more for the welfare of capital than for the welfare of its citizens of color when it entered the insurance game during the New Deal.

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Introduction: Of Risk and Race

Racism on Broad St.

On a Tuesday evening in the winter of 1912, executives and managers of Prudential Insurance Company of America made the three-block walk from the company's headquarters down Newark's blustery Broad Street to L. Achtel-Stetter's Restaurant. The Prudential Athletic Association—a fraternal organization the company's male employees could join for $1 per year—had rented the eatery's dinning room for the night to host a lavish seven-course meal. As the businessmen took their seats, each was greeted with a detailed program of the night's festivities. Atop the earth-toned leaflet sat a face accented by splashes of a deep crimson color. Christmas was just a week away, but it was not the red-and-white figure of St. Nicholas that topped this schedule of events. Instead, a coal-black face with exaggerated lips stared at diners from their place settings. The Prudential Athletic Association gathered that night not to celebrate the holidays, but rather, as the program announced, to celebrate "our minstrels."[1]

Since at least April of that year, the club had been rehearsing a chorus of fifty of its members accompanied by a number of "end men" who had already established themselves in New Jersey's amateur minstrelsy circuit.[2] As the insurance men feasted on capon and halibut, they were treated to the sights of their peers in black faces of burnt cork and the sounds of ditties that boasted the grandeur of the Old South such as "Come on, Lize." The troupe even offered its audience an original song entitled, "Hello, Prudentialtown," whose lyrics lamented the black-face performers' position as the

entertainment and wishing to have the chance to "be down there with all the boys and ladies fair!"

The scene at the Prudential Athletic Association's 1912 dinner reduced African Americans to a one-dimensional caricature, though, the performance was not out of step with the times. While Prudential's quasi-sponsorship of the event exposes a disregard for racial minorities, corporate racism of this ilk was hardly unique. In 1910, for instance, a benefit for the Insurance Society of New York featured an amateur minstrel show performing an original sketch entitled, "The Darktown Insurance Investigation."[3] In short, the racist figures on stage and on programs in L. Achtel-Stetter's dining room were so well known and so widespread that, despite how revolting they appear now (and should have appeared then), the minstrelsy of Prudential employees that winter night is unremarkable. There is, however, quite a remarkable story of racism at Prudential that has gone largely unnoticed. This tale does not center on the extracurricular activities of the insurer's employees by night, but rather on their work during the business day. While the minstrelsy of the Prudential Athletic Association perpetuated a by-then-old form of racism, the calculations made at the desks of Prudential's Newark headquarters between the late-nineteenth century and the first half of the twentieth were breaking the path for a novel form of racial discrimination. For in the spreadsheets of the company's statisticians and actuaries, racial minorities became disassociated from their personhood and translated into numerical representations of risk.

Certainly racial minorities had their personhood undermined previously—the Three-Fifths Compromise being the most vivid example—and for centuries even whites

had their lives broken up into data and reduced to a few numbers representing the likelihood of an early death or their potential to succumb to an accident. However, these calculations were different. These numbers were history without history.

Prudential was the first life insurer to insure racial minorities in the United States. From its founding as the Prudential Friendly Society in 1875, the company took an approach to life insurance that diverged radically from its peers. Rather than avoid the industrial workers that its competitors unanimously deemed too dangerous to insure, Prudential sought them out. The company offered laborers throughout America's industrial trades policies that paid out enough to cover funerary expenses and left a small additional sum to surviving kin, all of this for a mere three pennies a week. Within weeks of its founding, Prudential had a deluge of customers. Its client base grew at an exponential rate, and with it, the company.

However, Prudential grew so quickly that its growth outpaced the development of its actuarial science and any concomitant guidelines for acceptable risks. The company simply never considered that it might garner black clientele, so it had no policy to refuse the acceptance of African Americans. Southern insurers had long been cognizant of race. Many built their companies on insuring slaves as property, but after the Civil War, insurers in the South systematically refused to take on any African Americans as lives. Founded in the urban North, such racialized thinking, it seems, was not a factor in internal policies of the first years of Prudential's existence. This lack of race-based exclusions was not necessarily a progressive move on Prudential's part. In the 1870s North, African Americans were simply not a major issue for any life insurers. Though

many northern life insurers also underwrote policies on slaves as property, their life policies were so prohibitively expensive that they priced out the majority of even the white population. Since the average African American in 1870 possessed 2.5 cents of wealth for every dollar of wealth the average white owned, only a handful of blacks had the means to inquire about coverage.[4]

Prudential's novel business model was the first opportunity America's working class had to purchase insurance coverage of any kind, as the company was the first to recognize that industrial laborers had the potential to be a good risk. In Prudential's initial calculations it either did not separate whites from African Americans or did not enumerate African Americans in their population data. Since the company did not distinguish African Americans from the rest of the population and restrict them from purchasing coverage, blacks purchased the policies in droves. At a time when few investments were open to African Americans, the three pennies blacks gave to Prudential agents each week represented a small bit of confidence in an a social world that deprived them of any sense of security.

Soon, however, Prudential came to realize that blacks made up a significant number of its policyholders. An official history of the company published in 1900 recounts the matter: "Thus far negroes had not seriously been considered as applicants for Industrial insurance, but with the increasing extent of the business, the colored population had also become increasingly interested, and was now in increasing numbers availing itself of this opportunity to provide for the contingencies of life."[5] Unlike the Southern insurers who thought it unnecessary to justify their unequivocal refusal to sell to African

Americans clients, Prudential at least found it in order to conduct a statistical study of the mortality of African Americans. Unsurprisingly, the company's 1881 survey by race found that "Negro insured lives"—most of whom had recently lived in the miserable conditions of chattel slavery and many of whom were now living in the equally miserable conditions of debt peonage—experienced mortality rates "about 50% higher than among whites."[6] With the numbers to demonstrate the inferior vitality of racial minorities, Prudential made the decision to drop benefits by one-third for African Americans adults and increase premiums for African-American infants from three cents per week to five.[7] While this shift to a racialized two-tired system of coverage represented just a few dollars of indemnity, the shift also represented something larger.[8] It signified no less than a shift in the discourse of race.

Life and Let Die

Scholars have variously referred to Michel Foucault as a philosopher, theorist, sociologist, and cultural critic. While each description suits the polymath, he preferred the title, "historian of systems of thought." Perhaps nowhere is this title's aptness so apparent as in his preface to *The Order of Things*. Here, Foucault begins with an anecdote about his experience reading Jorge Luis Borges' short story, "The Analytical Language of John Wilkins." In the tale, Borges lingers on a Chinese encyclopedia entitled, "*Celestial Empire of Benevolent Knowledge*," and its curious system for classifying animals—a system so curious it incited Foucault to laugh out loud while reading. The taxonomy goes as follows: "(a) belonging to the Emperor, (b) embalmed,

(c) tame, (d) suckling pigs, (e) sirens, (f) fabulous, (g) stray dogs, (h) included in the present classification, (i) frenzied, (j) innumerable, (k) drawn with a very fine camelhair brush, (l) *et cetera,* (m) having just broken the water pitcher, (n) that from a long way off look like flies."[9] This list fills Foucault with wonderment and, in its overlapping, nebulous schema, demonstrates to him "the exotic charm of another system of thought," as well as, "the limitation of our own, the stark impossibility of thinking *that*."[10] But as foreign as that taxonomy is to "our thought," our thought, too, employs thinking like *that*.

Indeed, we need look no further than the system of racial thinking. Consider philosopher Emmanuel Chukwudi Eze's list of racial classifications; (a) affiliation with a religious tribe, (b) national identity, (c) a linguistic group, (d) a political-economic class, (e) an ethnic or ethnographic identity, (f) a cohort of allele, and (g) a universal. And to Eze's list we might also add, (h) the capability of being saved, (i) the ability to reproduce, (j) criminality, (k) blood, (l) madness, (m) health, and (n) humanness. When the elements of race's categorization are laid out, it, as Eze argues, "makes a mockery of much of what we call rationality."[11] Indeed, its schema seems as incongruous as "stray dogs," "included in the present classification," and "innumerable." How is it that race can refer to (a) Jews, (b) the Germanic people, (c) the Ibo, (d) the Aryan caste of India, (e) the English in Enoch Powell's sense, (f) those with cells shaped like sickles, (g) the entirety of humanity, (h) those who cannot accept the Lord, (i) those who die before puberty, (j) those innately disposed to crime in Cesare Lombroso's sense, (k) quadroons, (l) the mad, (m) the genetically "fit," and (n) the species, human? We can assume that

the *Celestial Empire*'s knowledge was congruous with the system of thought that produced it, but how is it that race maintains such saliency in ours?

To understand the efficacy of race, we must understand race as a discourse. In the Foucauldian sense, a discourse is the expressions of thoughts (or in Foucault's terminology, the "archive" of "utterances") about a concept that appears reasonable in a given system of thought (or in Foucault's terms, "regime of truth" or "episteme"). That said, discourse analysis is plagued by difficulties in definition. Despite the French philosopher's notorious abstruseness, the term is perhaps still best outlined in Foucault's own schema:

> "1. Criteria of *formation*. What individualizes a discourse such as political economy or general grammar is not the unity of its object, nor its formal structure; nor the coherence of its conceptual architecture, nor its fundamental philosophical choices; it is rather the existence of a set of rules of formation for all its objects (however scattered they may be), all its operations (which can often neither be superposed nor serially connected), all its concepts (which may very well be incompatible), all its theoretical options (which are often mutually exclusive). There is an individualized discursive formation whenever it is possible to define such a set of rules.
>
> 2. Criteria of *transformation* or of *threshold*. I shall say natural history or psychopathology are units of discourse, if I can define the set of conditions which must have been jointly fulfilled at a precise moment of time, for it to have been possible for its objects, operations, concepts and theoretical options to have been

formed; if I can define what internal modifications it was capable of; finally if I can define at what threshold of transformation new rules of formation came into effect.

3.Criteria of *correlation*. I will say that clinical medicine is an autonomous discursive formation if I can define the set of relations which define and situate it among other types of discourse (such as biology, chemistry, political theory or the analysis of society) and in the non-discursive context in which it functions (institutions, social relations, economic and political conjuncture)."[12]

This dissertation will make it clear that not only does race fit each of these criteria, but also that it is only after we view race as a discourse that we can fully grasp its movement through our system of thought.

Racial thinking is so resilient because it hoards truths. It links itself to discourses that substantiate and reinforce its reasonableness in a given time. It perpetually saves these discourses and grows more and more encompassing over time. Through collecting without discarding, race builds an ever-more formidable hoard of discourses, and this allows it to adapt to each regime of truth it passes through. While hundreds of historians have traced the (relatively short) history of race, until recently, few analyzed race's movement through time as the movement of a discourse.

For decades, English-speaking academics assumed the only writings Foucault penned on race were a few brief pages at the end of his first volume of *The History of Sexuality*.[13] With the recent translation of his lectures at the Collége de France throughout the latter-half of the 1970s, however, Foucault has emerged in America as the

preeminent historian of development of racial thought. In these lectures, Foucault traced not simply the history of race, but rather constructed a "genealogy" of the discourse of race. This distinction matters because it allowed him to present a fuller portrait of race throughout time. Contradiction is a fundamental element of any discourse. And by treating race as a discourse, Foucault is able to show that what other historians may have viewed as aberrant manifestations of race, were actually all part of race's elemental structure of thought.

For Foucault the key to understanding race is in understanding power. Foucault, however, is not a traditional theorist of power. In his conception of the social world, power is not only repressive but rather is also productive.

Foucault argues that after the French Revolution, power transitioned from its sovereign form to two new forms: disciplinary power and biopower. Sovereign power enacted itself through grand spectacles (e.g., public execution) of the right of a monarch to kill his or her subjects or to let them live. In the late-eighteenth century, however, power began to separate, align, serialize, and surveil individuals and structure the micro-level movements of bodies in space and time. This disciplinary form of power will be only a minor concern of mine. Instead, I will investigate the historical development of biopower.

Biopower takes as its object a population. Sometimes the population is as large as the entirety of the human race and other times it concentrates on only a few thousand human beings. Regardless of scale, biopower concerns itself with the processes of birth, death, production, and illness and how these processes affect the population. It moves

from the "man-as-body" individualization of disciplinary power to a form of power that massifies people into a category of "man-as-species." It measures the birthrate, the mortality rate, life expectancy, and the distribution of disease as well as the frequency of accidents, infirmities, and anomalies over a population. The entities that process these measures are medicine, demography, public health, charity, and insurance. These entities employ the measurements of the population to limit risk, increase hygiene, secure safety, distribute populations across space, and lengthen life. Biopower does not seek to control single events or lone individuals, but rather it only acts on phenomena that are serial and collective, in essence, phenomena that demonstrate regularities when viewed in the aggregate. Its main mechanisms are measures, forecasts, and statistical estimates. It does not take life as much as it intervenes in life to prolong it. It acts through norms. In short, biopower regulates the population so that life in general may flourish.

At first glance, biopower is a bit befuddling. Certainly, the ultimate power—that is, the power to kill—must have some place in this form of power, no? Well, yes and no. Foucault recognizes the conundrum of the power over death in a power that works to prolong life and asks:

> "How can a power such as this kill, if it is true that its basic function is to improve life, to prolong its duration, to improve its chances, to avoid accidents, and to compensate for failings? How under these conditions, is it possible for a political power to kill, to call for deaths, to demand deaths, to give the order to kill, to expose not only its enemies but its own citizens to the risk of death? Given that this power's objective is essentially to make live, how can it let die? How can the

power of death, the function of death be exercised in a political system centered upon biopower?"[14]

His answer to all these questions is, in a word, racism. Though racism existed before biopower, racism did not take its modern form until it was exercised through biopower. In a society where biopower reigns, racism functions as a means to separate the population. It subdivides the species into subspecies or races. Foucault says racism's first function is to fragment. Racism's second function, according to Foucault, is to "establish a relationship that is not a military or warlike relationship or confrontation, but a biological-type relationship: 'The more inferior species die out, the more abnormal individuals are eliminated, the fewer degenerates there will be in the species as a whole, and the more I—as species rather than individual—can live, the stronger I will be, the more vigorous I will be.'"[15]

To enact these functions in the social world, this racism works through norms. It establishes what is normal and works to guarantee the safety of those that fit the norm. Deaths of the "abnormal" or the "degenerate" or the "inferior race" are seen as something that makes life in general healthier and purer. The question remains, however, how is biopower fundamentally different from sovereign power if it depends on killing? Foucault resolves this contradiction when he says, "When I say 'killing,' I obviously do not mean simply murder as such, but also every form of indirect murder: the fact of exposing someone to death, increasing the risk of death for some people, or quite simply, political death, expulsion, rejection, and so on."[16]

This modern, "biopolitical" form of racism first develops through colonization. It uses a theory of evolution to justify the genocide of entire populations and entire civilizations. After the initial wave of European colonization, the reasoning for war is reworked in terms of biopower. War becomes about controlling populations in the present so that they may not reproduce and proliferate in the future. Following this, criminality, madness, and abnormality are all reconceived in racist terms. Eventually, entire states transition from sovereign power to biopower and, to maintain the right to kill, they employ racism. "So you can understand" proffers Foucault, "how and why … the most murderous States are also, of necessity, the most racist."[17]

While perhaps the most illuminating investigation of racial thinking ever performed, Foucault's work on race has its shortcomings. His dogmatic adherence to discourse analysis keeps his discussion rather ethereal. While Foucault comes to the profound conclusion that biopolitical racism enacts itself by simply remaining aloof of the harsh conditions of life for racial minorities and lets them die, he rarely grounds these effects in sustained discussions of qualitative or quantitative examples. For Foucault, biopolitical racism most commonly bases its truth claims in "the accounting of men things," in other words, in statistics. However, rather than work through concrete instances of this biopolitical racism in its most common forms—insurance, actuarial science, sociology, social work, criminology, taxes—he concentrates on Nazism, its most extreme example.

This dissertation will extend Foucault's analysis into the more common, widespread forms of biopolitical racism in nineteenth- and twentieth-century America.

Such analysis is needed because even while some recent scholarship has begun to ground Foucault's theories on race and racism in historical contexts, most have overlooked the sustained and impactful role actuarial science has had in the biopolitical turn in racism.

Of Risk and Race

To ground the genealogy of biopolitical racism in the United States this dissertation begins with the history of Prudential. It is difficult if not impossible to know precisely when racism took its biopolitical turn in the United States. But even if other instances preceded Prudential's decision to separate their clients by race and cut benefits for African Americans, the decision was one of the most significant in the history of racial thought in the United States. Even if the ability to purchase and benefit from life insurance had only a modest effect on the United States' population of racial minorities, the insurer's philosophical shift had a major impact. It sparked decades of debates between insurers and anti-racist activists, regulations by state and federal governments, and emulations by other insurers and, eventually, government agencies, too.

By analyzing these debates, regulations, and emulations, I will extend Foucault's scholarship on race through an analysis of the practice of biopower in late-nineteenth and early twentieth century America. I will illustrate in depth how insurers and the United States government relied on the ostensible neutrality of actuarial science to construct racial minorities as risks without acknowledging the risks they themselves exposed racial minorities to. Furthermore, I will show that use of race as a variable in the statistical assessment of risk, in turn, ushered racial disparities in health, incarceration, and wealth

from the nineteenth century into the twentieth. Specifically, I will explore the explicit use of race in the actuarial formulas of insurers such as Prudential and Met Life, in parole-hearing risk assessments developed by the University of Chicago, and in the underwriting manual used for the mortgage insurance decisions of the Federal Housing Administration. Throughout, I will demonstrate the resiliency of racial discourse. Most strikingly, I will reveal that even once leading actuaries and statisticians publicly admitted that it was not innate racial inferiorities but rather the social and environmental conditions concomitant with slavery, genocide, and indentured servitude that distributed risk inequitably among races, corporate and governmental institutions continued and, indeed, accelerated their biopolitical racism. Finally, I will demonstrate that even as the state gained leverage over capital during the Great Depression, the government viewed itself as responsible more for the welfare of capital than for the welfare of its citizens of color.

A number of essays and monographs in recent years have begun to specifically analyze the biopolitical turn race took in the nineteenth century. Historian Ann Laura Stoler, in her 1995 text *Race and the Education of Desire* has expanded Foucault's work on biopolitical racism to show the intimate relationship between race, mathematics, and the regulation of sexuality in colonial contexts.[18] In his 2006 text, *Stormy Weather: Katrina and the Politics of Disposability*, social critic Henry Giroux analyzes the federal government's management of the hurricane in New Orleans as a biopolitical incident in which the state allowed its citizens of color to die.[19] And in her 2011 presidential address to the American Studies Association, Pricilla Wald recounted the infamous case of

scientific research conducted using a young African-American woman's cells in order to contemplate the history of biopolitical racism.[20] Wald argues that the rise in the profile of Foucault's work has resulted in concepts such as biopolitics becoming disassociated from their historical contexts. It is Wald's hope, however, that American studies (and its sister disciplines of ethnic studies and women's studies) can repair this disconnect between concept and history given the field's demonstrated ability to not simply present history but rather to theorize the meaning of the past for the present.

While the conference programs and official journals of the American Studies Association, Organization of American Historians, and American Historical Association fill with references to biopolitics and biopower, the majority of this scholarship tends to favor a more technocentric and political-economic version of biopolitics. Rather than employ Foucault's critique of the state's biopolitical turn and its relationship to race, contemporary work in the humanities has strongly favored other strains of biopolitical critique such as Giorgio Agamben's which explores the relationship between the management of life and technology, and Michael Hardt and Antonio Negri's which investigates the relationship between population management and transnational capital.[21] Such work valiantly elucidates Foucault's concepts, but by subsuming race to a secondary or tertiary concern, it overlooks the foundational element that gives biopower its ability to function.

Like the critical study of race, the history of risk and its numerical management has become a major subfield in science studies thanks in large part to the work of two strains of European social theory. In 1975, Canadian philosopher Ian Hacking published

The Emergence of Probability.[22] In it, Hacking used a form of discourse analysis modeled after Foucault's method to perform an "archeology" of probabilistic induction and statistical inference in seventeenth- and eighteenth-century Europe. That same year, Foucault began to dedicate almost all his lectures to enumeration, probabilistic risk assessment, and the transition from the juridical governance of a people to the statistical governance of populations. Hacking and Foucault set a path for the history of statistics quite apart from other histories of sciences and technologies. Their inauguration of the inquiry into statistics sought not simply to set out facts, but rather to unfold how knowledge became legitimated. In other words, they traced how statistical thinking about risk became thinkable. Hacking and Foucault's development and use of discourse analysis meant that the "history" of statistical reasoning would, from the beginning, be a field that viewed its object as a discourse.

The philosophical bent that Hacking and Foucault gave to the historical study of probabilistic mathematics continued in the 1980s thanks to physicist-turned-philosopher of science Lorenz Krüger. In 1982 at the Zentrum für interdisziplinäre Forshchung in Bielefeld, Krüger assembled a group of scholars with an interest in the critical study of the sciences. This circle birthed some of the most important books to work through the history of the numerical assessment of risk. From his work in Bielefeld, Theodor Porter produced the *Rise of Statistical Thinking, 1820-1900* in 1986, which outlines the role both the social sciences and natural sciences had in the production of the field of statistics.[23] Stephen Stigler, too, used research from his time in the group to write his *The History of Statistics*.[24] Released the same year as Porter's contribution, this text not only

traced statistics' development in eighteenth-century Europe "horizontally"—that is, its spread throughout the disciplines of the university from astronomy to geodesy to meteorology—but also vertically—that is, from games of chance to estimated measures to inverse probability. The Institute also provided Lorraine Daston with the seeds for her *Classical Probability in the Enlightenment*, which explores how quantification shifts the notion of rationality.[25] Also, in 1989 the collaborative effort, *Empire of Chance: How Probability Changed Science and Everyday Life*, emerged from seeds sown at the Institute. Co-authored by Gerd Gigerenzer, Zeno Swijtink, Theodor Porter, Lorraine Daston, John Beatty, and Lorenz Krüger, the volume explored not only the intellectual history of probabilistic reasoning, but also the use of predictive statistics in such mundane aspects of life as sports.[26] And in 1990 Hacking released, *The Taming of Chance*, which picked up the story of probability where his *Emergence of Probability* left off. The study detailed how both religious and secular determinism eroded over the course of the eighteenth century and cleared a space for acceptance of a world made entirely of chance, but in which correlations and regularities may be identified.

By the 1990s, others from outside the Bielefeld group were championing Foucault and Hacking's analyses of the development of probabilistic statistics. Notably, in 1991, Graham Burchell, Collin Gordon, and Peter Miller edited *The Foucault Effect*, a volume of eleven original essays from leading Foucauldians that worked through the French philosopher's then-untranslated Collége de France lectures on the nineteenth-century shift towards governing life through the management of population level-data.[27] The

volume also included the first translations of two of Foucault's late-1970s lectures, an unpublished interview with Foucault, and an original essay from Hacking.

Around this time, another strain of scholarship analyzing the socio-historical impact of the calculus of risk emerged from Germany and England. In January of 1986, German sociologist Ulrich Beck released *Risikogesellschaft* (*Risk Society*), which argues that the "hazardous side effects" of industrial society such as pollution and radioactivity have fundamentally restructured class relations and exposed all members of society to the threat of "manufactured" catastrophes.[28] Three months after the release of Beck's book, an explosion at the Chernobyl Nuclear Power Plant in the USSR catalyzed the worst nuclear accident in human history. News sources across the world sought Beck out to comment on the fallout and his book was vaulted to international prominence.

Concurrently in England, sociologist Anthony Giddens was developing a theorization of the statistical assessment of risk. While his *The Consequences of Modernity* (1990) and *Modernity and Self-Identity* (1991) concluded, like Beck, that risk was becoming the primary organizing force of the social world, he did not share the German's view that it was reorganizing class structures.[29] Despite holding oppositional views on class, Beck and Giddens both advanced the idea that modern society was a society organized by the assessment and mitigation of danger.

Though the literature on race and the literature on risk and its statistical assessment have grown exponentially over the last decades, only a handful of scholars have recognized the intimate ties between race and actuarial science. Perhaps the most sustained exploration of the two is Ian Baucom's 2005 text, *Specters of the Atlantic:*

Finance Capital, Slavery, and the Philosophy of History.[30] Baucom explores the Zong massacre—an incident in which British slavers threw 133 slaves overboard in order to collect the insurance money on their "cargo"—to expose the relationship between speculation and race. While Baucom begins with an exceptional case, he unfolds its details to demonstrate just how commonplace the insurance of slaves was in the eighteenth century. And in recent years, thanks to a 2002 Californian law requiring all insurers that do business in the state to fully disclose their history of insuring slaves, scholars have been able to access once-proprietary information on this practice through the state's Slavery Era Insurance Registry.[31]

There is also a smattering of scholarship on the earliest days of racial discrimination in the insurance industry. Already in the 1890s, insurers were taking criticism from activists and academics. W. E. B. Du Bois as well as Howard University professor, Kelley Miller, penned scathing critiques of an 1896 publication from Prudential that defended the company and the industry's racially discriminatory practices.[32] John Haller, a medical historian, revived the history of racial discrimination in insurance in a 1971 book that analyzed Prudential's use of racial statistics in the 1880s and 1890s.[33] However, it would take over thirty years before the next sustained critique of racial discrimination in insurance. In 2003, Beatrix Hoffman recounted the history of racial discrimination at Prudential through an intellectual history of its Statistician and eventual Vice-President, Frederick Hoffman and in 2006, public health scholar Megan Wolff elaborated on that intellectual history, too.[34] Then, in 2009, legal scholars Mary Heen and J. Gabriel McGlamery published separate accounts of the legal history of race-

based premium pricing.[35] Chillingly, each found the practice rampant throughout the industry for three-quarters of a century. Finally, in 2011, historian Dan Bouk published an essay on the tools American life insurers developed to discriminate along racial and other lines, a piece drawn from the first dissertation ever written to significantly consider the insurance industry's treatment of racial minorities.[36]

While criminology's dependency on statistics and actuarial formulas is not as self-evident as the insurance industry's, a number of academics have shown that it not only depends on numerical probabilities, but also that race acts as a key variable for many of its formulas. The majority of this scholarship concentrates on racial profiling by police over the last three decades. The lone exception is Bernard Harcourt's *Against Prediction: Profiling, Policing, and Punishment in an Actuarial Age* (2007), which investigates the history of linking race to criminality as it illustrates how states used actuarial formulas for parole and sentencing determinations included race as a variable.[37] There are also, to be sure, a fair number of scholars such as Simon Cole, Allan Sekula, and Pierre Piazza who have recounted the anthropometric system that first tabulated criminal statistics by race.[38] However, this work fails to recognize that such data was instrumental to the formation of predictive formulas that link race to criminality without accounting for inequities in laws.

Unlike the literature on racialized actuarial science in the governmental management of prisons, the literature on racialized actuarial science in the governmental insurance of loans is quite robust. By 1948, legal scholars Isaac Groner and David Helfeld were chastising the Federal Housing Administration and the explicit racism of its

underwriting procedures.[39] Though the scholarship experienced a lull after the FHA exorcised race from its formulas in the late-1940s, Kenneth Jackson reinvigorated the critique in his foundational urban studies text, 1985's *Crabgrass Frontier*. Jackson recognized not only the unprecedented scale of the FHA's mutual mortgage insurance program, but also that it was racial minorities who were most acutely impacted by the agency's policies. "The FHA," writes Jackson, "exhorted segregation and enshrined it as public policy."[40] In the 1990s, sociologists Steve Valocchi and Melvin Oliver and Thomas Shapiro identified the FHA as a key contributor to the gap in socio-economic status between blacks and whites.[41] That same decade, demographers Douglas Massey and Nancy Denton demonstrated the agency's influence on racial segregation with the use of statistical geographic data in their *American Apartheid*.[42] And over the last dozen years, the literature on the agency's racialized underwriting standards has been the focus of much academic work. Historians Arnold Hirsch and David Freund, geographers Amy Hillier and Kristen Crossney and David Bartelt, legal scholar John Kimble, and historian of science Jennifer Light have solidified the agency's stature as institutional segregator *par excellence*.[43] Almost universally, this literature has focused on the internal structure of racism at the FHA or the FHA's effects on the racial geography of the United States—worthwhile lines of inquiry, to be sure, but only part of a much larger story. The focus on internal structure and effects has, however, meant that scholars have tended to view its actuarial assessment of risk along racial lines as rather novel—an assumption this dissertation seeks to correct.

On Method

In this project, I seek to excavate what philosopher Paul C. Taylor calls "race thinking." Like Foucault, Taylor views race as a discourse. For Taylor, "'race thinking' is a way of assigning generic meaning to human bodies and bloodlines."[44] Many scholars, including Taylor, have investigated how for race to appear "true," it has depended on other discourses to substantiate its claims in each historical system of thought over the West's last half-millennia. (Recall here my expanded version of Eze's example set of all the various discourses race depends on to define itself as a rational system for organizing humans.) While race's earliest truth claims depended on the discourse of religion, scholars who analyze the discourse of race in post-Enlightenment modernity find that its claims to truth have come to depend most deeply on science. Indeed, out of Enlightenment Europe a whole field of study termed "race science" emerges and proliferates throughout the nineteenth-century.[45] For too long, however, historians and critics of race science have viewed it as a movement of the natural sciences. It was, to be sure, an outgrowth of anthropometry, anthropology, biology, and other natural-historical studies of Man. As Foucault identifies, in the nineteenth century, the sciences race grew to depend on were the *mathematical* sciences of population—demography, accounting, actuarial science, and so on.

To present a fuller survey of the history of race, I mine the history of the numerical assessment and management of risk in the United States. This excavation unearths an intimate relationship between risk and race from the final quarter of the nineteenth century onward. I demonstrate that from at least the 1880s to at least the

1940s, race depended on actuarial science to legitimize itself in business, in the justice system, and in social-welfare programs. It may appear strange that capital, the justice system, and social programs all legitimized their racism through the discourse of actuarial science. It may also seem unlikely that such racism would maintain its same, mathematical reasoning as the economy transitioned from the liberal markets of the Gilded Age to the intense regulation of the New Deal—especially given race thinking's ability to mutate quickly and legitimize itself through myriad forms of reason. However, these contradictions subside when the historical study of race is not understood to be an account of a progressive march towards a more or less racialized society, but instead understood to be a genealogical survey of a discourse. By analyzing race thinking as a discourse, it becomes clear that changes in economy or in government and in ideologies of individuals or groups are not as important to the efficacy of racism as its congruity with the prevailing system of thought. And with scholars as diverse as Foucault, Hacking, Giddens, and Beck agreeing that modern society is a society primarily organized by risk and its numerical mitigation, it is then no wonder that race ingratiated itself into modernity's calculations of risk.

Discourse analysis reveals more than classical histories of ideas because it does not assume thoughts and utterances to have been necessarily either conscious or concerted. Given that this methodology argues that unconscious and unintended structures shape the social world as much as conscious and intentioned individuals, it is a particularly dangerous methodology to employ in the historical analysis of race. Such an analysis could be seen as giving American whites or other dominant racial groups a pass

and suggesting that they bear no responsibility for their deployment of a discourse that has so disproportionately benefited them. It would be a mistake, however, to view a discursive analysis of race this way. Discourse analysis recognizes that discourses may be consciously deployed for the gain of individuals and groups. Many whites intentionally have championed the discourse of race because they have known that a racialized society will benefit them (e.g., eugenicists in interwar America or Tea Partiers over the last decade). There are, however, many more who unconsciously employ the discourse of race and in the process solidify their place in social hierarchies (e.g., prison reformers in the Progressive Era or contemporary humanitarian NGOs). Discourse analysis allows us to better capture this more insidious structure of racism, too.

Discourse analysis does have its limits, however. So while I employ discourse analysis as its primary methodology, I do not do so in a dogmatically Foucauldian fashion. In the spirit of Hacking and Edward Said, I acknowledge that some individuals can have a disproportionate influence on a discourse.

In Hacking's *The Taming of Chance* and *The Emergence of Probability*, the philosopher of science traces the evolution of the discourse of probability. While he refers to his work (following Foucault's terminology) as an "archeology," he nevertheless places emphasis in equal turns on individuals and more-or-less anonymous artifacts of thought. He argues, for instance, that Blaise Pascal's consideration of the choice to believe or not to believe was "the single acorn" that grew the "shady oak that we call the risk society."[46] That said, he largely ignores the most cited figure in the history of modern mathematics, Thomas Baynes. Instead, he finds tables recording the instances of

criminality, insanity, or suicide in a given space or time to be much more important to the "erosion of determinism" than the eighteenth-century minister.

Similarly, in his revolutionary *Orientalism*, Edward Said argued that some discursive formations require an understanding of the "dialectic between the individual text or writer and the complex collective formation to which his work is a contribution."[47] Said lauds discourse analysis because it corrects the humanist assumption that the work of intellectual giants such as Balzac or Hume is free of interference from the "political, institutional, and ideological constraints" of a prevailing way of thinking such as reactionary monarchism or colonialism.[48] However, Said also recognizes that in the particular case of Orientalist discourse, authors often refer to one another and that the authority of these texts matters to people or institutions participating in the discourse.

Likewise, I find the discourse of race to have been shaped equally by more-or-less anonymous utterances such as life tables, censuses, inmate records, neighborhood maps, and underwriting manuals as well as utterances that carried deep ties to specific individuals such as Prudential Vice-President Frederick Hoffman, Paris Prefect of Police Alphonse Bertillon, Illinois State Penitentiary Warden R.W. McClaughry, University of Chicago Professor Ernest Burgess, University of Wisconsin Professor Richard T. Ely, FHA Actuary Frederick Babcock, and FHA Economist Homer Hoyt. To trace the legitimation of a discourse that weaves together race and actuarial science, I consider the dialectical relationship between these authorless artifacts, these prominent individuals, the institutions they represent, and the larger political and economic concerns of the system of thought in which they existed.

In Summary

Origin is not the goal of discourse analysis. Rather than find the exact space and time in which the variable of race was used in an actuarial formula, I seek to identify how the discourse of race maintained legitimacy in the modern episteme. To this end, chapter one investigates how the discourse of race came to be tied to the discourse of risk. It traces the events that allowed probability to become a possibility and the events that allowed racial thought to become a "natural" thought.

Chapter two analyzes the discrimination people of color faced from burgeoning insurers such as Prudential, Met Life, and John Hancock. These insurers read racial disparities in vital statistics as proof of the biological inferiority of non-whites. While the state cared little about racial discrimination at this time, it did care about—and fear—the fast-growing insurance business, accordingly, it used the issue of racial discrimination as an inroad into regulating the industry. This chapter outlines the extraordinary lengths insurers went to in order to circumvent this wave of legislation and the profound effects late-nineteenth and early twentieth century racial discrimination in the insurance industry had on people of color.

At the same time the state was regulating the racialized underwriting standards of capital, it was also engaged in crafting its own racialized actuarial formulas. Chapter three investigates Illinois's importation of European anthropometry and its attempt to prove a correlation between race and criminality. It then goes on to explore the role that data played in constructing the twentieth-century's most widely used actuarial formula

for calculating parole decisions. In the late 1880s, the American Association of Wardens and Superintendents of Prisons imported Alphonse Bertillon's Anthropometric System of Criminal Identification in the hopes that recording copious amounts of corporeal data could identify the physical features of the members of a recidivistic, criminal race. It did not. But for thirty years, Illinois continued to collect a comprehensive record of each prisoner including parental nativity, citizenship status, and race in the hopes of devising an actuarial formula to predict the likelihood of a successful parole. In the mid-1920s the state gave the task of designing the formula to University of Chicago sociologist Ernest Burgess. Remembered more for his urban models, Burgess was deeply invested in turning sociology from an explanatory discipline into a predictive one. Though race only scantly appears by name in the published report of his recommendations for the state, an examination of his archived research notes and the tests he crafted show race being used not once, but twice. Burgess's final formula factored in not only parolees' "national and racial origin," but also their "type of neighborhood." By subtracting points for "American negroes" and those from "negro neighborhoods," Burgess and those who followed him ensured that African Americans would remain in prison for longer terms than their white counterparts.

By the 1930s, leading actuaries and statisticians had admitted that disparities in morbidity, mortality, wealth, and criminality were largely socially constructed, but race-based coverage and pricing continued. Insurers did not care whether it was innate traits or the legacy of slavery and the inequity of Jim Crow that caused disparities in risk exposure. Capital had few incentives to change its formulas and eliminate the risk-

mitigating utility race provided. However, it is in precisely the places that capital finds ambivalence toward plight that the state has had a responsibility to intervene and protect its citizens. And in the midst of the Great Depression, the United States government had won unprecedented leverage over capital. In my analysis of the underwriting standards of the FHA's mutual mortgage insurance program in the fourth chapter of this monograph, I reveal that even at the height of its interventionist power, the state viewed itself as responsible more for the welfare of capital than for the welfare of its citizens of color.

This federal insurance program covered private lenders against the mortgage default, but in order to qualify for the coverage, savings and loans had to vet applicants and homes according to a strict set of underwriting standards. These standards assessed properties on the current racial composition of the neighborhood and on its projected racial composition after taking into account migration trends in the area. If "inharmonious racial groups" had already "infiltrated" the neighborhood, the underwriting standards disqualified the property. But even areas free of "inharmonious" races were not necessarily given a passing rating. In order for a bank to recoup its investment in a property and therefore require no indemnity from the FHA, the value of a property had to remain stable or increase over the length of a mortgage. So, risk was projected into the future to value value in the future. Properties had to prove themselves unlikely to fall to future "invasions" by undesirable racial minorities for at least the length of the 15- or 20-year mortgage. To secure the racial purity of its insured areas, the FHA invested only in properties that were heavily zoned, offered natural or built barriers

that discouraged encroachment from surrounding sectors, and demonstrated a commitment to self-policing with racially restrictive covenants. Since the single-family home the FHA favored became the most common generator of wealth in the twentieth century, the FHA's underwriting formula insured that wealth creation would remain as difficult as always for racial minorities in the United States.

I conclude this project at the beginning of actuarial science. Most accounts of probability theory locate its origin in two problems Pascal and Fermat solved in the 1650s. The first is now known as the dice problem. In this problem, the mathematicians figured out the number of rolls of two dice needed to gain an advantage in a bet on double sixes. In their second and much more complicated problem known as the problem of points, the pair figured out how to equally divide the wagers of a dice game that is interrupted. These foundational problems of actuarial science demonstrate that from its beginning the mathematics of risk may be used to gain an advantage or to distribute risk equally. So while actuarial science holds and has always held the potential to share risk, capital and the state have used it for more than a century to divert risk along racial lines. The abolition of actuarial science is hardly desirable —it is roughly equal to a wish to live half a modern life—and in any event, not possible—three hundred years of mathematical risk mitigation has irrevocably changed the profile of disease, the environment, and the human. If actuarial science is used to share risk equitably, new challenges arise. The final pages of this monograph consider these challenges by recognizing that they are both global and ethical. For if the challenges of risk assessment are not considered on a global scale, there is a danger that risk will continue to flow from

the First World to the Global South. And unless the challenges of risk redistribution are viewed as an unprecedented ethics project—a project that considers the relationship between all forms of living and all forms of life—statistical risk mitigation runs the risk of producing a prescribed life.

Chapter 1: Tying Hoffman's Knot

The Traits and Tendencies of Racial Thought

Prudential's 1881 decision to base its premium pricing on race ushered in not only an era of racialized actuarial science, but also, if unintentionally, an era of regulation in the insurance trade. Federal, state, and local governments already viewed the nascent insurance industry with distrust. As much as insurance was associated with security, it was also associated with gambling, fraud, ransom, infanticide, matricide, and default. It was a popular target for regulation near the end of the nineteenth century. While regulating racial discrimination was not a high priority in the post-Reconstruction United States, northern states saw racial discrimination in life insurance as the crowbar to open the door to regulation in the fast-growing business. In the wake of Prudential's race-based pricing, Massachusetts, Rhode Island, New York, Michigan, New Jersey, Minnesota and other states passed laws prohibiting pricing tiered by race.[1]

In 1894, Prudential hired Frederick Hoffman, a young German immigrant, to craft a public response to this legislation. What resulted was *Race Traits and Tendencies of the American Negro*, a 329-page book carrying the imprint of the American Economic Association, which argued blacks were so weak in vitality of mind and body that within half a dozen or so generations, the entire race would become extinct. Additionally, it argued against comprehensive social insurance which, while perhaps prolonging the life of the black race from six generations to nine, held the potential to financially, morally, and biologically bankrupt the entire country. Hoffman's argument was quintessentially biopolitical: the country must let the American Negro die.[2]

Prudential hired Hoffman not only because an 1892 essay in *The Arena* established him as an expert on race statistics, but also because he wrote for periodicals like *The Arena*, a progressive publication with a wide readership. Hoffman excelled at communicating complex ideas about social statistics to the general public. He used statistics to illuminate the forces—forces he thought were primarily biological—behind everyday life. His familiarity with statistics as well as his accessible style made him the ideal candidate to communicate the necessity of the insurance industry's practice of racial discrimination to politicians and their constituents.

In the 1890s, the "science" of race was nothing new. At least since the Enlightenment, philosophers, natural historians, and others had been measuring, testing, and experimenting on racial minorities to ascertain the "facts" of racial difference. In the nineteenth century, the interest in race by Europe's leading scientists provided the field a veneer of legitimacy. In France, anatomist Paul Broca had recently "demonstrated" the hierarchical organization of the races through an analysis of brain weights and cranial capacities. In Italy, through a cataloging of the contours of criminal faces, criminologist Cesare Lombroso had recently "proved" the existence of a criminal race. And in England, the polymath Francis Galton had recently developed composite photography to "establish" that racial minorities shared physical characteristics with "undesirables" such as syphilitics or recidivists. In his now-classic work, *Mismeasure of Man*, paleontologist Stephen Jay Gould suggests this data from Broca, Lombroso, and Galton exhibit precision rather than conscious manipulation—these men were, of course, the top scientists of their time and had access to the most accurate equipment available. But

Gould argues their a priori disposition to prove the hierarchical organization of the races, caused them to unconsciously filled their samples with individuals they suspected to possess the traits they were looking for in a particular race.[3]

Like his predecessors and peers in the science of race, Hoffman, too, wanted to show the biological inferiority of the "colored" races of the United States. How he went about demonstrating this inferiority, though, set him apart from the field. Unlike Broca, Lombroso, and Galton, Hoffman did not create data. Instead, he collected existing numbers; and rather than favor the samplings of race scientists, he preferred comprehensive statistics that enumerated the entire population of cities, counties, states, and countries. Though race was a part of these statistics, it was just one variable among many, so its reliability far exceeded the data that previous race scientists produced.

What Hoffman found was a grim picture of the current situation and future prospects of the "colored" populations of the United States with African Americans demonstrating the worst figures of all.[4] In the decades since the abolition of slavery, the health of African Americans had not improved but suffered. The number of African Americans jailed had increased markedly, too. And the net assets of Southern blacks had settled in at an average of $16, far below the $322 average for whites.[5]

While the destitute condition of blacks in the United States three decades after the end of slavery were not unknown. Activists such as James McCune Smith and Martin Delany drew attention to the destitute condition of black health even before the Civil War. However, such disparities were not *statistically* known. Indeed, the possibility to know something statistically was, in America, very new. Even after race thinking gained

saliency in the sixteenth century, a text like Hoffman's was unimaginable until much latter. While the practice of managing risk through the remembrance of historical records is an ancient one, the practice was not science until the development of probability calculus became possible in the middle of the seventeenth century. To understand how it became possible for Hoffman to tie the knot of risk and race, we must trace the threads of probabilistic thought and race thinking.

The Possibility of Probability

The possibility of predictability begins with a throw of the dice. Around the 1650s, Antoine Gombaud, an aristocratic Frenchman with a penchant for gambling, began making bets on what he thought was a mathematically favorable roll. In a game in which a pair of dice was rolled 24 times, he posited that a double six was more than fifty percent likely to occur during one of the rolls. Because the Italian mathematician Gerolamo Cardano had solved the problem of the probability of a particular number occurring over any number of rolls of a single die already in the sixteenth century, Gombaud knew that in four throws of a single die, a roll of six was likely to occur.[6] But Gombaud did not realize that this rule had no application beyond games with a single die. This ignorance led him to make the unfavorable bets on the 24-roll game.

Since there are six possible outcomes in a die and four rolls is the threshold for a probable outcome of a six, Gombaud assumed that the 36 outcomes of a pair of dice would require 24 rolls to maintain the ratio and the favorability of betting on a pair of sixes. This is not the case. While some accounts suggest Gombaud used his keen

gambling skills to discern his error and uncover the disadvantageousness of his bet, it is more likely he had some sense of the mathematics of the wager.[7] By 1654, it is clear that he arrived at the conclusion that a bet on double sixes in 24 rolls was disadvantageous.

Gombaud, who adopted the title, "chevalier de Méré," was no common gambler. Indeed, he was not only in the Court of Louis XIV, but also wrote treaties on the proper decorum of a courtier. His privileged position and his love of salon life meant that he was in the constant company of the most brilliant minds in Europe. So when Gombaud discovered the apparent conundrum in his dice game, he enlisted no less than Blaise Pascal and Pierre de Fermat to reason through it.

When Gombaud presented his dice problem, Pascal had just entered his thirties. But the young polymath had already been among the world's elite mathematicians for over a dozen years. While still in his teens, Pascal's mathematician father, Étienne, would bring him along to the salon of the Minorite friar, Marin Mersenne. Though Mersenne was an accomplished theologian and musician, his salon cultivated mathematical knowledge above all else. Political historian Quentin Skinner suggests that the cell "served during the 1640s as perhaps the most important *salon* for the learned."[8] Pascal's presence at his father's side introduced him to Gilles de Roberval, Galileo Galilei, Rene Descartes, and Fermat and familiarized him with their work. Fermat, decades Blaise's elder, had come to the salon by writing to Mersenne with corrections to Galileo's geometry. Once there, he promptly initiated a feud with Descartes on the subject of curves.[9] Like Fermat, the younger Pascal had also had an intellectual feud

with Descartes over curves. The two became close friends as they became two of the preeminent mathematicians of their era.

In a series of letters that date to the summer of 1654, Pascal and Fermat took up Gombaud's dice problem. Writing to Fermat, Pascal notes that Gombaud believe the incongruity between the odds of a single six in four rolls and a double six in 24 rolls was a "great scandal" for mathematics and "haughtily" suggested that its "theorems were not consistent and that arithmetic was demented."[10] Pascal and Fermat were not so shaken. Whereas Gombaud originally assumed the probability of double sixes in 24 to be the same .518 probability as one six in four rolls, Pascal found that at least 25 rolls were needed for an advantage in the game; even then, though, the advantage was only .509.

In the letter to Fermat in which the Pascal discusses the dice game in detail, he writes that he was hurried and has confidence that Fermat already understands the mathematics of why the ratio isn't maintained as a second die is added to the game. The document in which Pascal outlined the mathematics—a treatise on geometry—does not survive, but its can be glimpsed through the work of Gottfried Leibniz and Ehrenfried Walther von Tschirnhaus who made detailed notes on the manuscript. Basically, Pascal added up the possible combinations a pair of dice could create (i.e., 36), then subtracted the desired roll from the possible combinations (i.e., 36-1=35), then subtracted the fraction of the undesirable combinations over the number of possible combinations from 1 (i.e., 1-(35/36)), and finally multiplied the result by an exponent equal to the number of rolls in the game (i.e., $1-(35/36)^{25}$ or $.972^{25}$). With this formula, Pascal finds 25 rolls to result in a probability of .509, making it the smallest number of rolls required to cross the

.50 threshold of advantageousness. And with this refined understanding of the behavior of a pair of dice, calculating probability becomes a possibility.

Probability was not birthed the day the ink dried on the Pascal's last letter to Fermat. While nearly all intellectual historians and even discourse analysts peg Pascal and Fermat as the indisputably key figures in the founding of probability calculus, accounts of the topic diverge widely after that pair. Many scholars discuss some combination of important precursors (often Aristotle, sometimes Egyptian gamblers, and occasionally Indian folklore), indispensible contemporaries (Christiaan Huygens is most often cited), and/or successors without whom probability as it now stands would not be possible (Jacob Bernoulli, Pierre-Simon LaPlace, and Thomas Baynes, for instance). Some, like Hacking, argue that Pascal's Wager—that is, his foundational decision theory conundrum on the choice to believe in God—rather than the problems of the Pascal-Fermat correspondence was more crucial to the development of probability.[11] Regardless of the relative impact of each intellectual on the discourse of probability, it is clear that by the end of the eighteenth century, predictive calculus was quite possible in games of chance. Prediction in the sprawling, messy social world would, however, depend on the proliferation of the ideas of two Englishmen.

The seventeenth-century English haberdasher John Graunt was no great mathematical mind; however, his accounting was instrumental to the application of predictive calculus to the social world.[12] In 1562, the city of London began to record rolls of deaths in the hopes that a sudden spike in the numbers might allow officials to warn citizens of a coming outbreak. No such system came to fruition, but the

municipality kept up the practice, if only intermittently. Uniquely, the collection of these numbers was centralized and reported weekly. Moreover, they were printed and public, which as Hacking notes are the prerequisites for the majority of advances in probabilistic reasoning. Their printed, public nature was certainly responsible for Graunt's statistical advancements.

As Graunt himself recounts, these death rolls had become very much a part of London life in the seventeenth century. Most viewed them as little more than a common text to chat about. And while business owners and wealthy individuals tried to read more into them, none did so with notable success. Graunt, however, read these bills not in isolation, but rather in comparison to each other over time. While some bills of mortality had been published in the sixteenth century, they were not maintained and distributed with regularity until 1603 when records of births and deaths were recorded and published weekly.[13] By collecting these printed and published numbers, Graunt was able to trace regularities in mortality. He dissected the mortalities by parish, season, years, and, most notably, age. Though the data did not include age at the time of death, Graunt fairly accurately estimated age by type of death. What he discovered was regularities in the distribution of deaths by age and from these regularities he calculated the probability of reaching a given age. What he produced was, in essence, the first "mortality table," that is, the foundational tool insurers used to estimate life expectancies.

While some mathematicians were skeptical of Graunt's data because he had to estimate the age of death by disease, his publication of the results—*Natural and Political Observations Mentioned in a Following Index, and Made upon the Bills of Mortality*—

was persuasive and novel enough to win him membership in the prestigious Royal Society.[14] His work did not, however, penetrate the serious study of calculus until 1699 when Lodewijk Huygen's wrote to his brother Christiaan and the two used Graunt's study to construct an annuity table. Their work gained the attention of others such as Nicolaus Bernoulli and Abraham De Moivre and mathematicians began to see the same sorts of regularities they found in games of chance in the social world.[15] Some skepticism remained, though, about Graunt's estimations of age.

Graunt's study had come to the attention of the English astronomy Edmund Halley. Halley was aware of the reservations surrounding Graunt's data and sought to replicate Graunt's study, but with empirical records of age. In the *Tables of the Bills of Mortality at the City of Breslaw*, he believed to have found a way to correct Graunt's "defect."[16] Halley had five years of these records, which cataloged the age and sex of every resident of the provincial capital who died in a given month. From this data, Halley constructed the first empirical mortality table as well as the first schedule of annuities based on statistical observations. After Halley's empirical study spread to mathematicians across Europe, Huygens, Bernoulli, and De Moivre gained further confidence in their work on social and biological regularities and produced more mathematically refined probabilities to capture the regular behavior of mortality.

Even after this work demonstrated how predictive calculus could be applied to assess annuities and premiums, insurance grew slowly and the wide application of actuarial science remained stunted. Indeed, no one was able to write a book like *Race Traits* before *Race Traits* because for nearly two centuries after actuarial science was

theoretically possible, it was practically difficult. The entire system depended on statistics and the infrastructure to collect those statistics was not yet in place. But with each discovery of regularities in the biological and social worlds, the incentive to collect statistics about life and society grew and so, too, did the data sets. Censuses expanded their questions, registers of births and deaths began to be collected without exception, the accounting of disease became standardized and standard, and the cataloging of wealth became the measure of nations. Within decades of the dawn of the nineteenth century, in the words of Ian Hacking, an "avalanche of numbers" had begun to tumble down upon society.[17]

The God-given Order of Race

The history of race is a relatively short one. Ivan Hannaford has shown that the classical period was largely devoid of the concept, though, to be sure, examples of an ur-racial ideology can be glimpsed in figures such as the Roman physician Galen who argued for the innate inferiority of men with black skin. Some researchers such as Robert Bartlett glimpse race in the late-Medieval period. However, most scholars of race place the concept's origins between the Renaissance and the early modern period.[18]

Social scientists Michael Omi and Howard Winant likewise define race as "a concept which signifies and symbolizes social conflicts and interests by referring to different types of human bodies," insisting that "although the concept of race invokes biologically based human characteristics (so-called 'phenotypes'), selection is always and necessarily a social and historical process."[19] Likewise research group at the United

States Center for Disease Control defines race as "an unscientific, socially constructed taxonomy that is based on an ideology that views some human population groups as inherently superior to others on the basis of external physical characteristics or geographic origin. The concept is socially meaningful but of limited biological significance."[20] As humanities scholar David Roediger notes, the consensus on race's definition is "that the social fiction of race defies rigorous definition."[21] This project, like those sources, takes the stance that race has no biological basis, only a social one.

The sociality of race's construction does not, however, restrain it from having severe biological consequences. Race does, indeed, interact with biology, but its interactions start in the social world rather than in the blood or genes or skin. As we will see, the debate between whether it is the conditions of life or inherent traits that account for differential degrees of risks among racial groups is, for a significant period, key to the arguments for and against the use of race as a variable in actuarial science.

There is scant evidence of the concept of race at any time before the surge of European colonialism in the sixteenth century. As Robert Miles and Malcolm Brown among others have demonstrated, the main organization of human populations prior to the 1500s was religion.[22] It is no coincidence then, that religion was intimately intertwined with the birth of race.

If the concept of race has a particular birthplace, it is the Iberian peninsula in the earliest years of the seventeenth century. Race is tied to colonialism. More basically, though, it is connected with the construction of a hierarchy of difference, and in Renaissance Europe religion was the main way to organize peoples hierarchically. Spain

had for centuries acted as the epicenter of battles over religion. For centuries African Moors and European Christians had wrestled over the territory, but by the end of the fifteenth century, the Inquisition had managed to expel or convert the peninsula's Jews and Muslims. Even though Christians had rid their territory of these cultural-religious groups, the religion's unerring commitment to conversion, expulsion, or execution of these Others insured that Jews and Muslims would be present in the rhetoric of the culture even if no longer physically present in the region.

In the first decade of the seventeenth century, it appears that a desire to show the supremacy of Christianity first paired with the discourse of physical inferiority to create a hierarchy of cultural-religious groups based at least in part on or in the physical body. We can glimpse the emergence of this thought in Sebastian de Covarrubias Orozco's entry for the term "raza" in the 1611 dictionary, *Tesoro de la lengua castellana o española*. Iberians had already borrowed from Latin and/or Arabic to develop the language to talk about "breeds" and "strains" of animals.[23] In the term "raza" Spaniards apply those same differentiations to humans. In Orozco's entry for "raza," the term has three meanings: (1) "The caste of purebred horses, which are marked with brands to distinguish them;" (2) "the coarse thread that is distinct from the other threads in the weave;" (3) "race in lineage is understood to be bad, as to have some Moorish or Jewish race."[24]

In this trio of definitions we see not only the first instance of race referring to human groups, but also the seeds of the discourse of race's more modern conception. In the first definition, we see a relationship between race and animals, a relationship to the

surface of the body, and a relationship to lineage, blood, and genes. Furthermore, we find concepts of purity and hierarchy. The brand acts as a mark of distinction. It signifies that the horse is of good breed and superior to those without the mark. It is perhaps, an inverse of the contemporary racial arrangement where the ostensible superiority of whiteness gains its distinction through its invisibility; nevertheless, this definition very clearly portends the structure the concept would take on in the future. The second definition is the most loosely affiliated with future directions of the discourse. Still, this definition bears at least some relation to the term's eventual reliance on the texture of skin and hair for its distinction between racial groups. The third definition is the most modern. It distinguishes on the basis of religion, but it does so with two groups that for sometime were considered to have distinctive bodily features such as the color of the skin of the shape of the facial structure. It also overtly sets up a relationship between the term and lineage. Even though, biology and genetics were not well understood, it effectively draws upon the discourse of agriculture to create an explicit relationship with sexual reproduction and breeding. Finally, and perhaps most importantly, it creates a negative connotation for non-Christians, non-Europeans, and non-whites (i.e., Moors and Jews).

Spain was also influential in laying the groundwork for the racialization of non-local populations. Its colonial power gave the country a global reach and presented it with questions of how to conceive of the peoples of North America and West Africa. As early as the sixteenth century, the Catholic Church began to consider the question of the humanity of the indigenous peoples of the New World. Spanish missionaries were uncertain how to interact with the indigenous people of the Americas. They did not know

whether to consider American Indians human and capable of belief in God or animal and, therefore, acceptable to enslave. In 1537, Pope Paul III's answered this quandary with the bull, *Sublimis Deus*. The Pope responded with the decree that Native Americans could accept the Lord and that their convertability not only signified their humanity, but also made them ill suited for slavery. While this decision helped to keep the native peoples of the Americas from slavery, it also set the stage for the enslavement of Africans.

American Indians presented a conundrum for Spanish Catholics because they existed outside of the mythology of the Church. Africans, however, already had a place in the Judeo-Christian tradition. The concept of race was not yet expressible in the sixteenth century, but Catholic Spaniards already conceived of Africans negatively. Dark-skinned Africans, in the tradition of the Church, were seen as the stained descendents of Noah's cursed son, Ham. It is quite likely that this mythology, paired with the *Sublimis Deus*'s decree turned the eyes of Iberians southward in their search for a free labor source for their colonization of the new world. By the time the English and Dutch entered the slave trade in the seventeenth century, the Spanish had dictated that the slaves of colonialism would be African.

The enslavement of Africans, the colonization of American Indians, and the inquisition of Moors and Jews gave light-skinned, Christian Iberians incentive to distinguish themselves from each population. Out of this milieu, the concept of race emerged over the seventeenth century. Even by the early eighteenth century, it remained a concept based in religion. In the 1726-1739 Spanish dictionary *Diccionario de*

autoridades, "gentlemen" are distinguished by being "born of legitimate matrimony, and not of Jewish, Moorish, Heretic, nor Plebeian race."[25] Soon, however, the instrumentality of religion would fade from the concept. The Enlightenment was dawning in Europe and in this age of reason the unreason of race would gain its "scientific" foundation.

The Reason of Unreason: Philosophy

In 1684, the French physician François Bernier was the first to outline a division of the humans of the world based on "race." His schema included four races: Europeans, Africans, Orientals, and Lapps.[26] The characteristics of each of his "races" were left rather undeveloped and were as much geographic as "race-based." The system was, however, influential on the naturalist, Carl von Linné.[27] And in 1735, Linné dedicated a section in his seminal *The System of Nature* to elaborating Bernier's idea. As Emmanuel Chukwudi Eze writes, "Linné articulates an idea pervasive in the eighteenth century: that an underlying hierarchical order in nature was established by God, or providence by itself, and that it is the duty of humans to discover this order and classify everything that exists—from human to flora—accordingly."[28] Following this line of reasoning and obviously influenced by the emerging discourse of race Linné's orders Homo sapiens thusly:

1. Four-footed, mute, hairy. *Wild Man*
2. Copper-colored, choleric, erect. *American*. *Hair* black, straight, thick; *nostrils* wide, *face* harsh; *beard* scanty; obstinate, content, free. *Paints* himself with fine red lines. *Regulated* by customs

3. Fair, sanguine, brawny. *European*. *Hair* yellow, brown, flowing; *eyes* blue; gentle, acute, inventive. *Covered* with close vestments. *Governed* by laws.
4. Sooty, melancholy, rigid. *Hair* black; *eyes* dark; *fevere*, haughty, covetous. *Covered* with loose garments. *Governed* by opinions.
5. Black, phlegmatic, relaxed. *Hair* black, frizzled; *skin* silky; *nose* flat; *lips* tumid; crafty, indolent, negligent. *Anoints* himself with grease. *Governed* by caprice.[29]

In Linné's taxonomy we see the first expression of something like the modern concept of race. The surface of the body is the axis on which the system turns and, furthermore, these surface features act, in Linné's conception, as an exterior expression of an interior character. We also find positive traits associated with Europeans—they are governed by a system of legal order and distinguished by their brawn and intellect. And we find, too, negative traits associated with all other groups—their motivations are based in superstition and their features belie greed, sloth, and chicanery.

Following Linné's taxonomy, Enlightenment philosophes began to attribute a broad range of positive traits to Europeans and a small range of negative traits to the other, ostensibly distinct peoples of the world. Without an understanding of evolution, eighteenth-century thinkers borrowed from the ancient model of descent, the Great Chain of Being, and placed white Europeans at the pinnacle of Earth's creatures while placing other races at the various points between them and apes. In 1748, David Hume added perhaps the first proto-biological tinge to the discourse of race when, in the essay "Of National Characters," he wrote, "I am apt to suspect the negroes and in general all other

species of men (for there are four or five different kind) to be naturally inferior to the whites."[30] Race continued to collect other connotations and borrowed from geography, climatology, nationalism, and aesthetics. It also developed a relationship to blood and history, or in the case of non-Europeans, their presumed ahistoricity.

In the nineteenth century, race began to move from the domain of philosophical speculation and toward the domain of the emerging biological sciences. This move would inaugurate its ties with risk.

The Reason of Unreason: Science

The Enlightenment's proliferation of the scientific method and the development of the discourse of race catalyzed an era of experimentation on racial minorities and the measurement of racial difference. As Stephen Jay Gould notes, before the development of evolutionary theory "scientific racism" was based in two competing theories of the descent of humanity. There was, on the one hand, monogenism, which held that all of humanity was descended from a single ancestor. Racial difference, in this formulation was a product of some combination of degeneration and climate. On the other hand, polygenesism, a harsher version of descent, argued that human races were actually separate species. Perhaps the strongest proponent of this theory was Louis Agassi, director of Harvard's Museum of Comparative Zoology, who argued that African Americans were of a lower biological order. Most significantly, Agassi used his research not only to warn of the supposed dangers of miscegenation—which in his polygenesic conception was a sexual union between different species that lead to monstrous half-

breeds who possessed ill health—but also to advocate for social controls on interracial sexuality.[31]

While polygensis was not embraced on a large scale in Europe and America—it was certainly hindered by its conflict with church doctrine—it did renew one of race's earliest discourses, animality. Just as Moors were equated with draught horses, blacks became associated with apes and other "lower" creatures. From this discursive formation, comparative anatomy emerged and worked to "scientifically" link the "inferior" races to the "inferior" species. The leading figure in this discourse was French scientist, Paul Broca.

Broca combined the eighteenth century's burgeoning interest in the measure of anatomy with the discourse of race. Measuring samples of subjects (or their remains) of different races, Broca charted differences in the relative size of each race. He then theorized the meaning of the differentiation through a reliance on what were becoming tired racial stereotypes. Not only were his measures skewed by a selection bias, but Broca's results also suffered from the general assumption that bigger was better. Nowhere was this more apparent than in his measurements of cranial capacity. While his measurements were, in essence, scientific—that is, they were taken using refined instruments, employed sampling, and were likely accurate—his inferences from the data pseudoscientific nonsense. From his measurements, Broca extrapolated conclusions about intelligence, sexuality, and even morality. He and others in anthropometrical race sciences of craniometry, phrenology, and physiognomy used their measures to construct racial minorities at worst as little more than animals.

In 1859, however, race science changed en mass with the publication of Charles Darwin's *The Origin of Species*. Darwin's theory of evolution presented in the text act as a paradigm shift for all the sciences and even fundamentally restructured the pseudoscientific study of race. Although race played an insignificant roll in Darwin's earliest writings on evolution, his theory became grist for the pseudoscience engaged in measuring difference.[32] Though no one man was responsible for tying the discourse of race with the theory of evolution, Darwin's cousin, Francis Galton, tightened the knot more than anyone else.

Enumerating Race

In Tukufu Zuberi's *Thicker than Blood*, a historical study of race and statistics, the sociologist cites Galton as the key force behind the racialization of inferential statistics. It is hard to quibble with Zuberi's claim that Galton "was the key intellectual power behind the statistical revolution in the social sciences."[33] Zuberi effectively demonstrates that Galton's most important contributions to the science of statistics—including his pioneering work on correlation—were related to or a result of his eugenics project. While Galton made quantum leaps in the development of statistical tools, the ability of statisticians like Hoffman to tie together race and risk, depended much less on individual eugenicists like Galton and much more on apparatuses that institutionalized the counting of race.

Hacking suggests that by the early nineteenth century an "avalanche of printed public numbers" descended on the Western world.[34] In America, this avalanche was rich

with data on race. Melissa Nobles offers a particularly striking example of American racial statistics in the era of the avalanche in her *Shades of Citizenship: Race and the Census in Modern Politics*. She recounts the debates around what to include in the first censuses of the United States. The seemingly innocuous category of "occupation," was flatly rejected in the inaugural census of 1790 and became the most controversial topic of the next three schedules. "Opponents," writes Nobles, "held that classifying by occupation artificially—and unnecessarily—divided the white population into classes."[35] Race, on the other hand, was included without fanfare or protest in the very first census of the United States. By 1790, racial discourse had naturalized race to the point that the category was largely taken for granted. Since the census dealt in facts, it appeared to be a good candidate for the study and offered the potential to answer questions such as "Were Anglo-Saxons … a superior race, destined to 'bring good government, commercial prosperity and Christianity' to America?"[36]

Though the censuses of the United States were the most important and comprehensive printed and public numbers of the nineteenth century's avalanche that traced race, they were hardly the only ones. Racial identity began to be tracked in city censuses, police and prison records, comptroller reports, and the like. Major institutions such as the National Board of Health, the Union Army, and the Mutual Life Insurance Company of New York began to include race in the statistics they gathered.

When Hoffman began researching the risk along racial lines in the 1890s, he had the advantage of an established discourse claiming the inferiority of racial minorities as well as a discourse of probability supported by a wealth of data for its truth claims. It

was now possible to intertwine the discourse of risk with the discourse of race. In 1896, Hoffman's *Race Traits and Tendencies of the American Negro* would join the discourse of risk to the discourse of race.

Chapter 2: Risky Lives

Intervention/Circumvention

In 1891, New York State passed an anti-discrimination law that banned race-based pricing in the life insurance industry and mandated that people of color not be refused coverage on the basis of their race. In response to the legislation, Prudential sent a memorandum to each of its branches throughout the state that outlined an updated set of protocols in order to comply with the law. However, these guidelines assured that it would be nearly impossible for a person of color to purchase a policy in 1890s New York.

Say, for instance, a twenty-nine-year-old African-American male living in Troy, New York—let's call him William Jones—was interested in obtaining a life insurance policy. What would he have to do to get one from Prudential? Let's say William worked at Gurley Precision Instruments. While one risked losing a finger on Gurley's factory floor, the work posed much less risk for the loss of life than Troy's other major employer, the MeNeely Bell Foundry, where hot steel flowed near workers at all times.[1] Let's also say William was free of malformations, deformations, and any detectable chronic diseases. In light of his sparkling health and the recently passed legislation in New York State, William should be able to obtain a modest industrial life insurance policy from Prudential, right? Hardly.

First of all, no agent at Prudential would have sought out William. Despite his health and other actuarial factors in his favor, Prudential agents in 1890s New York were not permitted to "solicit negro or colored applicants personally or by anybody on their

behalf."[2] William would have had to seek out an agent for himself. While agents would have visited potential white clients at their work, William would have had to find a way to leave his workday to make it to a regional office during business hours. Even if William happened upon an agent, say in the town square, the insurance man would have had no incentive to even discuss insurance with him. For after the passage of New York's legislation, Prudential not only banned its agents from recruiting black clientele, they also cut agent commissions on the underwriting of any policies for a person of color.

However, William was both fortunate and persistent. While others may have had to travel miles to their Prudential branch, the office in his town was only two blocks down Fulton Street from his place of work.[3] And once there, he would have received a much different sort of treatment from agents. Instead of ignoring William (as agents would have at the factory), if he inquired about coverage, a Prudential agent would have given him an application. Indeed, Prudential encouraged agents to have no reservations about offering an application to potential African American clients, but that is all the agent would have done for William. Under Prudential's orders, applicants of color were to fill out forms personally and completely without any assistance. At the time, this was a difficult task for many Americans, let alone African Americans at the time. In 1890, only 86.7 percent of the general population was literate and only 43.2 percent of people of color possessed the ability to read and write in any language.[4] The figure was no doubt even smaller among the African Americans in the industrial trades that Prudential served. But our man William is bright and learned to read at young age. Let's say

William made it through the application's legalese and was even able to complete it in full since he had committed his family's health history to memory.[5]

William's completion of the application would have befuddled a Prudential agent. It would have perhaps been the first time since the legislation and concomitant policy changes that an African American finished an application without assistance or error. No matter, though. While the interaction would have been a waste of the agent's time, there was little risk that it would cost the company any money. Even though William had successfully completed the application, he still would have had to schedule and pass a medical examination with the company's physician. For while white applicants could often obtain coverage without an exam, Prudential's revised protocols in light of New York's anti-discrimination legislation subjected the health of African American applicants to first-hand scrutiny.

Physical examinations would likely have disqualified many black applicants. Not only did African Americans on average possess higher incidences of disease than whites—from centuries of inequitable environmental conditions, of course—but also doctors treated them quite differently than white patients. White doctors had a long history of using African Americans as human subjects for medical research and gave little credence to the traditional healing techniques of black Americans. But William was in impeccable health. Health, however, was not the only obstacle for African American clients in an insurer's physical examination. As historian Sharla Fett has shown, doctors had been manipulating insurance physical results since African Americans were insured as property in the slavery era.[6] But let's imagine that William happened to draw an

upstanding physician that treated him without the slightest prejudice. Let's let William's remarkable circumstances allow him to pass the physical examination. Let's let William obtain a policy.

It was an arduous journey for William to get this far. He had to leave his job during business hours, draw on his exceptional education, had to appear remarkably healthy on that day, and place his fate in the hands of a strange white man inspecting his body. With policy in hand, we may assume William's hardships with insurance are over. He seems to have obtained a slice of security for himself and his family. However, the difficult part for William had just begun .

While white clients of Prudential had agents visit their work or home to collect their weekly premiums, African American clients who, like William, managed to secure a policy were given what was called an "office policy."[7] This kind of policy was commensurate with the letter of the New York law—it had equal premiums and equal coverage—but it certainly violated its spirit. On such policies Prudential offered its collectors "No commission or other compensation … on such collections."[8] Instead, it required that all "premiums must be paid at the office of the Company in [the agent's] city."[9] Furthermore, it mandated that the assured must deliver all premium payments in person. Should William have sent a friend or family member to pay a policy if he was ill or in any other way incapacitated, Prudential office would have refused to accept the payment and would have cancelled the policy. William would have then lost his policy and all the premiums he had already paid in. In short, Prudential stacked the all the odds against people of color like William.

Exorcising Excess Mortality

Prudential's decision to cut benefits for African American adults and increase premiums for African-American infants was a landmark decision that signaled how capital would treat its relationship to racism in the country's past. The original study Prudential used to justified its decision to move to race-based pricing does not survive. However, published references confirm that it was statistical in nature and drew on "data collected for a large number of American cities."[10] Furthermore, from these accounts, we know that it is likely the study took into account Southern and Northern cities.[11] What the study did not take into account were any social conditions. It statistically proved the inequality in morbidity and mortality between whites and people of color, but it did not correct for inequities in medical care, laws, housing, environment, economic opportunity, or education. It did not address the histories of genocide, slavery, or indentured servitude.

A memorandum from John F. Dryden (then Secretary and soon-to-be President) addressed to Prudential's superintendents and agents needed only one line of text to justify the decision to differentiate benefits and pricing by race. It read: "These changes are made in consequence of the excessive mortality prevailing in the class named above."[12] To Prudential such a disparity was simply a fact, the circumstances behind which were of no interest to the company. Prudential had found an actuarial shortcut to mitigate its risk and maximize its profit. Others followed suit.

Prudential was so successful and grew so fast because the industrial workers it served were an untapped market. In its first five years, the company's equity (assets – liabilities) grew from $2,232 in 1876 to $96,984 in 1880.[13] And before the close of the next decade, it broke the million-dollar mark. Prudential's profitability in the industrial insurance market encouraged new competitors.

In July of 1879, John Hancock Mutual Life Insurance Company began writing industrial life policies, selling 9,327 policies.[14] Metropolitan Life Insurance Company followed suit in November of 1879 and within two years had 213,878 industrial policies.[15] Two-dozen more insurers would underwrite industrial policies before the twentieth century, but as Mary Heen notes, these "Big Three" made up "ninety-five percent of this business" and accounted for "about seventeen percent of all life insurance."[16]

Prudential was the first to write race into its actuarial formulas, but since the market was so oligarchic the Metropolitan and John Hancock quickly followed suit. Like Prudential, Metropolitan had not thought to racially restrict their initial offering of industrial insurance and ended up with a significant number of black clientele, but within months of Prudential's decision to differentiate rates for African Americans Metropolitan stopped issuing policies to blacks.[17] It, too, justified its decision through statistics, expressing concern over the higher mortality rates of "colored lives."[18] Later that year, however, the Metropolitan softened its policy and resumed writing polices on African Americans, but only with two-thirds the coverage of the standard policy.[19] Eventually

the company also demanded potential African American clients also meet different, higher health standards to obtain coverage.[20]

As Mary Heen has noted, "few historical details about early race-based policies are available about the other member of the 'Big Three,' The John Hancock Company."[21] Her research did, however, find testimony from a consulting actuary that suggested the company did not engage in race-based pricing, but instead chose, from its founding, not to solicit African American for life policies. Indeed, she finds that it did not pay commissions to agents writing policies on black lives until 1953.

This initial wave of discrimination relied not as much on the discourse of race as on the discourse of statistics. Race was, to insurers, just one more piece of information in their massive actuarial tables. It was, to be sure, a particularly valuable piece of information. If reports from Prudential and Metropolitan on black morbidity and mortality are to be trusted, then the identification of race as a risk factor held significant actuarial value. However, in the internal documents and public announcements about the shift to race-based underwriting, the discourse commonly associated with race was absent. Higher rates of death and disease among African Americans were neither contextualized through a discussion of their social conditions, nor taken as evidence as an inherent inferiority. The use of race in the actuarial formulas of early industrial insurers simply acted as a means to more refined capital management.

Intervention

In the summer of 1884, the Massachusetts State Legislature passed the *Act to Prevent Discrimination by Life Insurance Companies Against Persons of Color*. It prevented any life insurers operating in the state from making "any distinction or discrimination between white persons and colored persons wholly or partially of African descent, as to the premiums or rates charged for policies upon the lives of such persons; nor shall any such company demand or require greater premiums from such colored persons than are at the time required by such company from white persons of the same age, sex, general condition of health and hope of longevity."[22] The law also required that insurers pay indemnities in full to African American policyholders and mandates that should a person of color fail to obtain coverage, the company must produce a certificate from a physician that confirms coverage was denied on the basis of health not race.

Since such state-level anti-discrimination laws were passed were aimed at a policy within a specialization within a specialized industry, few details survive about the events that led to their initial passage, but, as Megan Wolff notes, we know these statutes were "hardly characteristic of the post-Reconstruction era" and "came in the context of a larger public push to regulate the industry."[23] Though Wolff and others note that civil rights activists likely had some influence on the legislation, it was not a central cause of those fighting for equal rights in the 1880s.

The industry responded that their predictions were based on sound risk management in the service of sound capital management, and not racism. Insurers insisted that they were simply protecting the future of their business. An investment in

the lives of people of color, they claimed, would put the soundness of the company's future at risk.

This discourse changed, however, as regulations proliferated in the decade after Massachusetts first introduced such legislation. Rhode Island passed anti-racial-discrimination legislation targeting the insurance industry in 1886 and Connecticut and Ohio passed laws that were virtually identical to the Massachusetts statute in 1887 and 1889 respectively. New York followed suit in 1891, Michigan in 1893, New Jersey in 1894, and Minnesota in 1895. The shear volume of this legislation gained the attention of the highest executives at each firm and engendered two kinds of responses.

First, came circumvention of the sort seen in the case of our protagonist William that begins this chapter. Insurers stopped soliciting people of color and put into place a set of protocols for agents that made it extremely difficult if not impossible for racial minorities to obtain coverage. By the time Minnesota passed its anti-discrimination legislation in 1895, Prudential had resorted to simply recycling the same memoranda it sent agents in other states that had passed regulations; only state names were replaced.[24]

The proliferation of the legislation also raised the prominence of the issue, which created a trouble for the public perceptions of industrial life insurers and catalyzed the second part of the industry's response: a shift in its discourse. Prudential led this shift when, in 1894, it hired Frederick Hoffman, a young, German immigrant to craft a response to this legislation. Hoffman was far from an elite social scientist and by no means a trained actuary. While the disciplines of demography and sociology were spreading throughout the universities of Hoffman's native Germany and his new home in

the United States, Hoffman never received a formal education in statistics. Instead, following a downright Dickensian adolescence (replete with a distant relative who paid his way to America), Hoffman encountered numbers through various trades. From 1887 to 1889 he worked as a shipping clerk for Standard Oil in Brunswick, Georgia.[25] Then for the next few years he worked in the fringes of the insurance trade, first collecting premiums for Metropolitan Life in Boston then opening his own small brokerage in Chattanooga in 1890. That business failed rather quickly and Hoffman then moved to Norfolk where he found work as an assistant superintendent for the Life Insurance Company of Virginia.[26] But while Hoffman's work life revolved around numbers, he also showed a desire for a public life of letters. He believed numbers could answer the grand and pressing social and biological questions of the day. Although he lacked the statistical acumen of a Quetelet and imaginative methodologies of a Durkheim, he possessed an ability to communicate the statistical regularities of life to a wide audience. While still in his twenties, Hoffman began writing pieces of amateur quantitative sociology for the progressive periodical *The Arena* and the insurance industry trade publication *The Spectator*.

An 1892 article he wrote for *The Arena* brought him to the attention of Prudential president, John F. Dryden.[27] In this essay, Hoffman not only used the population level data that is the lifeblood of the insurance industry, but also interpreted it through the eugenicist lens of race science; just the marriage of method and discourse the insurer desired. Prudential viewed Hoffman as a potential weapon in the now public war against regulation and gave him its full resources so that he might effectively illustrate the

ostensibly dire consequences of insuring people of color. Hoffman was, in essence, tasked with winning the hearts and minds of American politicians and the American public for the insurance industry in the hope that he could prove the inherent riskiness of the American Negro.

An Inherent Risk

To communicate the inferiority of the "colored" race(s), Hoffman drew upon the latest, largest, and most reliable enumeration of social and biological life in his time (statistics that researchers still cite with frequency). To assess morbidity he employed disease rates from sources such as the Annual Reports of the National Board of Health and the Medical and Anthropological Statistics of the Union Army; to assess mortality he used death statistics from sources such as Sun Life Assurance Society and the Mutual Life Insurance Company of New York; to assess criminality he utilized arrest and incarceration rates from sources such as the Philadelphia Superintendent of Police and the Annual Report of the New Jersey State Prison; and to assess creditworthiness he analyzed sources such as the Reports of the Comptroller General of Georgia and the Reports of the Virginia Auditor of Public Accounts.[28] Hoffman also relied heavily on the Eleventh Census in each investigation.

In nineteenth-century America, even race scientists believed that the circumstances of slavery altered the vital statistics of African Americans to a degree that they were incomparable with the measures of any other race. How could the "true" character of a race be known when its vital statistics depended so deeply on its masters?

There were few wealth statistics because it was assumed slaves could hold no wealth. There were few criminal statistics because it was assumed slaves possessed no freedom. Any morbidity and mortality statistics were viewed as skewed because it was assumed masters nurtured their property. Of course, slaves did possess material and immaterial assets, committed crimes against each other that were left unrecorded because the law did not protect the victim, committed crimes against whites that were left unrecorded as justice was meted out by individuals or mobs, and masters did not care as much about the health of slaves as assumed. Indeed, as Sharla Fett has shown, much of the health of slaves came through remedies provided by slave women, outside of formal medical channels.[29]

For Hoffman the vital condition of African Americans in 1896 "proved" that the American Negro was beyond redemption. He argued that because most of African Americans' vital measures had either stagnated or declined since the abolition of slavery, their traits and tendencies were unalterable and the race unworthy of assistance. "It is a fact," wrote Hoffman, "which can and will be demonstrated by indisputable evidence that of all races for which statistics are obtainable, and which enter at all into the consideration of economic problems as factors, the negro shows the least power of resistance in the struggle for life."[30] He posited that the physical and moral health of the African American race was so weak that no form of government assistance from education to health care could possibly hope to change their fortunes for the better. Reflecting the social Darwinism of the time, Hoffman claimed the African American race

would soon die out and that any effort to prolong their existence would be a waste of American resources.

Hoffman began his *Race Traits* with an extended analysis of mortality and morbidity by race. He begins with his discussion of African American mortality rates by citing recent statistics from northern states that show a mortality rate in excess of its natality rate. While these statistics form the basis of his proof that the race is doomed for extinction, the sample is quite small—his statistics from Massachusetts cover less than 600 births and 600 deaths and find a differential of only 68 and cover a short span of time (only one year in the case of Massachusetts).[31] He then reinforces this argument by analyzing recent infant mortality rates in cities throughout the country and concludes: "nowhere else do we meet with such a frightful infant mortality as we find prevailing among the colored population of the large cities, both North and South."[32]

Hoffman knows that critics may be called into question and while he believes his Germanness absolves his statistical interpretations from the bias an American would have, he still finds it necessary to obviate questions about environmental conditions skewing measures of vitality. In regard to such critiques, Hoffman points out that a number of statistical surveys have, in his estimation, controlled for such factors. He cites the statistics of the Union Army and the Alabama Penitentiary as paragons of objectivity, as institutions in which black men were subject to the same regulations, fed in the same manner, clothed in the same garb, and practiced the same class of work. The fact that African Americans in the statistics of these institutions still suffered from higher rates of

mortality, however, disproves "those who believe so firmly in the all powerful effect of the 'milieux.'"[33]

Morbidity, too, is a key concern for Hoffman. He cites a post-Civil War spike in the cases of tuberculosis in Charleston, South Carolina as an expression of the race's weak vitality and "a distinct race trait…" which could have "…the most pronounced effect upon the numerical as well as social and moral progress of the race."[34] Hoffman's basis for comparison here is the low number of cases of tuberculosis for "coloreds" as compared to "whites" reported in the statics of the Union Army. After drawing out that argument, Hoffman then analyzed the same statistics that show a much higher rate of fatality-inducing disease among "colored" soldiers than among "white" soldiers, finding a mean rate of only .0056 for white troops but .0542 for non-white troops.[35] Just pages after arguing that African American health was equal to that of whites during the Civil War era, he argues here that African Americans health was, in fact, inferior at the time. Hoffman clearly had little method to his interpretations.

While Hoffman's employer cared most about morbidity and mortality, *Race Traits* makes the argument for discrimination on the basis of other statistics, as well, especially statistics that ostensibly demonstrate the inferiority of African American in myriad aspect of their existence. Hoffman laments the lack of available criminal statistics that record race (we shall see the development of such figures in the 1880s in the following chapter), but nevertheless gathers what he can to statistically show "without exception an excess of criminality on the part of the negro."[36] To begin his argument, Hoffman cites 1890 Census figures that report African American males making up 29.38

percent of the prison population and African American females making up 30.79 percent of the prison population compared with the general population which was constructed of 10.20 percent black males and 11.09 percent black females over age 15.[37] Since these statistics include figures from the South, we can be assured that they were significantly skewed by the rise of the debt peonage system that prosecuted blacks for miniscule crimes (e.g., vagrancy or itinerancy) and excessive rates in order to resupply their region with free labor. Perhaps realizing this discrepancy if not acknowledging it overtly, Hoffman reinforces his argument through criminological data from a number of Northern states and cities. Here, though, he analyzes arrest rates rather than conviction rates, which skew the numbers given the racism present in policing at the end of the nineteenth century.

Hoffman rounds out his case for the inherent riskiness of African Americans with a discussion of their economic productivity. Hoffman begins this section with a lengthy discussion of evidence that constructs African American farmers as unproductive, contented, and lazy, which, while partly statistical, is also heavily buttressed by prejudicial anecdotes from elite whites in the Southern agricultural industries. He then rounds this point out with a discussion of a statistical survey from an 1891 issue of *The Tradesman* that asks white employers in the South how they feel about the industriousness of their black workers. Among the results Hoffman highlights is the statistic that 69% of white, Southern employers do not believe education helps the efficiency of their black workers. Hoffman, again, uses this as evidence of the

impossibility of improving the "American Negro" and warns of the socio-economic peril the country would put itself in should it try.

In Hoffman's concluding pages, he offers the only instance a sustained contextualization of black life between the end of slavery and the writing of his text. In assessing the wealth accumulation (and lack thereof) of African Americans, he writes of the profound impact the failure the Freedman's Savings Bank had on Southern blacks as Reconstruction drew to a close. He suggests that African Americans were, in general, thrifty. He argues that the potential for manumission gave them an incentive to internalize the value of thrift that few other groups have ever had. Hoffman sees a shining example of this thrift in the $55 million the bank had taken in by 1874. The bank's failure that same year, however, extinguishes much of that progress, argues the statistician. Its default, writes Hoffman, "wreaked hopes," caused a "loss of faith in thrift," and undermined "accumulation as a means towards improvement of their humble condition."[38] Regardless of the acknowledgement of a presence of social influences (i.e., slavery, default), Hoffman still constructs African Americans as a risk. He writes that these social forces have "injured the race" and its "effects will be felt through several generations."[39] Hoffman then concludes that this lack of trust in banks and disincentive towards thrift have caused African Americans to either waste or hide their money, resulting in a lack of taxation on the race. Hoffman shows that even if it is the conditions of life rather than innate traits that place racial minorities at a disadvantage; it is neither capital nor the state's responsibilities to work toward their resolution.

The Conditions of Life

Hoffman was adamant that it was not the "conditions of life" but innate race traits and tendencies that were at the core of African Americans' general riskiness. A young sociologist at the University of Pennsylvania disagreed. Writing in the *Annals of the American Academy of Political and Social Science*, W. E. B. Du Bois penned a cutting review of Hoffman's text. Though he found it to be perhaps the most important compendium of statistics on African Americans to date, Du Bois argued the book shot well wide of its stated aim to "impartial[ly] appl[y] … the statistical method to the study of the condition and development of the American Negro."[40] Du Bois was hardly surprised that Hoffman found a disproportionate amount of respiratory disease, poverty, and crime among African Americans. He took issue with Hoffman because he "continually forgets" the "unusual disadvantages" of blacks in the United States such as their segregated and extremely dense housing situation, their near pennilessness but a generation or two ago, and their lack of legal "avenues for advancement" and subjection "to different standards of justice."[41]

The historical scholarship has vindicated Du Bois's assessment. We now understand the depth and pervasiveness of these "unusual disadvantages" for racial minorities. These unusual disadvantages have a deep history that begins on the continent of Africa. Public health historians W. Michael Byrd and Linda Clayton argue that disparities in health have their origin in European colonization. The entrance of Europeans to the deepest parts of the continent, they point out, imported leprosy, measles, tuberculosis, syphilis, and, most devastatingly, small pox.[42] Slavery, too, severely

damaged the health of Africans and not simply because of the brutal treatment chattel slaves received from their captors. Byrd and Clayton argue that the "artificial 'slave wars,' rounding up the captive slaves, and the marching slave coffles from the interior to the African coast spread and intermingled local African diseases to large populations of nonimmune Africans."[43] So, by the time Africans were forcibly shipped from the continent, their likelihood of illness or premature death had increased dramatically.

With this altered disease profile, Africans were forced to make the journey across the Middle Passage, a trip whose treacherousness was unparalleled in human history. As historian Stephanie Smallwood writes,

> "The crowded conditions on slaving vessels made for a level of human density unmatched on other types of ocean vessels. With crowding came lack of sanitation, and the enslaved Africans found that none of the familiar habits of personal hygiene could be observed. Thus, illness was nearly impossible to avoid in that setting. Exhaustion, malnutrition, fear, and seasickness resulted in depressed immune systems and increased vulnerability to diseases."[44]

Likewise, Sowande Mustakeem has shown these conditions encouraged the development of a range of severe diseases among slaves on the journey. The lack of foods containing vitamins B and C produced high rates of scurvy. The close quarters caused frequent outbreaks of venereal disease and smallpox. And the unsanitary storage and distribution of food catalyzed the proliferation of dysentery (then known as flux), which Mustakeem suggests was "perhaps the leading cause of death among African captives crossing the Atlantic during the Middle Passage."[45] Additionally, slaving records frequently report

captives afflicted with apoplexy, consumption (tuberculosis), dropsy (edema), friction sores, influenza, malaria, typhoid fever, worms, and yellow fever.

Once Africans arrived in the United States, they, like the colonists, were exposed to the risk of influenza, plague, and malaria remained. Slaves, however, were disproportionately exposed to diseases related to their living and working conditions. The decrepit, overcrowded cabins slaves inhabited—Byrd and Clayton suggest slave quarters averaged 800 square feet while often housing around six residents—eased the spread of pneumonia, Streptococcal infections, and tuberculosis.[46] The close quarters also encouraged the sexual and non-sexual spread of venereal disease. And, in the colder climates of the northern south, makeshift fireplaces significantly increased the danger of fires and asphyxiation for slaves.[47]

Africans were not the only population decimated by the introduction of Europeans. European colonizers also destroyed the health and shortened the life spans of the indigenous peoples who survived their genocide. While the pre-Contact health of the native peoples of the Americas is difficult to know with much certainty, as bio-archeologists Ann Ramenofsky, Alicia Wilbur, and Anne Stone have argued, there is a consensus that "co-evolutionary histories for both hosts and pathogens prior to Columbus" resulted in a lack of "immunological memory for Old World infectious agents; upon exposure, the risks of infection, morbidity, and mortality were high."[48] These bio-archeologists also suggest that it has been well demonstrated Europeans introduced smallpox, measles, yellow fever, chickenpox, whooping cough, and typhus to the Americas.[49] Additionally, new historical-epidemiology research suggests that not

only did colonization detrimentally affect the health of American Indians in myriad ways, but also that the slave trade in particular was responsible for the introduction of malaria to each of the American continents.[50] While the sickle cell trait common in populations of native-Africans and their descendents mollified the effect of the disease on slaves, infectious disease ravaged the indigenous population of what would become the United States. Following the forced relocation of Native Americans and the new living conditions that came with the resettlement increased rates of infectious disease such as influenza and tuberculosis. Moreover, Abraham Bergman et al. show that the United States government largely neglected American Indian health all the way up to World War II.[51] Only after American Indians reporting for service in the war exposed their outrageously high rates of disease and sparked outrage among health care professionals and activists did the state create a unit dedicated to Native health, the Indian Health Service.[52]

The first significant Asian American immigration to the United States coincided with the demand for cheap labor after the discovery of Gold in the country's West in the 1840s. A second followed soon thereafter in the 1860s in response to the need for labor to aid in the building of America's railways. The majority of the Asian immigrants (primarily from China, Japan, and India) who came to the United States to work in the mining and railroad industries did so as indentured servants, or, as they were called then, "coolies." And while such status afforded them the promise of eventual freedom, their ocean journey and living conditions upon arrival were only marginally better than slaves'. Given that they shared similar conditions of life, they also shared similar

exposures to disease. In an 1855 communication to the Secretary of State, the U.S. Consul in Amoy, China described the coolie trade as "little better … than the African slave trade."[53] And as Lisa Yun points out, the transportation of coolies from China to the Americas often relied on former slave ships and evidence suggests the indentured servants on these voyages suffered an even higher rate of mortality than slaves due to the additional length of the journey.[54] In addition to the diseases associated with the overcrowded housing conditions coolies entered upon their arrival in the United States, they also suffered from high incidences of diseases related to the conditions of their work. Their work in the country's gold mines would have certainly exposed them to heightened risk of tuberculosis and other respiratory diseases and their work on the railroad would have certainly exposed them to the nineteenth-century catchall condition, "exposure." In the winter months this would have included frostbite and hypothermia and in the summer months this would have included sunburn, dehydration, exhaustion, and heat stroke.

It is no great revelation that slavery, genocide, and indentured servitude decimated the health of African Americans, American Indians, and Asian Americans, respectively. It is not enough however, to understand that their initial relationship with white Americans put their health and lives at risk. Uncovering continuity in health (and wealth and justice) disparities is key, too.

For African Americans, life in the years immediately after slavery was not necessarily superior to their years in bondage. In the words of Byrd and Clayton, "Rarely appreciated is the fact that the Reconstruction Era was the nadir of Black health in the

United States."[55] Slave owners had some incentive to provide provisions for at least some modicum of health, but after emancipation, slaves were left with few if any sources of nourishment or shelter and left to wander the South in search of family or basic resources. Historian Eric Foner vividly describes the desperate situation:

> "In a region suffering from the devastation of war and recurrent crop failures and where the aged and infirm had been evicted from countless plantations, tens of thousands of blacks stood in dire need of medical care and economic assistance. Since local authorities generally refused to appropriate money for black health facilities and many white doctors would not treat blacks unless paid cash, the only medical attention available to blacks was that provided by employers under the terms of labor contracts or by their own 'root doctors' and 'conjure men.' The remedies of neither proved effective in the face of smallpox, yellow fever, and cholera epidemics that swept the shantytowns of Vicksburg, New Orleans, Memphis, and other Southern cities, and then made their way into the plantation belt."[56]

Recognizing the severity of this crisis, the federal government established the Freedman's Bureau to provide relief for the newly emancipated black population. The Bureau, however, was too late and too limited to stem the bleeding of black health. Congress could not agree on a plan for the Bureau until nearly two years after the end of the War and from its inception it was understood to be an emergency relief organization rather than a social service office. To be sure, the Freedman's Bureau was impactful. It opened over 100 hospitals and provided over 1 million medical treatments for black Americans

during its limited existence.[57] Many more African Americans would have suffered extended illnesses or premature deaths without the Freedman's Bureau. But while the federal government's decision to open the Bureau provided some relief, its decision to close it at the conclusion of the 1860s signified a misrecognition of the scale of the problem of the health and economics of African Americans.[58]

Of course, by the time the Freedman's Bureau was scheduled to conclude its services, Southern whites had revitalized their political power around the issue of race. Compounding the plight for African Americans was the fact that upon the dissolution of the Bureau, social services were left to individual states, states that after a brief period of control by black and sympathetic white Republicans were quickly reverting to an exclusively white and primarily Democrat makeup. After Reconstruction the South transformed into a new kind of hell for African Americans. White supremacist terrorist organizations such as the Klu Klux Klan proliferated, mob justice and lynching became commonplace, Jim Crow laws segregated access to innumerable aspects of Southern life, and the practice of debt peonage illegally extended the practice of slavery well into the twentieth century.[59] In Race Traits, Hoffman admits that slavery perhaps skewed the vital statistics of the African Americans. Problematically, though, he assumes that the vital statistics of the "American Negro" has fully recovered from the wounds of those hundreds of years of bondage and now present an objective measure of the inherent vitality of the race. Writes Hoffman:

> "Thirty years of freedom in this country and nearly sixty in the West Indies have failed to accomplish the original purpose of the abolition of slavery, that is, the

> elevation of the colored race to the moral, mental and economic level of the white race. Nothing is more clearly shown from this investigation than that the southern black man at the time of emancipation was healthy in body and cheerful in mind. He neither suffered inordinately from disease nor from impaired bodily vigor."[60]

To this reading of the post-Emancipation black life, Du Bois provides an eloquent antithesis:

> "The Negro farmer [i.e., 88 percent of free Southern blacks] started behind,—started in debt. This was not his choosing, but the crime of this happy-go-lucky nation which goes blundering along with its Reconstruction tragedies, its Spanish war interludes and Philippine matinees, just as though God really were dead. Once in debt, it is no easy matter for a whole race to emerge … The carelessness of the nation [let] the slave start with nothing."[61]

In short, the half a decade of the social services underfunded Freedman's Bureau did not indemnify African Americans for their centuries of, in Giorgio Agamben's apt terms, "bare life."[62] Nevertheless, the insurance industry (and eventually the criminal justice system and social service system) would come to adopt the thinking that the brief social assistance the Freedmen's Bureau provided was enough to correct for all the inequities of the past.

Extinction Theory and Social Insurance

By mixing the discourse of racial thinking with the discourse of actuarial science, Hoffman produced a biopolitical discourse for America that portended the neoliberal

discourse of the twentieth century. The statistician was not simply a eugenicist, but rather was an extinctionist. He argued that blacks were so weak in vitality of mind and vitality of body that within half a dozen or so generations, the entire race would become extinct. With such an argument at the core of his thought, it is little wonder that Hoffman became the industry's leading critic not only against regulation, but also against socialized insurance of any form.

If white Americans chose to intervene in the extinction process with regulation or social insurance, they threatened to disrupt the course of nature. Should they, for instance, degenerate the purity of the races through miscegenation or elected politicians to who pitied African Americans and prolonged the life of the race through social programs, then the country would face the risk of financial, moral, and biological bankruptcy. "Race deterioration once in progress is very difficult to check," wrote Hoffman, "and races once on the downward grade, thus far in human history, have invariably become useless if not dangerous in the social as well as the political economy of nations."[63] The black race might live nine generations instead of six, but were this prolongation allowed to occur, all races, even the white race, could be brought to the brink of extinction. For Hoffman, the only solution to the Negro problem was nature's solution. Rather than the interventionist, thanatopolitical solution that Hitler would choose to expedite what he thought was to be the natural fate of the Jews, Hoffman called for a noninterventionist, biopolitical solution. For Hoffman, the poor vitality he read in statistics about African Americans made it clear that the black race was barely fit for

existence on this planet, ill suited for life in America, and absolutely uninsurable. The country must let nature take its course and let the American Negro die.

With Hoffman's statistics (and statistical interpretations) to lean on, Prudential believed itself justified in racially discriminating risk and many Americans agreed. Historian Beatrix Hoffman cites examples of *Race Traits* winning over academics, press, and physicians in North, South, and West.[64] She argues the book received "a particularly warm reception because [Hoffman's] use of statistics brought racial 'science' onto a modern, supposedly quantifiable plane."[65]

Hoffman's influence increased following the publication of *Race Traits*. He helped found the American Society for the Control of Cancer (now the American Cancer Society) and became the vice president of the National Tuberculosis Association (now the American Lung Association), the vice president of Prudential, and president of the National Statistical Association. And as he gained eminence, he continued a push to make actuarial science a racial science. Not only did he keep circulating his views on African Americans, but he also expanded his research into the assessment of the vitality of other races and nationalities. Over the first two decades of the twentieth century, he produced studies on Armenians, Bulgarians, Chinese, Chinese-Americans, Greeks, Hawaiians, Indians, Filipinos, Japanese, Japanese-Americans, Jews, Native Alaskans, Native Americans, Puerto Ricans, Poles, and Russians.[66] With the exceptions of Japanese-Americans and Native Americans, Hoffman concluded that non-Western European racial groups possessed a weaker vitality and presented a greater risk than those from whites born in Europe or America. With this additional research, Hoffman

continued his fight against social insurance, and continued to justify his opposition in the service of protecting the general health of the human race.

The Birth of a Black Enterprise

An unintended consequence of racial discrimination in life insurance was the catalyzing of a new industry for African Americans. After being so systematically denied coverage by white insurers, a number of industrious black men constructed societies and businesses that offered coverage quite similar to that of white-owned companies like Prudential. While this expansion of black business would, at first glance, appear to be some consolation to the discrimination African Americans faced from white insurers, the development had two major drawbacks. First, these companies were almost too successful. A 1918 survey uncovered by Christy Ford Chapin revealed that African Americans—a full 94 percent of the sample—bought industrial life insurance at rates higher than any other ethnic group in the United States.[67] This high rate of policy holding, however, was not necessarily beneficial to African Americans.

Black-owned insurers dealt almost exclusively in industry policies. The psychological benefit of this small bit of security was important, to be sure, but its economic benefit was negligible. Since such policies were collected weekly, policyholders frequently let them lapse and lost what they had already paid in. Furthermore, even if the policyholder's kin collected an indemnity, it covered little more than burial expenses.

The massive capital of these mainstream insurance corporations and mutuals allowed them to take larger financial risks and experiment with new coverages without seriously jeopardizing the future of the company and, in most cases, improving it. Even before the end of the nineteenth century, white-owned companies began offering a plethora of products with more robust coverage that encouraged significant financial planning. African American-owned insurance companies, however, did not posses the means to diversify their business safely and, until well into the twentieth century, industrial life policies remained their sole focus. The extremely limited array of products black insurers offered meant that by the time discrimination in life insurance subsided, African Americans were not acculturated to policies other than industrial life. Moreover, the segregation of the market for so long meant that once white insurers decided to desegregate it they could undercut black-owned companies and steal their best policyholders. As J. Gabriel McGlamery has shown, this produced a rapid implosion of black insurers at the conclusion of insurance segregation.[68]

The second drawback of the rise of black-owned insurance companies was that it ran counter to the one of the major benefits of insurance: the sharing of risk. By serving African Americans exclusively, black insurers ensured that blacks were only sharing risk with one another. Had blacks not had a niche-market option, the campaign for inclusion in the general insurance market may have been a larger focus of civil rights battles, which would have resulted in African Americans being able to share risk with whites at an earlier date. Instead, this segregation of insurance reinforced existing health disparities and existing wealth disparities.

Reconsideration

In 1921, Hoffman delivered a speech at the Second International Congress of Eugenics in New York City. Though the youthful Hoffman's expertise was questionable because of his lack of formal training, this mature Hoffman possessed an unparalleled amount of experience. By this point, the statistician had conducted thousands of hours of fieldwork, traveled the world researching the vitality of myriad groups, and had amassed one of (if not) the largest personal collections of statistical records in the world. There was perhaps no one in the country or quite possibly the world who had spent more time researching the correlations between risk and race than Hoffman. But there, at the largest ever gathering of race scientists in the world, Hoffman presented a paper that undermined the theoretical foundation of his statistical interpretations.

Hoffman's address began with some familiar rhetoric, calling "Negroes" a "menace to the welfare of all peoples."[69] However, for this mature Hoffman, African Americans presented a menace not because they threatened to drain America's social services or dilute the white gene pool, but rather because the treatment white America subjected them threatened the humanness of humanity. Hoffman had begun to see that it was African Americans "white supremacy" had presented African Americans with an "unequal struggle" that presented "enormous difficulties" to their livelihood.[70] Citing a fuller array of information than he possessed in 1895 when he began writing *Race Traits*, Hoffman praised black Americans for the advancements they made since slavery despite "the ever present race prejudice on the part of the white race."[71]

Hoffman's reevaluation was quite remarkable. His new view ran counter to almost all his peers at the conference. But while his audience included the most important minds in race science at the time, there is no evidence Hoffman's new interpretation of the vital statistics of African Americans made any significant impact on his peers or on the discourse of race, certainly nothing like his initial thesis. As sociologists Peter Berger and Thomas Luckmann have shown, while discourses are relatively easy to produce, they are exceeding difficult to dismantle.[72]

Indeed, while Hoffman was so instrumental to tying the knot of risk and race, his particular blend of race science and racialized actuarial science came to matter less and less in the years after the publication of *Race Traits*. *Race Traits* statistically "proved" the inherent inferiority of racial minorities and helped to suppress anti-discrimination regulations. After succeeding in its mission, the text's thesis began to matter less. Once anti-discrimination began to be repealed and once strategies to circumvent those statutes that remained proved viable for insurers, the racial pseudo-science began to drop out of the discourse about the decision. A 1905 trade publication exemplified this shift back to the economic discourse that accompanied Prudential's initial decision to racially discriminate in 1881 when it stated: "If companies were to seek such business in those Northern states where discrimination is forbidden, they would work an injustice to their white policyholders, who would be forced to make up from their contributions the excessive mortality of the colored members of the companies."[73] Racialized actuarial science had come full circle. It had moved from its dependence on the pseudo-science

Hoffman had infused it with in the late-1890s and returned to the cold calculation it relied on in its beginnings.

Chapter 3: Risky Inmates

The Face of Crime

The Industrial Revolution of the early nineteenth century transitioned the dominant social organization of Europe from a more rural, community-driven life to a more anonymous, urban life; in Tönnies' terms, from "*Gemeinschaft*" to "*Gesellschaft*. This reorganization of the social world necessitated a way to track and identify criminals. This was not a problem prior to 1809 as French law mandated criminals to be branded. *Fleurs-de-lis* or letters corresponding to crimes marked the shoulders of criminals. Branding served a dual function. Since the branding took place at the scaffold and was preformed by the executioner, it functioned as a public spectacle of the might of the sovereign. In other words, it functioned as sovereign power. It went beyond the time and space of the event at the scaffold and served as a permanent mark to distinguish the habitual criminals from the first-time offenders. However, as spectacle gave way to discipline, this barbaric practice of disfigurement fell into disuse and ceased in the 1830s.[1]

Police, especially in urban centers, knew they had to keep some record of criminals. They did not know, however, what sort of records to keep. French courts in Assizes maintained alphabetically filed records of convicts as early as 1808. As Simon Cole writes of this practice, "this marking of the criminal record replaced the marking of the criminal body."[2] These records provided limited utility, though, as their lack of indexing made them rather unsearchable. As early as 1819, French officials also began collecting portraits, but the size, quality, and style of these images varied drastically.[3]

And while prisons took measurements of inmates for future identification from at least mid-century, these records lacked precision, consistency, or standardization.[4] Their disorder inspired nineteenth-century criminologist Arnould Bonneville de Marsangy to lament: "all these innumerable documents, collected with a great deal of care and effort, lie in the judicial registers, as in catacombs, whence it is almost impossible to extract information from them in a timely manner."[5] Criminal identification was a concern in the nineteenth century, but it was not a science. In 1877, however, the eminent English scientist Francis Galton tried to make it one.

That August, in a presidential address to the Anthropological Subsection of the British Association at Plymouth Galton spoke of the problem of identifying identity. Galton wanted to create images to use in the identification of an array of types. His dream, he told the audience, was to produce portraits that would perfectly capture *the* face of every sort of person from "the syphilitic" to "the Jew" to "the criminal." Close friend Herbert Spencer suggested Galton set about scaling, tracing, and layering images to obtain these portraits. Galton wondered if Spencer's idea could be applied to photography. He wanted to find a way to compound the layered illusion of the stereoscope. Having shared the idea with his peers, Galton retreated to his lab.

Galton set about collecting photographs to fit his taxonomic interests. Once he amassed a suitable number of negatives, he threw the images onto a sensitized plate. Instead of projecting one image onto the plate for eighty seconds, as had been the standard method of photographic development, he threw eight images on to one plate for ten seconds each. He termed the result "composite portraiture." Eight images (or more)

became one. In Galton's assessment, this turn in the development of mechanical reproducibility opened a window into truth. He writes, "An assurance of the truth of any of our pictorial deductions is to be looked for in their substantial agreement when different batches of components has been dealt with, this being a perfect test of truth in all statistical conclusions."[6]

Galton was a polymath, but two great concerns ran through his diverse oeuvre: race and prediction. Galton's reputation as a race scientist precedes him. He is less well known but no less influential in his development of statistics and predictive calculus. He discovered regression and the correlation coefficient, the latter of which was refined into "Pearson's r" by Galton's star student Karl Pearson. He also mentored formidable figures in the science of statistical prediction such as Charles Spearman with whom he formulated factor analysis and Cyril Burt, the educational psychologist known for popularizing the measurement of hereditary intelligence through standardized tests.

Galton's work in composite portraiture mixes his investments in race and prediction. The overarching goal of his eugenics work is to secure the white race from all others. The ostensible desirability of this plan is rooted in arguments about the heritability of traits. Eugenics employs historical information collected about past populations to "better" a future one. For Galton, people became peas. He wanted to remove the undesirable seeds to create a more refined breed. Galton's foray into composite photography represented an attempt to construct a precise image of the bad seeds.

It is no wonder then, that when he presented his first composite photographs to the scientific community in a 1878 issue of *Nature*, he chose the "habitual criminal" as his inaugural subject. Galton superimposed photographs of criminals convicted of murder, manslaughter, and robbery accompanied by violence. Galton treated these photographs as he would meteorological maps. He recounted that the predictive value he found in the superimposition of weather patterns first inspired him to create these composite portraits of criminals. In these images he did not see the faces of crime in the past, but rather the face of crime in the future. He wrote, "They represent, not the criminal, but the man who is liable to fall into crime."[7] Besides the identification of criminal types, Galton suggested his composites offer the prospect of constructing "typical pictures of different races of men" and could aid in selective breeding as they supposedly reveal the frequencies of the hereditary transmission of features.[8]

Though Galton created many advances in the science of prediction, his composite portraiture was not among them. The search for a way to distinguish the habitual criminal, however, continued. Americans shared Galton's concern about a recidivist race, too. A decade after Galton developed his system for the identification of criminal types, the men in charge of America's prisons met in Detroit to try to develop a system of their own. At the summit, they formed the Association of Wardens and Superintendents of American Prisons (AWSAP), an organization with the goal of "secur[ing] the registration in a central office, of the criminal record of prisoners, so far as the same may be know to prison officers, members of the association, and the mutual interchange between prisons of such information, with a view between distinguishing habitual and

occasional offenders."[9] While the organization would look to Europe for a system to fulfill its mission, it would find its answer not in England with Galton, but rather in France with the young Prefect of the Paris Police, Alphonse Bertillon.

From the Brands of the Back to the Measures of the Ear

America's first criminal identification system was the product of a rather unremarkable man in a rather remarkable environment. Bertillon grew up in an atmosphere of intellect and privilege. In the 1860s, Alphonse's maternal grandfather, Achille Guillard, and father, Louis-Adolphe, founded the School of Anthropology in Paris and assumed professorships there. Louis-Adolphe was known in the field of statistics for having demonstrated that "Quéntelet's curve" was not true just *of* populations but *within* them as well. Guillard was held in even higher esteem for his text *Elements de Statistique Humaine ou Demographie*, which coined the term demography and offered the first definition of the field.[10]

The prominence of his elders in intellectual circles ensured that Alphonse would receive an elite education. However, it is much more likely that milieu of the Bertillon home rather than an environment of his formal education fostered the conditions for Alphonse to construct his anthropometric system. From a young age, Alphonse would experiment with his father and grandfather's calipers and gauges. On a rainy Paris day in Alphonse's third year, he and his brother, Jacques, went about measuring every article of furniture in the house.[11] Jacques, too, grew up to be a prominent statistician and invented the system that would become the World Health Organization's International Statistical

Classification of Diseases. Alphonse, however, did not follow in the academic footsteps of his relatives. He was a dreadful student in his youth and barely passed his *baccalauréat* at the late age of 20. The mediocrity he achieved in his formal education compounded with compulsory military service and poor health limited the opportunities for Alphonse despite his elite upbringing. The only work his father's influence found him was as a clerk in the Paris Prefecture of Police.

There, Bertillon found only disorder. The only standard aspect of the police records was their disarray. Such disorder was understandable for the time. France, in the middle of the nineteenth century, was in an intermediate phase in the systematic identification of criminals.

Bertillon perplexed his coworkers at the Prefecture when he began using downtime to cut up photographs of criminals. Cheeks and eyes and ears sat in small piles waiting to be glued to cardboard cards. Bertillon was readying a system. Eight months into his clerkship, his proposal for a revolution in records was resoundingly rejected. Three years later, however, the Prefecture finally relented and adopted anthropometry. By 1883 it was identifying recidivists. By 1885, the system had proven so successful, that Bertillon was invited to speak at the International Prison Congress in Rome. From there, his system proliferation across the world.

Criminal Bodies

A few months after AWSAP's chartering, Gallus Muller, a clerk at the Illinois State Penitentiary, came across a mention of a "new French method" of criminal

identification in a newspaper.[12] The system promised to individualize inmates and construct an infallible record of identity through the recording of the length of prisoners' bones. Since its implementation in 1882, this "Bertillonage" had established a record of success in France. There, it had successfully identified hundreds of "habitual criminals" attempting to falsify their identity so as to avoid harsher sentencing. Muller wrote the system's namesake, Alphonse Bertillon, and received a reply with pamphlets detailing its methods. Impressed with the materials he received from Paris, Muller brought them to the attention of his prison's warden, Major Robert W. McClaughry.

McClaughry agreed with his clerk that the anthropometric system was quite impressive and immediately viewed it as a potential way to fulfill the mission of AWSAP, for which he acted as secretary. That spring, he authorized the purchase of a complete set of measuring instruments from Paris and soon thereafter, every inmate that entered the Illinois State Penitentiary at Joliet was being measured, described, and categorized according to Bertillon's system. That September, McClaughry convinced the Warden's Association of the United States and Canada to adopt Bertillonage. The following February, the warden hosted a clinic to standardize the implementation of the indexing methods. By 1889, Bertillon's system was in use in Michigan, Ohio, Pennsylvania, New Jersey, Ontario, and elsewhere.

In theory, Bertillon's system aims to divide and conquer. Bertillonage strives to make identification into a science and demands comprehensive and standardized records. It dissects the body to isolate identity. It replaces the unscientific categories of race with graded descriptions of individual features. However, Bertillon's system is not the same

in theory as it is in practice. In this chapter, I demonstrate that although Bertillon's system discards traditional racial categories that anchored Galton's system, and although it frames itself as a single-use tool for catching repeat offenders after they commit a crime, it becomes racialized and its statistics form the basis of actuarial formulas. By focusing on its implementation in Illinois, I show how Americans reworked the system to include traditional racial categories and how these statistics became instrumental factors in the production of the twentieth century's most widely used actuarial formulas for parole decisions.

Weighting Measures

While Hacking's "avalanche of printed numbers" came in the early part of the nineteenth century, the lack of an identification protocol in maters of criminal justice meant that criminal statistics were absent from this first inundation of digits. The Bertillon System of Criminal Identification, however, was an avalanche in its own right. Ironically, it was Bertillon's misunderstanding of probability that resulted in its predictive capabilities. One of the notable gaps left by the criminologist's poor performance in his formal education was his poor grasp of probability calculus. As his biographer Henry Rhodes, points out, had he understood probability, he would have found that just 14 of his measurements would have made the chance for an error in identification 268,435,456 to 1.[13] Instead, the system sought data after data after data.

In the Illinois State Penitentiary during the late-1880s, Warden McClaughry's dedication to Bertillonage meant that prisoners were measured in dozens of ways. Upon

their arrival at the procession center of the complex, they would be sent to a small, windowless room. There, the resident anthropometrist would ask them to be seated. He would then take out a set of calipers, stand to the left of the prisoner, and measure distance from the root of the nose to the occipital bone. Such a task sounds simple, but Bertillon's measurement guidebook lays out three movements and 18 steps for the task to be preformed properly, demanding total body submission on the part of the prisoner and total body control on the part of the anthropometrist.

After measuring the length of the head, the anthropometrist would measure the width of the head, the length of the left middle finger and left little finger, the length of the left foot, the length of the left forearm, the length of the right ear, the height of the entire body, the length of the arms outstretched, and the length of the trunk.

Following the round of measurement, the anthropometrist would carefully examine the prisoner to mark down his or her "descriptive information." Biographers note that Bertillon was socially inept and the thick instructional tomes lend credence to this perception. Paging through the hundreds of pages of the Frenchman's instruction, one gets the sense he would rather obviate a hundred questions in print than have one posed to him in person. The recording of the descriptive information in particular is a case in point. Bertillon wrote instructions for anthropometrists like the one at Illinois not only on how to record the prisoner's eye pigment, forehead type, nose type, hair color, and complexion, but also on how to categorize abnormalities, deformities, and disfigurements be they temporary like pimples or permanent like amputations.

Following this description, the anthropometrist would map the prisoner's body. He would search the body for scars or other significant marks, note their direction or inclination and their dimension. Then, he would mentally segment the prisoner's body according to Bertillon's precise cuts and note the longitude and latitude of any mark. What resulted was a descriptive measurement such as: scar, right oblique, rectilineal, upward cavity, 1 ½ c., right eye-brow outer.[14]

Next, the inmate would be photographed. The photographer would capture the prisoner in full-face and profile. Standardization was key to this process. Bertillon's system demanded that the anthropometrist take care to maintain consistency in the position of the camera, the pose of the prisoner, and the lighting of the room in each photograph and in each prison.

Finally, the anthropometrist would underwrite and date his measurements. This signature was an instrumental part of Bertillonage. In fact, Bertillon kept a central file of all the measurers in France and these autographs afforded the Prefect of Police "a surveillance of their ability and zeal."[15] This surveillance, however, was not only vertical, but also horizontal. The prefectorial administration's adoption of anthropometry was contingent on the condition "that a premium of ten francs [about $2.00] should be allowed to any police officer or prison keeper in Paris who would report to the authorities failure to identify, and that the sum in question should be deduced from the salaries of the anthropometrical agents."[16] Bertillon touted that this self, peer, and central surveillance of anthropometrists resulted in an average of only 3.5 mistakes out of the 30,000 criminals indexed per year over a four-year span. For Bertillon, this miniscule fraction

meant, "The Probability of being recognized after having been once measured is equivalent, then, to certainty, so far as it is possible to approach that ideal."[17] Notably missing from this wealth of corporeal data, however, was America's most common corporeal measure: race.

Race and the Bertillon System of Identification

While Galton strained to fit his types into preexisting categories, Bertillon created his own classifications. The former set out to converge; the latter set out to divide. The fatal flaw of Galton's predictive machine was his investment in the existing categories of race. Bertillon, however, eschewed the concern for prediction in favor of a concern for preservation, the preservation of subjective identities through meticulous, copious record keeping. For Bertillon, the goal of the system is "to preserve a sufficient record of the personality to be able to *identify* the present description with one which may be presented at some future time."[18] It provides "*proof of identity*" so that it may create "*proof of recidivation*."[19] To obtain these proofs, the Frenchman believed it necessary to figuratively divide and dissect each criminal body.

The precise number of measurements and descriptions of features recorded varied by country and year, but the 1896 edition of the internationally distributed manual for the Bertillon System of Identification suggests 11 "chromatic" characteristics, 30 "morphological" characteristics, and 81 "complementary" characteristics be recorded. Bertillon's 122 categories signal his desire to create a system of classification that would be simultaneously standardized, precise, and comprehensive. To achieve this goal within

the storm of the disarray that surrounded him at the Paris Prefecture of Police, Bertillon sought out measures that would reflect facts without the prejudices that permeated the social world.

Bertillon's system has three pillars of "signalment" that it stands on: anthropometric, descriptive, and signalment by peculiar marks. In anthropometric signalment, the anthropometrist records the precise measurement of a part. But such precision occludes indexing, so Bertillon divides the each measurement into the categories of large, medium, and small. Prior to the implementation of signaletics, clerks would employ similar categories. These descriptions, however, were based on a judgment local to the clerk. Bertillon understood the binomial distribution Quentelet discovered in his study of the biometrics of infantrymen and recognized that even if these localized judgments were accurate, they would possess scant utility. "The probability of meeting any specified dimension, height, cranial diameters or osseons lengths, diminishes rapidly and symmetrically in proportion as we depart in either direction from the medium dimension which is necessarily the most frequent," writes Bertillon.[20] In other words, small-medium-large classifications tend to produce an extra large-medium category and extra-small large and small categories. To correct the problem, Bertillon gathered data on the averages of each measurement and split them into three equally sized categories of large, medium, and small. For instance, "to distribute a human group into three equal parts based on stature, the median height ought to compromise only subjects from 1 m. 620 to 1 m. 679 while the small division should extend from α to 1 m. 619, and the large

from1 m. 6.80 to ω."[21] What resulted were perfectly equal divisions; standardized, precise measures replaced personal, prejudiced judgments.

In descriptive signalment, the anthropometrist describes phenotypic features "in words, by the aide of observation alone, without the assistance of instruments."[22] This class of signalment seems easiest to record. Eye color appears self-evident, but as Bertillon notes the ostensible color of the eye results from a blending of the ground-tint and the intensity of the pigmentation, both of which appear different depending on light. For him, common categories are totally unscientific. "[An] obstacle with which one has to contend arises from the presence in current speech of expressions which, though very characteristic, bring together various attributes, and consequently cannot be given a place as such in a series," writes Bertillon.[23]

Race, that category on which acted as the crux of Galton's system of identification, was of little concern in Bertillon's system. Traits conventionally associated with the phenotypic construction of race such as skin color, hair type and color, and nose shape held no special position in the original construction of Bertillonage. On skin color Bertillon writes:

> "We commonly speak of the *ruddy* complexion of the drunkard, and of the *swarthy* complexion of a mulatto; and yet it would be impossible to find a natural series of intermediate terms leading from one to the other. This is because the complexion is a result of a combination of two elements which vary independently: the *sanguineous coloration* and the *pigmentary coloration*. The first term considers only the greater or lesser quantity of blood that the

> transparency of the skin allows to be seen; and the second the variation of the yellowish matter which colors more or less abundantly even members of the white race."[24]

This schema of skin color is quite remarkable for its time. Bertillon employs traditional racial types such as the mulatto only for illustrative rather than categorical purposes. Furthermore, personal perception is not the basis for the system. Only through careful study of two independent traits can the anthropometrist obtain an image of the skin color. And, when alluding to blood, Bertillon makes no use of the racial, ethnic, or nationalistic classifications instrumental to the dominant construction of race in the nineteenth century.

The crux of the original version of the Bertillon System of Identification was not a traditionally racialized body part such as the skin, the hair, the nose, the eyes, or the lips, but rather the ear. Bertillon writes, "The ear, owing to the many hollows and ridges which furrow it, is the most important means of identification in the human visage."[25] Though short on evidence, he believed that each ear is unique and goes unchanged over a lifespan. So, the system called for four measurements of the appendage's border, lobe, antitragus, and folds, resulting in sixteen measurements with three to five subdivisions per measure. In Bertillon's 1896 version of his manual, 15 pages are dedicated to instructing the anthropometry agent in the precise measurement of the ear. The centrality of the ear may be laudatory design in terms of the system's ethics, but in terms of the system's practicality, it was perhaps its death knell.

By the time the Bertillon system was finally imported to America, a new system of identification had already begun to thrive in Europe: dactyloscopy. The use of fingerprints as means of unique identification dates to the Former Han dynasty in China. From there, the practice proliferated to Japan and Tibet where fingertips were used as signatures or seals and it was in colonized India that fingerprints entered Western consciousness.[26] In the late 1850s, British officer William James Herschel modified the Bengali peasants' practice of using fingertip ink-prints as a means for hunting and divining into a means of policing by recording colonial subjects' inked hands on official documents so that they may be identified at a future time.[27] Henry Faulds, a missionary in Japan, also thought to employ fingerprints for identification purposes after he came into contact with ancient Japanese pottery signed with finger impressions.[28] Faulds corresponded with Charles Darwin, who forwarded news of this discovery to his cousin, Francis Galton.[29] While Galton failed at composite portraiture, he succeeded in making fingerprints into an indexical system. His system, which divided fingerprints into three basic patterns—arch, loop, and whorl—, harnessed the novelty of prints by entering them into a divisible table of categories. But since the division of these categories was more natural than arbitrary, the usefulness of Galton's index remained limited. Juan Vucetich working in Argentina and Edward Henry, Azizul Haque, and Chandra Bose working in India eventually fully operationalized the use of fingerprints as a means of identification by subdividing loops and whorls into secondary categories based on ridge counting, ridge tracing, and the relation between points.[30] Since Galton demonstrated statistically that

the odds of duplicate fingerprints in the world population was one in four, fingerprints began to be perceived as a valid and reliable identifier.[31]

The development of dactylscopy posed a serious threat to Bertillonage. Whereas the measurement of the ear alone took five minutes, a special set of tools, and an anthropometrist with extensive training, fingerprints required just seconds to record, used only ink and paper, and could be captured by a clerk with only rudimentary preparation. Writing in 1915, lawyer Raymond Fosdick reflected, "From the moment that the superiority of the finger-print system was understood there has never been a doubt that the Bertillon method was doomed."[32] While Bertillon's system quickly fell out of favor in 1890s America, it was not as thoroughly dispensed with as these early critics thought. As Allan Sekula notes, the Bertillon system began to yield to the more efficient and less cumbersome method of fingerprint identification, however, "hybrid systems operated for some years."[33]

Neither the first French edition nor the first English translation of Bertillon's instruction book includes any racial classification. However, the 1896 English-language version of his instructions added a racial category to be filled in with such imprecise classifications as "pure negro, negro greatly (or slightly) crossed, Chinese, Japanese, cross of Kanaka and European, etc."[34] In a footnote to this addition, Bertillon cites lobbying from English officials as the catalyst for this change. This explanation makes sense since just a few years before the edition's publication, Edward Henry, the head of the colonial Bertillon bureau in India (and refiner of the fingerprint system), had modified the bureau's system to include the racial and ethnic origin of criminals on each Bertillon

card. While Henry and his compatriots may have been the ones to sway the French criminologist to alter his system, they were not the only ones to blend the science of Bertillonage with the pseudoscience of race. America, too, was experimenting.

The Racialization of the Bertillon System of Identification

Concurrent with America's search for a system of identification was a penal reform movement that pushed for individualized sentences with maximum and minimum terms set by the crime, maximum and minimum terms partially set by the judge, and wholly indeterminate sentences. Illinois was at the forefront of the movement and experimented with indeterminate sentences as early as 1867. However, parole boards lacked the data necessary to track the success or failure of any "types" of parolees. As Bernard Harcourt puts it, "few inmates were paroled, and those that who were, were 'guessed out of prison."[35]

Coming out of the state most committed to the indeterminate sentencing experiment and coming into an era of progressive reform, it is hardly surprising that McClaughry was dedicated to the establishing a parole system. As early as the 1880s, McClaughry held a view like the many progressive reformers who would follow in his wake that criminals could be rehabilitated. But while he believed that most could be rehabilitated, he also suggested that some could not.

Of great concern for McClaughry was the habitual criminal. Unlike Galton, the warden suggested no link between the habitual criminal and racial minorities. However, an 1888 address McClaughry delivered to the National Prison Association makes it clear

that his concept of the habitual criminal relied on the emerging biopolitical discourses. The habitual criminal, argues McClaughry, "remains a dangerous enemy to society, in the influence he may have upon others, in generating and perpetuating a race of criminals, and in his own repeated acts of lawlessness."[36] In this estimation, habitual criminals are a race unto themselves. They, like the eugenicist construction of African Americans or Chinese Americans, are seen as possessing an innate inferiority that cannot be altered, and that must not be allowed to reproduce with the dominant population because they could dilute the strength of future generations and jeopardize the future of the human race.

For McClaughry, the job of prison managers such as himself and the prison associations he was a part of was to distinguish between the occasional offender and the habitual one. While he was supportive of parole, he was displeased with its current practice because it failed to sufficiently distinguish these two groups of criminals. "For parole to work more effectively," writes Frank Morn, "[McClaughry] noted, the past life of the prisoner needed to be considered."[37] McClaughry envisioned this knowledge of the prisoner's past not simply as anecdotal knowledge or testimony, but rather statistical knowledge, that is, knowledge of the sort the Bertillon system could provide.

In its first years Bertillonage served only for the identification of individual criminals. But thanks to the Illinois's 1895 Sentencing and Parole Act, the system was on its way to fulfilling to McClaughry's hopes of it offering a historical record for parole decision. Section 5 of the Act required:

> "Whenever any person shall be received into any penitentiary, reformatory or other institution for incarceration, punishment, discipline, training or reformation of prisoners or wards of the State, the said Department of Public Welfare shall cause to be entered in a register the date, the name, the nativity, nationality, with such other facts as can be ascertained of parentage, education, occupation and early social influences as seem to indicate the constitutional and acquired defects and tendencies of the prisoner or ward … The said department shall carefully examine each prisoner or ward when received and shall enter in a registry kept by it the name, nationality or race, the weight, stature and family history of each prisoner or ward, also a statement of the condition of the heart, lungs, and other principal organs, the rate of pulse and respiration, the measurement of the chest and abdomen, and any existing disease or deformity, or other disability, acquired or inherited…."[38]

Since Bertillonage had already installed the measuring equipment, processing spaces, and agents necessary to construct such information, the collection of the data mandated by Section 5 was quite easy to implement. Indeed, all it required was some minor revisions to the "Bertillon cards" that contained the anthropometric measures of inmates. But while only a few new categories were added to the cards, the substance of these categories changed the entire nature of the system. The addition of items such as nativity, nationality, race, family history, and health altered the system from one whose primary purpose was to individualize to one whose primary purpose was to group. While it may have been the British who persuaded Bertillon to include race in the 1896 version

of his manual, the practice began in Illinois a least a year before. The state was clearly making an effort to tie the "criminal race" to the, in Foucault's terms, "subraces." But because of its commitment to a statistical methodology, the linkage took decades to proceed.

Racializing Parole Prediction

The overarching goal of the 1895 Sentencing and Parole Act was to improve the success rate of parole by identifying candidates unlikely to offend again. And like most social reform projects in the late-nineteenth century, the authors of the Act believed that the best way to identify the best candidates would was through the collection of statistics on the population in question. So while fingerprinting had begun to replace Bertillonage in other parts of the country, Section 5 expanded the information it gathered and ensured that the system would persist years after Bertillon and McClaughry passed. For three decades the state collected dozens of numbers on each inmate that entered any of its prisons. Finally, in the mid-1920s, it felt that enough data had been collected to allow chance in parole decisions to be tamed.

In the winter of 1926, the state created the Commission on Indeterminate Sentences and Parole. Since parole was seen as an issue corrupted by politicians, the politicians turned to the state's most prestigious universities to give the commission an air of impartiality and objectivity. Northwestern University Law School offered the services of Judge Andrew Bruce, the University of Illinois Law School contributed Dean Albert Harno, and the University of Chicago gave the study sociologist Ernest Burgess.

Bruce was tasked with the study of the history of punishment and parole in Illinois, Harno was tasked with researching relationships between courts and parole boards, and Burgess was given the study's most important assignment: identifying the factors that determine success or failure of parolees.

Illinois was fortunate to have Burgess to study the statistics. Not only was he one of the country's eminent social scientists, but he was also committed to making predictive formulas out of social statistics. While the "Chicago School" of sociology is now known for refocusing the discipline on human ecology, social psychology, urban life, and the social organization, Burgess and colleague Robert Park, also worked to reorient the discipline toward prediction. "Sociology," they wrote in their foundational text, *Introduction to the Science of Sociology*, "like other natural sciences, aims at prediction and control based on an investigation of the nature of man and society, and nature means here, as elsewhere in science, just those aspects of life that are determined and predictable."[39]

For Burgess, predicting the social world of the future depended on understanding the social interactions of the past. The committee's report echoed this conception, stating: "the Board should be free to consider all the facts connected with a prisoner's past life, for so only can it act intelligently in forecasting the likelihood of his success on parole and afterwards."[40] And while the committee did not have a total knowledge of criminals, it did have the most comprehensive stable of historical statistics on criminals in the United States thanks to the Bertillon/Section 5 data.[41] From this data, Burgess

identified twenty-two categories he found likely to yield a correlation with parole violations or success. They were:

> "(1) Nature of offence; (2) number of associates in committing offense for which convicted; (3) nationality of the inmate's father; (4) parental status, including broken homes; (5) marital status of the inmate; (6) type of criminal, as first offender, occasional offender, habitual offender, professional criminal; (7) social type, as ne'er-do-well, gangster, hobo; (8) county from which committed; (9) size of community; (10) type of neighborhood; (11) resident or transient in community when arrested; (12) statement of trial judge and prosecuting attorney with reference to recommendation for or against leniency; (13) whether or not commitment was upon acceptance of lesser plea; (14) nature or length of sentence imposed; (15) months of sentence actually served before parole; (16) previous criminal record of the prisoner; (17) his previous work record; (18) his punishment record in the institution; (19) his age at the time of parole; (20) his mental age according to psychiatric examination; (21) his personality type according to psychiatric examination; and (22) psychiatric prognosis."[42]

In the 1928 publication that resulted from the study of these factors, Burgess recommends that the state use 21 of them in predicting parole.

Though race does not, at first glance, appear to be one of the 22 factors tested it was very much a part of the research. Category 3 is listed as "nationality of the father," but throughout the description of the research, Burgess alternatively refers to it as "national or race origin."[43] And in his notes, the sociologist identifies 23 different

national or race origin groups including "American white," "American negro," and "Mexican" as well as 18 different European nationalities, "Canadians," and "other nationalities."[44] In the published summary of the study, Burgess reports "the smallest ratio of violations among more recent immigrant groups like the Italian, Polish, and Lithuanian and … the highest rate of violation among the older immigrants like the Irish, British, and German."[45] It was, however, enough of a factor to remain in the formula he recommended to the state. While he did not include a recommendation on the weighting of each national or racial origin group in the publication of the findings, the archived record of his calculations allows us to gain a sense of who had an advantage. There are many groups such as the Welsh (only 5 parolees) and the Swiss (only 2 parolees) whose sample sizes where likely insignificant to a well-trained sociologist such as Burgess. However, he likely put had a much greater degree of belief in his records of "American whites" and "American negroes" who samples were 1986 and 495, respectively. Burgess found that 39.52 percent of whites violated their parole and 53.98 percent of African Americans violated theirs.[46] Given this statistically significant gap and no correction for inequities in law or policing, the inclusion of this factor in Burgess's formula meant that "negroes" would be less likely to gain parole because of the past performance of other members of their race.

But that was not the only strike against blacks in Burgess's formula. Even though Burgess's published text was largely devoid of overt mentions of race, it played a significant role in statistics used to build the foundation of the test he went on to recommend to the state of Illinois. In particular, race again became an instrumental part

of the rating potential parolees through its inclusion in Burgess's "type of neighborhood" factor.

In his assessment of the importance of the "type of neighborhood" factor, Burgess writes, "It is apparent … that the neighborhood of last residence previous to commitment is an important index on whether or not a man will make good or fail when put on parole."[47] In the social scientist's mentions of it in the published report, he offers examples of neighborhood type such as "rooming house district" or the flowery category, "hobohemia," but he stops short of offering a full list of the classificatory schema.[48] The complete set of data on "Neighborhood in Relation to Record on Parole," however, survives in Burgess's personal papers and includes nine categories, most notably "negro neighborhoods" and "negro rooming house neighborhoods."[49] Since these two race-based categories are also the categories with the largest number of parole violations they also become the categories potential parolees are most penalized for. In Burgess's final parole prediction test, African Americans quickly accumulate two strikes against their case.

Though Bernard Harcourt—author of the most comprehensive study of the Burgess's actuarial parole test—failed to appreciate the formula's deep-seated reliance on race, his research on the extent of its use is useful here. He notes that by 1932, Burgess's test was in use in the Illinois State Penitentiary and in the following year inspired the hiring of a prison actuary to guide the implementation of the formula. The use of the test then spread throughout the state in 1935 and by the end of the 1930s it had become commonplace for a penal system actuaries to prepare a "prognosio" report based on the

Burgess probability scale. While the Burgess test was rather simple since it only adds the variables together to create its score rather than employs a weighted multiple-regression analysis, as Bernard Harcourt notes, "it set the precedent that heavily influenced other models, including the later federal parole decision method."[50]

Burgess's formula not only inspired other actuarial formulas for parole decisions, but also inspired others to write race into their formulas as well. Burgess's research assistant on the indeterminate sentencing and parole study, Clark Tibbitts, crafted a formula in 1931 that actually included a literal black mark against African American candidates for parole and like Burgess doubled down on race by including a rating of the racial composition of the neighborhood.[51] The following year, the University of Minnesota's Elio Monachesi constructed a formula that included the factors: "nativity," "nativity of parents," "type of neighborhood in which reared," and "type of neighborhood lived in immediately prior to probation."[52] A 1939 survey from the Office of the Attorney General likewise identified "race of father" as the number one factor for its tests of the existing parole methods and concluded that race was a good predictor of success on parole.[53] Additionally, Michael Hakeem's 1948 formula used "nationality of father" and "type of neighborhood" and Bernard Kirby's 1954 formula used "race" and "rating of neighborhood."[54]

The Regression of Progressive Reform

Warden McClaughry's importation of the Bertillon System of Criminal Identification opened the conditions of possibility for all these formulas. The

Americanization of the system represents a common line of thinking in the Progressive Era. On the one hand, it expressed the belief that anyone could make a mistake and deserved minimal consequences for a first time offense. On the other, it put forth the argument that *some* criminals were beyond redemption. In prison managers' search for the habitual criminal, they tried to equate the "criminal race" with various racial minority groups through the use of statistics. There was no practical plan to link these "races," however, until the wardens' identification project found a partner in another progressive project: parole reform. In Illinois at least, parole reform ensured that robust biometric and socio-metric measures would be kept long after dactyloscopy replaced their utility elsewhere.

The timing of this data collection was also in large part responsible for its profound effects. Whereas the early nineteenth-century "avalanche of printed, public numbers" meant that most social measures had been available to researchers in some form for the better part of a century, criminal statistics were not kept consistently. This prospect of analyzing this unanalyzed, private data undoubtedly made it attractive a large range of social scientists. Burgess, though, was an ideal candidate for the job from the start. Not only was he local to the data collection, but also he had already committed himself to turning the field of sociology into a science of prediction. Prediction was not Burgess's only interest, though. Race and the structure of cities also occupied a large place in his scholarship, as well. It is unsurprising he would be eager to test these factors his development of an actuarial formula for parole. What is surprising—given the esteem he is held in throughout the sociological discipline still today—is his lack of controls, in

other words, his lack of accounting for history and disparity. This sloppy, willfully ignorant, or perhaps even consciously racist research had a lasting influence. Race would not exit the actuarial formulas of parole decisions until the 1970s. Even before its proliferation in prison management, though, one of Burgess's pupils would take a cue from his mentor and place the racialized ratings of neighborhoods at the center of one of the largest social programs in the country's history.

Chapter 4: Risky Neighbors

"The word 'value' refers to the ability of useful objects to meet the needs or satisfy the desires of human beings. The meeting of such needs and the satisfying of such desires requires the occurrence of events which always lie in the future, never in the past. When a need is met or a desire is satisfied it ceases to exist. It is true, therefore, to state that 'value' is the present worth of benefits which lie in the future."
Federal Housing Administration Underwriting Manual[1]

Intervention

The first pangs the 1920s economy felt came not in the stock market, but rather in the housing market. In 1926, foreclosures on mortgaged housing structures began to rise and nearly doubled by 1929. When investors rapidly lost confidence in the future of the economy that October, credit for potential homebuyers dried up. With no new buyers and rising unemployment, foreclosures nearly doubled once more in the three-year span from 1929 to 1932.[2]

To stem this full-blown housing crisis, in the final year of his term, President Herbert Hoover authorized the Federal Home Loan Bank Act and the Emergency Relief and Construction Act. The former established the FHLBB, which extended credit to select savings institutions to reinvigorate home financing. The latter established the Reconstruction Finance Corporation, which made loans to developers of low-income housing. The immediate effect of each was modest and foreclosures rose again to a new high in 1933, exceeding a quarter-million for the first time in the country's history. Moreover, reflecting the dire state of development capital and consumer credit, foreclosures outpaced the construction of new housing roughly 2.6 to 1.[3]

So when the Franklin Delano Roosevelt's captured the White House, he made advancing a more drastic, impactful, and permanent solution to the crisis a priority. The Roosevelt Administration began its intervention in housing by establishing the Home Owner's Loan Corporation (HOLC), which offered federally guaranteed bonds in exchange for mortgages in default and small loans for the payment of taxes and refinancing. HOLC was, however, always only envisioned as a first step to resuscitate the housing market. It was given a finite amount of funds, which it had dispensed entirely by 1936.[4]

The next and much more permanent step in the housing market intervention came in the summer of 1934 with the passage of the National Housing Act. This legislation created the Federal Savings and Loan Insurance Corporation to back deposits at savings and loans and the Federal Housing Administration (FHA) to insure mortgage and remodeling loans. It also called for the establishment of a national mortgage association, what would eventually be Fannie Mae.

One of the root causes of the mid-to-late-1920s housing bubble was the local character of mortgage loans. Lenders in and before the 1920s rarely possessed the statistics necessary to gain a sense of housing trends on a national, state, or even county or city scale. The lack of perception about long-term trends kept mortgages to short lengths of three to five years and strained buyers with a rapid repayment schedule. So when the federal government entered the business of insuring mortgages, it knew it needed to gain a sense of the regularities in the housing industry of the country. The National Housing Act that birthed the agency mandated that the FHA produce "statistical

surveys and legal and economic studies … useful to guide the development of housing and the creation of a sound mortgage market in the United States."[5]

While the bill called for statistical research to become an integral part of the agency, the FHA could not delay its progress while it waited for results. It was, after all, an *emergency* relief program. But mutual mortgage insurance was unprecedented. The FHA was faced with the difficult task of setting standards for an industry that did not yet exist. Without predecessors or peers, the FHA turned to experts in related fields to construct its valuation and risk rating procedures. This unique situation, meant that a very small number of men—three, principally—dictated the underwriting policies that significantly shaped the racial geography of America for generations.

Evaluating Value

The FHA's very existence exposes the state's embrace of an interventionist role in the economy. The agency's definition of value in the inaugural (1934) edition of its *Underwriting Manual* offers us insight into the way in which this intervention would occur. To the FHA, value was not determined simply by what an object could be used for or what longing it could sate at present. Instead, the value of any object was to be determined by projecting an object's potential utility or potential satisfaction over time.

That the FHA embraced a speculative idea of value was no surprise. Indeed, it was concomitant with the agency's purpose and the capitalist economy it set out to rescue. The FHA's primary role was to insure mortgage and remodeling loans for homes in a stagnant economy. It sought to reinvigorate the credit economy by introducing

security in a time when confidence was in short supply. Since the insurance business is necessarily a speculative one, the state needed to assess value through projections of the future. And to securitize their investments, the state identified an elaborate set of characteristics it believed to enhance, sustain, and/or detract value from real estate over time. These factors tell us not only *how* the state valued but also *what* the state valued.

The most revealing risk rating of the FHA's *Underwriting Manual* is its eight-factor "Rating of Neighborhood."[6] Though titled somewhat innocuously, this assessment was, in essence, a risk rating of race. It assessed properties on the current racial composition of the neighborhood and on the projected racial composition after taking into account migration trends in the area. If "inharmonious racial groups" had already "infiltrated" the neighborhood, the underwriting standards disqualified the property.[7] But even areas free of "inharmonious" races were not necessarily given a passing rating. In order for a bank to recoup its investment in a property and therefore require no indemnity from the FHA, the value of a property had to remain stable or increase over the length of a mortgage. So, risk was projected into the future to value value in the future. Properties had to prove themselves unlikely to fall to future "invasions" by undesirable racial minorities for at least the length of the 15- or 20-year mortgage. To secure the racial purity of its insured areas the FHA invested only in properties that were heavily zoned, offered natural or built barriers that discouraged encroachment from surrounding sectors, and demonstrated a commitment to self-policing by adopting and enforcing racially restrictive covenants.

Racially restrictive covenants were an agreement between homeowners and their neighborhood, which stipulated white homeowners could not sell their property to racial minorities. Should a white homeowner sell to a racial minority, the person of color would be banned from moving in and the property would legally be forfeited to the neighborhood. In 1947, John Dean conducted the first study of racially restrictive covenants and found most citing FHA underwriting standards in their rhetoric. The promise of insurance was more than enough for many neighborhoods to place race restrictions in the legalese of their deeds.[8] This proliferation of racially restrictive covenants signifies that the FHA's selective investment in already racially segregated neighborhoods not only subsidized pre-existing racism, but also fostered its expansion. The FHA's profound resources and profound scale meant that it was fundamental in shaping the racial geography of the United States. The United States was undoubtedly already segregated before the FHA. The gold standards of segregation measures—isolation and dissimilarity indexes—show a highly ghettoized country already in the first decades of the twentieth century. They also show, though, that the ascent and apex of segregation coincided almost precisely with the period in which FHA employed race in its mortgage-insurance underwriting standards.[9]

In this chapter, I work through the intellectual history of the FHA to show how it adopted the discourse of racialized actuarial science and integrated it into the social insurance of the New Deal. This development shows that even after key figures in statistics such as Hoffman had recanted their claims and admitted that centuries of unequal treatment rather than biological inferiority accounted for the racial disparities

found in risk assessments of morbidity, mortality, creditworthiness, and criminality, the discourse had not changed. Insurance cares about correlation and not causation. Even though many insurers profited directly from generations of racial oppression, the industry did not feel compelled to right past wrongs at the expense of its profit. Such responsibilities fell to the state. Yet even in the crisis of the Great Depression—at the height of the state's interventionist ability—the United States government did not assume such a responsibility.

Rather than ensure the equal opportunity for all its citizens to obtain assistance for the basic need of housing, the state insured mortgages as a private insurer would. The mutual mortgage insurance program traded the biological racism of the nineteenth century, for the calculating, economic indifference of twentieth-century racism. By placing the FHA in the genealogy of racialized actuarial science, we will see that while lauded as one of the most impressive social programs in American history, the FHA's mutual mortgage insurance program viewed itself as more responsible for the wellbeing of capital than for the wellbeing of *all* its citizens.

Calculating State Values

The National Housing Act that birthed the FHA described the mission of the agency. It was, in short, intended to provide mutual mortgage insurance in the hopes that this security would fund new development in a stagnant housing market. The act, however, barely discussed the way in which the agency was to go about accomplishing that mission. It wrote nothing of how the FHA was to choose which mortgages to back.

Compounding this lack of direction was the fact that the agency had no predecessor or peer in mutual mortgage insurance. Like any sound insurer, the FHA chose to err on the side of caution and chose men with deep knowledge of the value of housing.

Within months of its inception it hired three men supremely qualified to develop its risk rating procedures. From the University of Michigan it hired Ernest Fisher, from the University of Chicago it hired Homer Hoyt, and from Chicago's Babcock and Sons it hired Frederick Babcock. Though actuaries were curiously missing from the bunch, these men had made their careers around assessing value trends in the housing through longitudinal, statistical studies. Each had come to view real estate valuation as process of assessing statistical trends, identifying variables that risked significant depreciation, and crafting strategies to avoid investing in areas in which such risk factors commonly occurred. Furthermore, each possessed superior credentialing from universities and businesses.

Fisher, perhaps the country's preeminent real estate economist, had worked to identify ways to stabilize real estate values and was the only scholar before the 1930s to study the insurance industry's investments in real estate. Babcock made a name for himself at his father's real estate valuation firm in Chicago by finding correlations between a wide range of social influences and property values and had two books on the subject published by scholarly presses. And Hoyt's text, *One Hundred Years of Land Values in Chicago*, was one of the first and by far the most significant longitudinal studies of American real property values written to that point.

The agency hired Fisher first and he hired in Babcock soon after to collaborate on the appropriate method of risk assessment for this federal insurance program. Babcock suggested the FHA act like any other insurer and construct an actuarial formula to rate the risk of underwriting properties and borrowers.[10] The instructions and formulas for these ratings would then, Babcock imagined, be compiled into a manual to distribute to mortgage-lending institutions. Compiling and combining their statistical valuation procedures, Fisher, Babcock, and Hoyt became de facto actuaries. In the fall of 1934, they began collaborating on an actuarial formula to guide the FHA's mortgage insurance standards. By that November, its first edition began printing. Such a quick turn around certainly reflected the consensus the men shared on how to evaluate value.

Though Fisher came from an academic background and Babcock from industry, each contributed a monograph to University of Wisconsin economist Richard T. Ely's three-volume Land Economics Series and each cites Ely as an inspiration for their books.[11] By the time the series was published in the early 1920, Ely had established himself as one of the most prominent economists in the country as well as a key figure in the progressive movement. However, his arguments for governmental regulation and social assistance always carried the caveat that social reform must not interfere with social Darwinism. Though Ely and Hoffman held diametrically opposed views on the utility of social insurance, Hoffman's biographer cites Ely as a key figure in the German's early education.[12] Furthermore, the American Economic Association—which Ely founded in 1895—made Hoffman's *Race Traits* one of its first publications. Across his oeuvre Ely attempted to align racial minorities with risk and in the 1920s, began to

translate this association into his burgeoning interest in real estate valuation. Ely worked to reorient real estate valuation away from land and property's present utility and toward estimations of its potential utility in the future. He agued that the state needed to check investors motivated only by profit, and heavily regulate land use and building construction to securitize the future of American metropolises. Among the methods he had in mind to securitize the long-term value of property, Ely called for the passage of more laws like California's Alien Land Law, which barred Asian immigrants from owning or possessing long-term leases over American land. "We may as well take it for granted," writes Ely, "that certain racial and national groups will not intermix and intermarry." Furthermore, he contends, in neighborhoods where "lower standard group[s]" purchase real estate, "land values drop."[13]

Ely's theorization of the need for increased government intervention was another means to Hoffman's end, that is, letting the American Negro die out. For Hoffman, the deregulation of American business was the natural course to allow for the natural death of non-white races. For Ely, the micro-level regulation of American business (in this case housing) was the best path to such a biopolitical death. For each, the argument came down to pro-capitalist, pro-nationalist economics. They viewed African Americans and other people of color as a drain on the limited resources of the United States and sought to defend the state and its favored people through a disinvestment in a "dying breed." Ely spatialized Hoffman's theory of the riskiness of people of color and his protégés in land valuation put this new iteration of the theory into practice.

Fisher was a pioneer in housing and its theorization. He was one of the first to advocate for the insurance of home loans and his interest in insurance seems to have encouraged him to envision the utility statistics could provide for real estate valuation. Rather than base values on personal judgment, Fisher argued for schemas that rate properties in relation to national and citywide trends and in relation to the exact situation of a property within its community. In his *Principles of Real Estate Practice*, Fisher suggests that valuation should proceed through the assessment of "factors" that have historically proven useful in projecting a property's worth over time. Chief among these factors is "character of the community." This factor, writes Fisher, is "The most important consideration in determining the value of residential property."[14] For as Fisher writes in his elaboration of the method, "The purchase of property by certain racial types is very likely to diminish the value of property in the section."[15]

Fisher's interest in insurance and statistics also engendered a concern for security in his theorization of housing value. He encouraged developers to purchase easements to obviate the danger of encroachment from undesirable populations such as businesses and manufacturers. "Constant alertedness," he wrote, "is necessary to safeguard the interests of the subdivision properly."[16] Furthermore, he advocated for "desirable restrictions" including building lines, restrictions regarding the nature of buildings and the placement of infrastructure, and, what would become a key organization in the enforcement of race restriction, "improvement associations." Additionally, Fisher proffered that "zoning can do for the city as a whole what careful planning does for the subdivision."[17] While this city planning activity may seem to have little relationship to racial segregation, as David

Freund has shown, zoning was key to the segregation of the United States, especially the segregation of American suburbs.[18]

Babcock was even more familiar with theories of probability than Ely or Fisher and even more invested in securing the racial purity of residential areas. In Babcock's massive tome *The Valuation of Real Estate* he offers perhaps the most extensive argument for the incorporation of statistical data in the valuation of real property. For Babcock, the belief in and use of statistical forecasting is a signifier of a societies' and individuals' genetic fitness.[19] "Forecasts based on statistics," writes Babcock, "determine nearly everything that men do today because, throughout the centuries, only those men whose conduct has been thus actuated have survived and reproduced their kind."[20] The challenge of evaluating value lies in forecasting and to properly assess a home's potential to yield value in the future the appraiser needs to collect a wealth of statistical information that captures the character of the land, the home, the neighborhood, the city, the real estate market, and the economy in general. The challenge for any forecaster is to separate the genuinely predictive data from that which is simply noise. In the determination of Babcock, race was a clear signal in a noisy mass of statistics.

To Babcock, "the character, the race, the movement, and the very moods of people are the ultimate factors of real estate value."[21] In his *The Valuation of Real Estate*, he dedicates a chapter to the "Influence of Social and Racial Factors on Value."[22] Since he is so committed to projecting the future, in this section, Babcock argues that valuators must consult data not only on the current racial composition of an area, but data on the trends of "racial movements," too.[23] While Babcock argues that "most …

differences between people are slight and value declines are, as a result, gradual." However, he continues, "But there is one difference in people, namely race, which can result in a very rapid decline."[24] Babcock arrives at many of the same solutions Fisher suggests in order to defend neighborhoods from the threat of penetration from racial minorities. Avoidance is the foremost tool of the investor; a statistical understanding of what types of neighborhoods are likely to fall to racial minority groups allows those investing in real estate to all together avoid the problem. For cities and new developers, strong zoning acts as a key defense. But Babcock notes the limitations of zoning and advocates for outright segregation, which has proven itself in the South.[25]

Though not involved with Ely and his Land Economics Series, Hoyt's methods of valuation were similar to that group's. Hoyt came out of the University of Chicago's economics department, but his work with the university's famous sociology department forged his investment in predictive social science.[26] His *One Hundred Years* set out to do nothing less than "discover the laws and behavior of social and economic factors governing urban land values."[27] The person who determines "what establishes the lines of cleavage between areas of intensive utilization and high land values and those less favored districts that will be thinly settled and used for purposes that yield lower returns," writes Hoyt, "…will reap a fortune."[28] To obtain that fortune, Hoyt, like Fisher and Babcock, believed that investors must pay special attention to "the points of settlement and lines of expansion of different races and nationalities."[29] Unlike Hoffman, Hoyt offers no defense of race prejudice. In fact, he admits that racially prejudiced attitudes "have no reasonable basis."[30] Nevertheless, he feels he cannot ignore what he considers

one of his "laws of behavior governing land values." For him, it is simply a fact that property values will decline in areas that experience an influx of racial minorities. Hoyt's outlining of the laws and behavior influencing value landed him the position of Principal Housing Economist of the FHA.

The *Underwriting Manual* Fisher, Hoyt, and Babcock constructed rated the risk of five categories corresponding to: the property, the neighborhood, the relation of the property to the neighborhood, the borrower, and the mortgage pattern. Risk was rated on a scale of A to D relating to percentage scores for each category. If an application scored lower than 50% in any of the five (later, four) categories or any of their subcategories, it was assigned a score of D and declared ineligible for insurance.

The FHA's underwriting standards for the "rating of neighborhood" most overtly employed race to rate risk. This category sought to predict whether or not a property's neighborhood would remain "stable" and "harmonious" for the life of the mortgage (i.e., 15 to 20 years).[31] The first factor in the risk rating of this section is "stability of neighborhood." If a neighborhood appeared to be a transition to "use by a lower class of inhabitant," the application could be immediately canceled and would require no further review. Should the valuator miss the racial undertones of this statement or not see the presence of an "inharmonious population," he or she would then move onto the subsection entitled: "Protection from Adverse Influences." This factor added points to the applications score for "proper zoning" and "deed restriction" that bar the "ingress of undesirable racial and nationality groups."[32] Should any infiltration by adverse influences appear probable, the valuator could disqualify the application.

Previous analyses of the FHA's *Underwriting Manual* employ various editions of the book and much of the scholarship speaks of them interchangeably. To this point, the argument that the FHA had discriminated racially throughout its existence was inferential, not empirical. The copy of the inaugural version I obtained, now confirms that the agencies underwriting procedures used race to such a large extent that minorities were disqualified from the program since its inception. Subsequent versions add even more stipulations about race to its risk-rating procedures.

The June, 1935 revision of the manual addresses the issue of land that has yet to be developed and insists that for such areas to receive coverage. This version mandates that valuators confirm that developers take steps to secure the racial purity of the neighborhood well into the future. This edition calls for evidence that developers used all "available means to protect the area against adverse influences … to insure that it will develop into a homogenous residential district."[33] In this version, if the valuator is unconvinced that the a development has proper defenses against people of color in place, he was now able to add a point to the calculation of the risk rating that would disqualify the application on its lack on an perceived lack of barriers alone. Additionally, in this first revision to manual, its discussions of race become much more blunt. For instance, valuators must enter an answer risk-rating questions that overtly asses the racial composition of the neighborhood such as, "Are any inharmonious racial or social groups present?" Furthermore, it continues the revision's elaborate concern for the future racial composition of the neighborhood in questions such as "Is there any danger of infiltration of such groups?"[34] Should the valuator answer yes to either of these new questions, there

is virtually no chance the calculation would have computed to a grade that passes the underwriting standards.

In the April, 1936 version, the role of race in its actuarial formula is expanded once more. This version changes its "Rating of Neighborhood" to "Rating of Location," reflecting its more expansive evaluation methods and its concern for the future not just of the immediate subdivision, but also of the racial demography of the surrounding areas and its migration patterns. Reflecting the early methods of Fisher, Babcock, and Hoyt, this version encourages valuators further to assess defense mechanisms proven to secure the racial purity of an area. For the first time in the underwriting manual, valuators are asked to give credit for natural and artificial structures such as hills, ravines, and college campuses offer long-term protection from "inharmonious racial groups."[35] Moreover, this revision requires valuators to investigate not only the presence of racial deed restrictions, but also the neighborhood's record of enforcement.[36]

Additionally, in this version, the race restrictions begin to border on superfluity. Already in the first version of the manual, racial minorities were constructed as "adverse influences" or "inharmonious" neighbors to such a degree that they were effectively banned from applying from the program's inception since their very application would compromise a neighborhood's "immunity." This version, however, added a "character" clause in its "Rating of Borrower" section. Should an applicant of color somehow make it to the final stage in this application process—a virtual impossibility—this vaguely defined character rating would leave any evaluator enough leeway to reject the applicant.

The Ahistoricity of Historical Statistics

Insurers perceive people of color, especially African Americans, as greater risks because the state policies of the past failed to secure their wellbeing. After slavery, the Freedmen's Bureau represented the necessary sort of intervention to right the inequity of the past. Its underfunding and quick defunding, however, ensured that the racial disparities in the most vital of measures would survive. Capital felt no obligation to subsidize the wrongs of the past—wrongs it doubtlessly profited from—and ossified racial disparities by denying coverage to racial minorities. And while individual states intervened (with ulterior motives) in the racialization of insurance, the federal government sat idle. When capital's crisis offered the United States an unparalleled chance to intervene in the economy, however, the state did not demand capital assist in the equitable redistribution of risk. Rather, it employed tactics that helped capital gain an advantage at the expense of citizens of color.

Even though the staff of the FHA justified their decision in economic terms, it is not clear that their choice to racially discriminate was a profitable one. Fisher, Babcock, and Hoyt offer scant statistical evidence that racial minorities repaid their loans at a lower rate, neighborhoods necessarily "turn over" upon integration, or that integrated neighborhoods cannot "work." In their pre-FHA oeuvres, none cited scientific studies that confirm their hypotheses about the connections between race and real estate value. Indeed, already in the 1930s, sociologist Bryn Hovde's study of an integrated community in Pittsburgh had demonstrated that by multiple measures, the neighborhood had proven to be a success.[37] And by the 1940s, sociologist Robert Weaver, had found that there was

no statistically significant difference in rent payment between African Americans and whites.[38]

Even with evidence to the contrary, the FHA continued to use race in its underwriting formulas until 1948. This choice reflects not only how the FHA valued value, but also what the United States government valued in the New Deal Era. It demonstrates that contrary to the popular historical construction of the period, the social programs of the New Deal such as the FHA deeply favored capital. Insurance is a necessarily discriminatory business. It parses poor risks from good risks by assessing factors it knows to have historically indicated the potential likelihood of recouping its original investment and/or profiting on that investment. But employing race in its assessment of risk, the authors of the *Underwriting Manual* made clear that the FHA's mutual mortgage insurance program was a social program for the benefit of capital rather than its most oppressed citizens.

Conclusion: Future Reflections

This history illustrates the danger actuarial science—a supposedly risk-mitigating discourse—can pose. By predicting risk and obviating it, actuarial science promises nothing less than the prolongation of life, the prolongation of value, and the prolongation of pleasures. To come even close to fulfilling these promises, actuarial science must necessarily be historical. It must quantify and order the past to read the probabilities of the future. But while it relies on one past, it often ignores another. In its use of race, it was simultaneously historical and ahistorical. While it computed the historical disparities in morbidity, mortality, education, incarceration, and wealth, it ignored the historical conditions of slavery, indentured servitude, unequal laws, unequal care, and unequal opportunities that created or exacerbated these disparities.

The efforts of civil rights reformers throughout the nineteenth and twentieth century undoubtedly improved the quality of life for racial minorities. But despite such advances, the profit-focused strategies of capital and the austere, neoliberal policies of the state have insured that life remains only marginally improved for racial minorities. The most recent available statistics for the measures Hoffman relied on offer a discouraging portrait of life for African Americans.

Significant gaps in morbidity and mortality remain between African Americans and whites. The United States Center for Disease Control estimated the 2011 life expectancy for (non-Hispanic) whites to be 78.8 while the expectation for the span of (non-Hispanic) blacks' life came out to only 74.8.[1] The CDC also found an infant mortality rate of 5.63 per 1,000 live births for non-Hispanic whites compared with a rate

13.31 per 1,000 for non-Hispanic blacks.[2] The organization's 2011 statistics on tuberculosis rates—the disease that formed the foundation of Hoffman's argument about the weakened morbidity of blacks—found cases in only .8 per 100,000 in whites but 6.3 per 100,000 in blacks.[3] Since the rate of tuberculosis is so low in general now, it has much less significance than in Hoffman's day, but such disparities are also apparent in diseases of more recent origin. For instance, African Americans were seven times more likely than whites to contract HIV in 2010 and the CDC estimates that 1 out of 16 black men and 1 out of 32 black women will get the infection in their lifetimes.[4]

The non-vital statistics Hoffman used to construct the riskiness of African Americans have stagnated, as well. United States Census Bureau reported the median 2011 value of wealth (i.e., assets plus home equity) possessed by whites (of non-Hispanic origin) was $110,500, but for blacks was only $6,314.[5] In 2010, only 4.08 percent of the total white population was arrested for any offense compared to 9.39 percent of the total black population.[6] Additionally, a report from The Sentencing Project on 2009 data shows a federal and state prison incarceration rate for African American males 6.4 times higher than the rate for non-Hispanic white males and 2.8 times higher for African American females than non-Hispanic white females.[7]

In the late twentieth century, a wave of historical scholarship vindicated Du Bois and demonstrated that the racial risk disparities Hoffman identified were environmentally based rather than a result of innate inferiorities. This literature provided historical contextualizations for racial disparities in morbidity, mortality, criminality, and wealth. In their 1995 volume, *Black Wealth/White Wealth*, sociologists Thomas Oliver and

Melvin Shapiro demonstrated the damaging effects on African Americans of the denial of wealth accumulation during slavery and the denial credit in the post-Bellum period.[8] David Oshinski in his 1996 text, *Worse than Slavery* illustrated how inequitable laws and the convict-lease system established the incarceration gap and how such racial gaps in arrest and conviction rates diminished the ability of successive generations of black Americans to avoid incarceration.[9] And in *An American Health Dilemma*, vol. 1 (2000), W. Michael Byrd and Linda Clayton demonstrated how the underfunding and eventual defunding of the Freedman's bureau and its health services harmed the health and longevity of African Americans so profoundly that it contends for the distinction of the most impactful choice the United States government ever made about the lives of country's African diaspora.[10]

The work presented here fortifies their explanations. It also goes further than these scholars by demonstrating how such disparities were maintained. The denial of life insurance may have had only the most minute influence on the general wellbeing of African Americans and other people of color; however, it was instrumental in establishing a statistical link between risk and race that willfully ignored the disparate milieux produced by centuries of racism. Predictive parole formulas had a more direct impact on the lives of racial minorities. By stacking the odds against an early release for people of color, parole boards extended their stays in the miserable conditions of mid-twentieth century penitentiaries and denied them months or years of earning power. Then, in an American crisis, the United States decided to construct a massive social program to "save capitalism," but hedged its bets by investing in white America while

watching its citizens of color fall into deeper financial despair. The effects of this are only rivaled by the general results of the intertwining of the discourses of risk and race. There was perhaps no greater generator of wealth than the single family suburban home the FHA insurance program subsidized and there is perhaps no greater reason for the persistence of the wealth gap than the agency's systematic denial of this asset to people of color.

The research of Oliver and Shapiro, Oshinski, and Byrd and Clayton has exposed the foundation of racial gaps in morbidity, mortality, criminality, and asset ownership, and this dissertation has demonstrated the discourse and tactics used to maintain such gaps from the nineteenth century into the twentieth. The most pressing challenge now facing scholars of race is exposing the continued use of racialized actuarial science. My dissertation concludes its analysis in 1948, the year when civil rights groups finally convinced the United States government to exorcise race from the underwriting formulas of the Federal Housing Administration. That date, however, does not mark the conclusion of racialized actuarial science. It continues in health insurance, mortgage lending, credit scoring, policing, and certainly elsewhere, too. Its continuation is not only problematic for racial minorities, but also problematic for analysis.

The thorough analysis of racialized actuarial science in its infancy and adolescence presented above was possible because of the norms of acceptable speech in the discursive formation it emerged from. In the pre-Civil Rights Movement era, race was a part of the discourse of corporate and government decision-making. The systematic exclusion of racial minorities from the upper echelons of white-owned

businesses and government agencies created an environment where race and racism was discussed openly and even actively written into organizations' policies: Prudential commissioned a book lobbying for racial discrimination; the National Prison Association openly discussed how to associate racial minorities with recidivism at their conferences; Illinois's Committee on Indeterminate Sentencing and Parole advocated for the use of racial parole prediction factors in the published report of their findings; and the Federal Housing Administration sent handbooks to savings and loan institutions across the country demanding bank officers discriminate racially in order to participate in the governmental insurance program.

After World War II, the acceptability of this discourse in a public documents and public settings began to decline. The Double V Campaign of civil rights organizations called for victory over The Third Reich's racism abroad and victory over racism at home. The campaign transformed public discussions about race into public discussions about racism. The struggle for civil rights was, of course, no short battle. It neither began on December 7th, 1941 nor did conclude on May 7th, 1945. As we have seen, W. E. B. Du Bois and Kelley Miller fought against the use of race in actuarial science almost as soon as its use became public knowledge. But while anti-discrimination legislation began to regulate the insurance industry as early as the 1880s, it was not until three years after the end of World War II that the federal government finally stopped using race to bar people of color from accessing mutual mortgage insurance and not until the 1970s that states cleared it from their parole prediction formulas.

Decades of linking racial minorities to risk through statistics gave race a track record of utility in actuarial science. The variable had proven itself risk mitigating and, in turn, profitable to both capital and the state. For its part capital, felt no obligation to remember the history that produced the inequitable conditions which made racial minorities disproportionately risky investments. Nevertheless, the War and its Double V Campaign effectively exorcised overt racism from the discourse of American business in the 1940s and since Civil Rights Movement activists persuaded the state to regulate racial discrimination on a broad, federal level in the 1960s, actuarial science no longer left an elaborate public record of its reliance on racial variables. We know, however, despite the threat of public relations problems and governmental sanctions, race continued in actuarial science. What we don't know is the extent.

Gradually after the mid-twentieth century, stronger anti-racial discrimination legislation required that the industries that rely most heavily on actuarial science—finance, credit, insurance, and health care—share their formulas with governmental regulators. The proprietary nature of these equations, however, made them all but inaccessible entirely to the public or scholars. Therefore, racialized actuarial science of the more recent years has only been glimpsed in retrospect and then only if the institution employing it has been caught. Hundreds of lawsuits in the last half-century have confirmed its continuation.[11] However, given the general underfunding of regulatory agencies and the immense resources of the finance, credit, insurance, and health care industries, it is likely that instances of the use of racial variables in these industries more often goes unnoticed than discovered. Furthermore, the massive resources of these trades

have produced the development of variables that approximate race without directly using the race of the credit or insurance applicant.

In *The Color of Credit: Mortgage Discrimination, Research Methodology, and Fair-Lending Enforcement*, economists Stephen Ross and John Yinger reverse engineer a study from the Boston Federal Reserve to show that mortgage companies have adopted sophisticated methods for approximating the race of borrowers and rejecting the applications of minorities at a disproportionate rate.[12] Their work demonstrates the continued urgency of research seeking to understand the current practice of calculated, institutionalized racial discrimination. It shows that the endeavor to expose racialized actuarial science from the mid-twentieth century onward must be a collaborative, interdisciplinary activity between humanities scholars and mathematicians, between social scientists and industry regulators, and between policymakers and academics.

I would like to conclude this dissertation by returning to the beginning of actuarial science. Pascal and Fermat made quick work of Gombaud's dice problem described in the first chapter of this monograph. The problem of how to gain a mathematical advantage proved incredibly easy for the pair and they put the matter to rest by the third letter of their correspondence. However, the two kept writing about a second question put to them by the inquisitive Gombaud. This second inquiry, termed by Pascal the "division problem," proved more complex.

Gombaud asked, in essence, how to equitably divide the wagers of a dice game that is interrupted before its conclusion. The problem supposes that two players stake equal wagers on a series of coin flips and agree that whomever wins the most points out

of a pre-arranged number of tosses will win the entirety of the stakes. It then supposes that an external event interrupts the game before either party has won. In essence, the conundrum asks the mathematician to construct a theorem for the fair division of stakes that players never intended to divide.

The division problem is an old one. Before Pascal and Fermat, Luca Pacioli argued that it should be divided by the number of points each player had already won; Gerolamo Cardano argued it should be divided on the basis of each player's points remaining; and Niccolò Fontana Tartaglia argued it should be divided according to the length of a player's lead. What these debates get at is the variability of the construction of fairness. And what each of these arguments suffers from is a circumstance or two in which the fairness of the division is significantly in question. Pacioli's method for instance, weights early wins excessively.

After months of correspondence, Pascal and Fermat solve the problem by employing the concept of expectation value.[13] Statistician A. W. F. Edwards describes their advancement as:

> "In modern terms [the] solution involves analysing the tree of possible games and, working backwards from the tips, using recursively the idea that, if expectations of gain of X and Y units are equally probable, the expectation of gain is ½ (X + Y) units. Furthermore, the stakes are to be divided according to the expectation of gain, that is, the value of a gamble is equal to its expectation."[14]

Their solution is groundbreaking because it provides the first answer to offer equal degrees of fairness in the division of the stakes no matter how many rounds have yet to

take place or how many players participate in the game. Taken together, Pascal and Fermat's two foundational problems—the dice problem and the division problem—demonstrate that from its beginning, the mathematics of risk has held the potential to gain an advantage or to distribute risk equally.

In this project, I have shown actuarial science's use by both capital and the state has resulted in an advantage for whites and further disadvantages for people of color, especially black Americans. However, something like a call for the abolition of actuarial science is not very desirable. Any nostalgia for society before the risk society is as foolish as it is impossible. Centuries of mathematical risk mitigation have irrevocably changed the profile of disease, the environment, and the human. Even if its employment of race maintained the "risk gap" between American whites and people of color, actuarial science (and its corollary risk management) has reduced morbidity rates, lengthened life spans, and improved many other aspects of modern living.

Rather than seek an abolition of or limitation on the use of actuarial science, we should seek a renewal of its potential to share risk equitably. Such a restructuring of society will no doubt be difficult as long as capitalism reigns. It has little incentive to employ actuarial science for anything but gaining advantages, which is why, of course, it integrated race into its formulas in the first place. However, there is a potential that risk has become such a strong organizing force in society that it will redouble on itself and trump economy as the dominant social force.

However unlikely such a scenario, it is worth noting that even if society reorganized itself in a fashion that sought to employ actuarial science to equitably

distribute risk, a host of new conundrums would arise. Race, certainly would not be the only factor requiring a redistribution of hazard. Moreover, any such project would inevitably fail should it remain confined to a single nation such as the United States. For centuries already, risk has flowed from the First World to the Global South just as it has from American whites to African Americans. And, finally, while the calculations of fairness or equality are simple enough in a game of chance with controlled parameters, such computations are never easy in the messy milieu of the bio-social world. Any project that works to share of risk must also critically explore its own ethics. It must consider how humans desire different forms of life and must as well consider the relationship between all forms of life. To do otherwise runs the risk of producing a prescribed life.

Notes

Notes to the Introduction

[1] The facts of this anecdote come from a dinner program in Prudential's archive, see: The Prudential Insurance Company Athletic Association, "Informal Dinner to 'Our Minstrels," 1912, un-cataloged, Archives of Prudential Financial, Inc., Newark.
[2] Franklin Webster, "Industrial Insurance," *The Insurance Press* 34, no. 867 (1912): 10.
[3] "Amateur Minstrel Show by the Barebones Alumni Association for the Benefit of the Insurance Society of New York," *The Weekly Underwriter* 82, no. 22 (1910): 431.
[4] Beverly Moran, *Race and Wealth: A Multidisciplinary Discourse* (Lanham: University Press of America, 2008), 14.
[5] Frederick Ludwig Hoffman, *History of the Prudential Insurance Company of America: 1875-1900* (Newark: Prudential Press, 1900), 137.
[6] L. W. McKee to Dr. Humbert O. Nelli, 1971, location 04, box 01, Frederick L. Hoffman Papers, Archives of Prudential Financial, Inc., Newark.
[7] Hoffman, *History of the Prudential*, 137.
[8] Ibid., 109, 138.
[9] Michel Foucault, *The Order of Things: An Archeology of the Human Sciences* (New York: Vintage Books, 1970), xv.
[10] Ibid.
[11] Emmanuel Chukwudi Eze, *On Reason: Rationality in a World of Cultural Conflict and Racism* (Durham: Duke University Press, 2008), 159.
[12] Michel Foucault, "Politics and the Study of Discourse," in *The Foucault Effect: Studies in Governmentality*, ed. Graham Burchell et al. (Chicago: University of Chicago Press, 1991), 54.
[13] Michel Foucault, "Right of Death and the Power over Life" in *The History of Sexuality*, vol. 1, trans. Robert Hurley (New York: Vintage Books, 1990): 133-60.
[14] Michel Foucault, *Society Must Be Defended: Lectures at the Collége de France, 1975-1976*, trans. David Macey (London: MacMillan, 2003), 254.
[15] Ibid., 255.
[16] Ibid., 256.
[17] Ibid., 258.
[18] Ann Laura Stoler, *Race and the Education of Desire: Foucault's History of Sexuality and the Colonial Order of Things* (Durham: Duke University Press, 1995).
[19] Henry Giroux, *Stormy Weather: Katrina and the Politics of Disposability* (Boulder: Paradigm Publishers, 2006).
[20] Priscilla Wald, "American Studies and the Politics of Life," *American Quarterly*, 64, no. 2 (2012): 185-204.
[21] Giorgio Agamben, *Homo Sacer: Sovereign Power and Bare Life* (Stanford: Stanford University Press, 1998); Michael Hardt and Antonio Negri, *Empire* (Cambridge: Harvard University Press, 2000).

[22] Ian Hacking, *The Emergence of Probability: A Philosophical Study of Early Ideas about Probability, Induction, and Statistical Inference*, 2nd ed. (Cambridge: Cambridge University Press, 2006).
[23] Theodor Porter, *Rise of Statistical Thinking, 1820-1900* (Princeton: Princeton University Press, 1986).
[24] Stephen Stigler, *The History of Statistics: The Measurement of Uncertainty Before 1900* (Harvard: Harvard University Press, 1986).
[25] Lorraine Daston, *Classical Probability in the Enlightenment* (Princeton: Princeton University Press, 1988).
[26] Gerd Gigerenzer, et al., *Empire of Chance: How Probability Changed Science and Everyday Life* (Cambridge: Cambridge University Press: 1989).
[27] Graham Burchell, Collin Gordon, and Peter Miller, *The Foucault Effect: Studies in Governmentality* (Chicago: Chicago University Press, 1991).
[28] Ulrich Beck, *Risikogesellschaft: Auf dem Weg in eine andere Moderne* (Frankfurt: Suhrkamp, 1986).
[29] Anthony Giddens, *The Consequences of Modernity* (Stanford: Stanford University Press, 1990); Anthony Giddens, *Modernity and Self-Identity* (Cambridge: Polity Press, 1991).
[30] Ian Baucom, *Specters of the Atlantic: Finance Capital, Slavery, and the Philosophy of History* (Duhram: Duke University Press, 2005).
[31] For examples of scholarship that employ the information from the Slavery Era Insurance Registry, see: Sharon Ann Murray, "Securing Human Property: Slavery, Life Insurance, and Industrialization in the Upper South," *Journal of the Early Republic* 25, no. 4 (2005): 615-652. And for a scholarly discussion of the Registry, see: Ira Berlin, "American Slavery in History and Memory and the Search for Social Justice," *Journal of American History* 90, no. 4 (2004): 1251-68.
[32] W. E. B. Du Bois, "*Race Traits and Tendencies of the American Negro* By Frederick L. Hoffman, F.S.S.," Annals of the American Academy of Political and Social Science 9, January (1897): 130; Kelley Miller, "A Review of Hoffman's *Race Traits and Tendencies of the American Negro*," *The Occasional Papers of the American Negro Academy* 1 (1897).
[33] John Haller, *Outcasts from Evolution: Scientific Attitudes of Racial Inferiority, 1859-1900* (Urbana: University of Illinois Press, 1971).
[34] Beatrix Hoffman, "Scientific Racism, Insurance, and Opposition to the Welfare State: Frederick L. Hoffman's Transatlantic Journey," *Journal of the Gilded Age and Progressive Era* 2, no. 1 (2003): 166; Megan Wolff, "The Myth of the Actuary: Life Insurance and Frederick L. Hoffman's *Race Traits and Tendencies of the American Negro*," *Public Health Report* 121, no. 1 (2006): 88.
[35] Mary Heen, "Ending Jim Crow Life Insurance Rates," *Northwestern Journal of Law and Social Policy* 4, no. 2 (2009): 360-99; J. Gabriel McGlamery, "Race Based Underwriting and the Death of Burial Insurance," *Connecticut Insurance Law Journal* 15, no. 2 (2009): 531-570.

[36] Dan Bouk, "The Science of Difference: Developing Tools for Discrimination in the American Life Insurance Industry, 1830-1930," *Enterprise and Society* 12, no. 4 (2011): 717-31.
[37] Bernard Harcourt, *Against Prediction: Profiling, Policing, and Punishment in an Actuarial Age* (Chicago: University of Chicago Press, 2007).
[38] Simon Cole, *Suspect Identities: A History of Fingerprinting and Criminal Identification* (Cambridge: Harvard University Press, 2001); Allan Sekula, "The Body and the Archive" *October* 39, Winter (1986): 3-64; Pierre Piazza, *Aux origins de la police scientifique: Bertillon, précurseur de la science du crime* (Paris: Karthala, 2011).
[39] Isacc Groner and David Helfeld, "Race Discrimination in Housing," *The Yale Law Journal* 57, no.3 (1948): 426-58.
[40] Kenneth Jackson, *Crabgrass Frontier* (Oxford: Oxford University Press, 1985), 213.
[41] Steve Valocchi, "The Racial Basis of Capitalism and the State, and the Impact of the New Deal on African Americans," *Social Problems* 41, no. 3 (1994): 347-62; Melvin Oliver and Thomas Shapiro, *Black Wealth/White Wealth* (New York: Routledge, 1995).
[42] Douglas Massey and Nancy Denton, *American Apartheid* (Cambridge, MA: Harvard University Press, 1993).
[43] Arnold Hirsch, "'Containment' on the Home Front: Race and Federal Housing Policy from the New Deal to the Cold War," *Journal of Urban History* 26, no.2 (2000): 159-89; David Freund *Colored Property: State Policy and White Racial Politics in Suburban America* (Chicago: University of Chicago Press, 2007); Amy Hillier, "Redlining and the Home Owners' Loan Corporation," *Journal of Urban History* 29, no. 4 (2003): 394-420; Kristen Crossney and David Bartelt, "Residential Security, Risk, and Race: The Home Owners' Loan Corporation and Mortgage Access in Two Cities," *Urban Geography* 25 (2005): 707-36; John Kimble, "Insuring Inequality: The Role of the Federal Housing Administration in the Urban Ghettoization of African Americans," *Law & Social Inquiry* 32, no. 2 (2007): 399-434; Jennifer Light "Nationality and Neighborhood Risk," *Journal of Urban History* 36, no.5 (2010): 634-53.
[44] Paul C. Taylor, *Race: A Philosophical Introduction* (Cambridge: Polity Press, 2004), 15.
[45] For a discussion of this emergence, see: Emmanuel Chukwudi Eze, *Race and the Enlightenment: A Reader* (Malden: Wiley-Blackwell, 1997).
[46] Hacking, *The Emergence of Probability*.
[47] Edward Said, *Orientalism* (New York: Vintage Books, 1978), 23.
[48] Ibid., 13.

Notes to Chapter 1
[1] Massachusetts and Rhode Island passed anti-discrimination legislation targeting the insurance industry in 1884 and 1886, respectively, but Prudential was not in business in either state at the time. New York passed its anti-discrimination legislation in 1891, Michigan passed its in 1893, New Jersey in 1894, and Minnesota in 1895.
[2] Michel Foucault, *Society Must Be Defended: Lectures at the College de France*, 1975-1976 (New York: Macmillan, 2003), 255.

[3] Stephen Jay Gould, *Mismeasure of Man: Revised and Expanded* (New York: W. W. Norton, 2006).
[4] Hoffman explicitly states he uses "colored" and "negro" interchangeably to refer to anyone with any quantum of blood from African ancestry. However, since he also regularly splits Americans into two races—white and colored—it seems that anyone not of "Aryan" ancestry is under the umbrella of "colored," too. In subsequent studies he would treat "colored" such as "Indians" or "Chinese" as distinct racial groups
[5] Hoffman arrives at this wealth statistic by averaging numbers from Virginia, North Carolina, and Georgia.
[6] The historian of mathematics Øystein Ore notes, by Gombaud's time this probability was a "well-established gambling rule." Øystein Ore "Pascal and the Invention of Probability Theory," *The American Mathematical Monthly* 67 (1960), 413.
[7] The case for skill is weakened by the fact that the difference between a the number of rolls in which obtaining double sixes is unlikely (i.e., 24 with approximate odds at 506:494) and the number of rolls it takes to make obtaining double sixes likely (i.e., 25 with a 491:509) is imperceptible and impossible to reliably obtain through recorded trials. There is some chance, however, that Gombaud obtained a sense of the disadvantage the bet on a double six in 24 rolls (.491 probability) put him at through a comparison with the advantage of the bet on a single six in 4 rolls (.518 probability).
[8] Quentin Skinner, "The Ideological Context of Hobbes's Political Thought," *HJ* 9, no. 3 (1966), 288.
[9] James Connor, *Pascal's Wager: The Man Who Played Dice with God* (New York: HarperCollins 2006), 26.
[10] Blaise Pascal to Pierre Fermat, "Wednesday July 29th, 1654" in A Source Book in Mathematics, ed. David Eugene (New York: McGraw-Hill Book Company, 1929), 548.
[11] Ian Hacking, "The Great Decision" in *The Emergence of Probability: A Philosophical Study of Early Ideas about Probability, Induction, and Statistical Inference*, 2nd ed. (Cambridge: Cambridge University Press, 2006).
[12] Gerd Gigerenzer, et al., *Empire of Chance: How Probability Changed Science and Everyday Life* (Cambridge: Cambridge University Press: 1989), 21: "Graunt himself had no mathematics beyond his 'shoppe Arithmetique,' and apparently knew nothing of Huygen's 1657 treatise."
[13] Graunt dates the bills of mortality back to 1592, but Gigerenzer, et al. find bills of mortality in London dating as far back as 1562. Ibid.
[14] John Graunt, *Natural and Political Observations Mentioned in a Following Index, and Made upon the Bills of Mortality* (London: Roycroft, 1662).
[15] Ibid., 22.
[16] Edmond Halley, "An Estimate of the Degrees of the Mortality of Mankind Drawn from Curious Tables of the Births and Funerals at the City of Breslaw; with an Attempt to Ascertain the Price of Annuities," *Philosophical Transactions for the Month of January 1693* 196 (1693), 598.
[17] Ian Hacking, *The Taming of Chance* (Cambridge: Cambridge University Press, 1990).

[18] Robert Bartlett, "Medieval and Modern Concepts of Race and Ethnicity" *Journal of Medieval and Early Modern Studies* 31, no. 1 (2001): 39-56.
[19] Michael Omi and Howard Winat, *Racial Formation in the United States* (New York: Routledge, 1994), 55.
[20] D. R. Williams, R. Lavizzo-Mourey, and R. C. Warren, "The Concept of Race and Health Status in America," Public Health Reports 109, no. 1 (1994), 26.
[21] David Roediger, "Whiteness and Ethnicity in the History of 'White Ethnics' in the United States" in *Race Critical Thories*, eds. Philomena Essed and David Theo Goldberg (Malden: Blackwell Publishing, 2002), 325.
[22] Robert Miles and Malcolm Brown, *Racism*, 2nd ed. (London and New York: Routledge, 2003), 22-30.
[23] Paul C. Taylor, *Race: A Philosophical Introduction* (Cambridge: Polity Press, 2004), 39.
[24] Kathryn Burns, "Unfixing Race," in *Histories of Race and Racism: The Andes and Mesoamerica from Colonial Times to the Present*, ed. Laura Gotwitz (Durham: Duke University Press, 2011), 57.
[25] Ibid.
[26] Cornel West, "A Genealogy of Modern Racism" in *Race Critical Thories*, eds. Philomena Essed and David Theo Goldberg (Malden: Blackwell Publishing, 2002), 99.
[27] Ibid.
[28] Emmanuel Chukwudi Eze, *Race and the Enlightenment* (Malden: Blackwell Publishers, 1997), 10.
[29] Carl von Linné, "The God-given Order of Nature," in *Race and the Enlightenment*, ed. Emmanuel Chukwudi Eze (Malden: Blackwell Publishers, 1997), 13.
[30] David Hume, "Of National Characters," in *Race and the Enlightenment*, ed. Emmanuel Chukwudi Eze (Malden: Blackwell Publishers, 1997), 13.
[31] For a thorough discussion of monogenesism and polygenesism as well as an analysis of Agassiz's theories of race, see Gould, *Mismeasure of Man*, 71-82.
[32] Both Gould and Byrd and Clayton note that while classically constructed as a liberal and abolitionist, by 1871 Darwin had adopted the view that "Hottentots" may eventually go extinct. Gould, *Mismeasure of Man*, 69; W. Michael Byrd and Linda Clayton, *An American Health Dilemma: A Medical History of African Americans and the Problem of Race: Beginnings to 1900* (New York: Routledge 2000), 99.
[33] Tukufu Zuberi, *Thicker than Blood: How Race Statistics Lie* (Minneapolis: University of Minnesota Press, 2001), 42.
[34] Hacking, *Taming of Chance*, 46.
[35] Melissa Nobles, *Shades of Citizenship: Race and the Census in Modern Politics* (Stanford: Stanford University Press, 2000), 30.
[36] Ibid.

Notes to Chapter 2

[1] In Frederick Hoffman's historical study of Prudential, a letter from a grateful nun relays the information that the company had an office operating in Room 3 of Troy's Harmony

Hall. Frederick Ludwig Hoffman, *History of the Prudential Insurance Company of America: 1875-1900* (Newark: Prudential Press, 1900), 161.
[2] Leslie D. Ward to G. Mason, "April 20, 1891," location 04, box 01, Frederick L. Hoffman Papers, Archives of Prudential Financial, Inc., Newark.
[3] Prudential's branch office in Troy, New York was located at the intersection of 3rd Street and Fulton Street and the W. & L. E. Gurley Building is located at the intersection of 5th Avenue and Fulton Street.
[4] United States Bureau of the Census, *Historical Statistics of the United States, Colonial Times to the 1970*, Bicentennial Edition (Washington D.C.: Government Printing Office, 1975), 669.
[5] For a late-nineteenth century example of a Prudential application see: Hoffman, *History of the Prudential Insurance*, 241-42.
[6] Sharla Fett, *Working Cures: Healing, Health, and Power on Southern Slave Plantations* (Chapel Hill: University of North Carolina Press, 2002), 24.
[7] Ward to Mason, "April 20, 1891," 1.
[8] Ibid.
[9] Ibid.
[10] Hoffman, *History of the Prudential Insurance*, 137.
[11] In his reference to the discussion, Hoffman suggests that "Any health report of a Southern or Northern city covering the years 1880-1881 will clearly prove that the general death rate of the colored population was about 50 per cent in excess of the death rate of the white population." He goes on to suggest that it was these facts that lead to the differential rates and from this we can infer that the study used data from both regions of the United States. Ibid., 138.
[12] Ibid., 137.
[13] Ibid., 298.
[14] John Hancock Mutual Life Insurance Company, *The First Seventy-Five Years* (Boston: The Company Press, 1937), 10.
[15] The Metropolitan Life Insurance Company was founded as National Union Life and Limb Insurance in 1863 and adopted its current name and focus on life insurance in 1868. Metropolitan Life Insurance Company, *The Metropolitan Life Insurance Company; Its History, Its Present Position in the Insurance World, Its Home Office Building and Its Work Carried on Therein* (New York: Metropolitan Life Insurance Company, 1914), 10.
[16] Mary Heen, "Ending Jim Crow Life Insurance Rates," *Northwestern Journal of Law and Social Policy* 4, no. 2 (2009): 368.
[17] James Marquis, *The Metropolitan Life: A Study in Business Growth* (New York: The Viking Press, 1947), 338.
[18] Ibid., 339.
[19] Ibid., 86.
[20] J. Gabriel McGlamery, "Race Based Underwriting and the Death of Burial Insurance," *Connecticut Insurance Law Journal* 15, no. 2 (2009): 537.
[21] Heen, "Ending Jim Crow," 376.

[22] Commonwealth of Massachusetts, *Prevent Discrimination by Life Insurance Companies Against Persons of Color* (Boston: Secretary of the Commonwealth, 1884).
[23] Megan Wolff, "The Myth of the Actuary: Life Insurance and Frederick L. Hoffman's *Race Traits and Tendencies of the American Negro*," *Public Health Report* 121, no. 1 (2006): 88.
[24] See for example, Forrest Dryden to Sir, "May 8, 1894" and Forrest Dryden to F. Sammelson, "September 9, 1895," location 04, box 01, Frederick L. Hoffman Papers, Archives of Prudential Financial, Inc., Newark.
[25] Francis J. Rigney, Jr., *Frederick L. Hoffman: His Life and Works*, (Dartford: Xlibris Corporation, 2002).
[26] Ibid.
[27] Ella Hoffman Rigney, *Biography of Frederick L. Hoffman*, location 04, Frederick L. Hoffman Papers, Archives of Prudential Financial, Inc., Newark.
[28] Hoffman also consulted *The Government Handbook of Hayti*, the *Quarterly Publication of the American Statistical Association*, records of the Charity Hospital of New Orleans, *Report of the Army Medical Department of Great Britain*, *Annual Report of the New York State Commissioner of Labor*, *Medical and Surgical History of the War of the Rebellion*, *Investigations In the Military and Anthropological Statistics of American Soldiers*, *Vital Statistics of the District of Columbia and Baltimore*, *Sanitary Memoirs of the War of Rebellion*, *Report of the Commissioner of Indian Affairs*, *Census of the City of Charleston, South Carolina*, and *View of the United States, Historical, Geographical, and Statistical*.
[29] Fett, *Working Cures*, 111-41.
[30] Hoffman, *Race Traits and Tendencies*, 37.
[31] Ibid., 35.
[32] Ibid., 45.
[33] Ibid., 50.
[34] Ibid., 70.
[35] Ibid., 74
[36] Ibid., 217.
[37] This data represents one of the few instances in which Hoffman used figures that included women. He, like most statisticians at the time relied heavily on statistics that only counted men and then proceeded to infer conclusions about the entire population of a race, both male and female. Ibid., 218.
[38] Ibid., 291.
[39] Ibid.
[40] W. E. B. Du Bois, "*Race Traits and Tendencies of the American Negro* By Frederick L. Hoffman, F.S.S.," *Annals of the American Academy of Political and Social Science* 9, January (1897): 130.
[41] Ibid., 133.
[42] W. Michael Byrd and Linda Clayton, *An American Health Dilemma: A Medical History of African Americans and the Problem of Race: Beginnings to 1900* (New York: Routledge 2000), 181.

[43] Ibid.
[44] Stephanie Smallwood, *Saltwater Slavery: A Middle Passage from Africa to American Diaspora* (Cambridge: Harvard University Press, 2007), 136.
[45] Sowande Mustakeem, "I Never Have Seen Such a Sickly Ship Before: Statistical Evidence on the Causes of Slave and Crew Mortality in the Atlantic Slave Trade," *The Journal of Economic History* 46, no. 1 (1986): 474-96.
[46] Byrd and Clayton, *An American Health Dilemma*, 288; Robert McGwire and Philip Coelho, *Parasites, Pathogens, and Progress: Diseases and Economic Development* (Cambridge: Massachusetts Institute of Technology Press, 2011), 126.
[47] Ibid.
[48] Ann Ramenofsky, Alicia Wilbur, and Anne Storm, "Native American Disease History: Past, Present, and Future Directions," *World Archeology* 35, no. 2 (2003): 241.
[49] Ibid., 243.
[50] Erhan Yalcindag, et al., "Multiple Independent Introductions of Plasmodium Falciparum in South America," *Proceedings of the National Academy of Sciences of the United States* 109, no. 2 (2012): 511-16.
[51] Abraham Bergman, David Grossman, Angela Erdrich, John Todd, and Ralph Forquera, "A Political History of the Indian Health Service," *The Milbank Quarterly* 77, no. 4 (1999): 571-604.
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[54] Lisa Yun, *The Coolie Speaks: Chinese Indentured Laborers and African Slaves in Cuba* (Philadelphia: Temple University Press, 2008), 18.
[55] Byrd and Clayton, *An American Health Dilemma*, 347.
[56] Eric Foner, *Reconstruction: America's Unfinished revolution, 1863-1877* (New York: HarperCollins, 2002), 151.
[57] Byrd and Clayton, *An American Health Dilemma*, 350.
[58] One exception to the defunding of the Freedman's Bureau's health services was the Freedman's hospital in Washington, D.C. See: Jim Downs, *Sick from Freedom: African American Illness and Suffering during the Civil War and Reconstruction* (Oxford: Oxford University Press, 2012), 158-61.
[59] For a discussion of the too-little-known practice of debt peonage, see: David Oshinsky, *Worse than Slavery: Parchment Farm and the Ordeal of Jim Crow Justice* (New York: Simon and Schuster, 1996); Douglas Blackmon, *Slavery by Another Name: The Re-enslavement of Black Americans from the Civil War to World War II* (New York: Doubleday, 2008); Michelle Alexander, *The New Jim Crow: Mass Incarceration in the Age of Colorblindness* (New York: New Press, 2010).
[60] Hoffman, *Race Traits and Tendencies*, 241.
[61] W. E. B. Du Bois, *The Souls of Black Folk* (Oxford: Oxford University Press, 2007), 104.

[62] Giorgio Agamben, *Homo Sacer: Sovereign Power and Bare Life* (Stanford: Stanford University Press, 1998).
[63] Hoffman, *Race Traits and Tendencies*, viii.
[64] Beatrix Hoffman, "Scientific Racism, Insurance, and Opposition to the Welfare State: Frederick L. Hoffman's Transatlantic Journey," *Journal of the Gilded Age and Progressive Era* 2, no. 1 (2003), 166.
[65] Ibid., 167.
[66] Hoffman researched these racial and ethnic groups to aid in the Prudential's proprietary actuarial formulas. Each can be found in the Frederick L. Hoffman Papers, Archives of Prudential Financial, Inc., Newark.
[67] Christy Ford Chapin, "'Going Behind with that Fifteen Cent Policy': Black-owned Insurance Companies and the State," *Journal of Policy History* 24, no. 4 (2012), 647.
[68] McGlamery, "Race Based Underwriting," 538.
[69] Rigby, *Biography of Frederick L. Hoffman*, 126.
[70] Ibid.
[71] Ibid.
[72] Peter Berger and Thomas Luckmann, *The Social Construction of Reality* (New York: Anchor Books, 1966).
[73] The Spectator Company, *Industrial Insurance: Its History, Statistics, and Plans also Hints to Industrial Agents* (New York: The Spectator Company, 1905), 39.

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[1] Simon Cole, *Suspect Identities: A History of Fingerprinting and Criminal Identification* (Cambridge: Harvard University Press, 2001), 16.
[2] Ibid.
[3] Martine Kaluszynski, *La république à l'épreuve du crime: La construction du crime comme objet politique, 1880-1920* (Paris: L.G.D.J., 2002).
[4] Claire Valier, *Crime and Punishment in Contemporary Culture* (New York: Routledge, 2004).
[5] Cole, *Suspect Identities,* 16.
[6] Francis Galton, "Composite Portraits Made by Combining Those of Many Different Persons into a Single Figure," *Nature* 18, no.9 (1878), 99.
[7] Ibid., 98.
[8] Ibid., 99.
[9] American Correctional Association, *Proceedings of the Annual Congress of the National Prison Association Held at Toronto, September 10-15, 1887* (Chicago: Knight and Leonard Company, 1889), 9.
[10] Achille Guillard, *Éléments de statistique humaine; ou, démographie comparée, où sont exposés les principes de la science nouvelle, et controntés, d'après les documents les plus authentiques, l'état, les mouvements généraux et les progrès de la population dans les pays civilizes* (Paris: Guillaumin et cie, 1855).
[11] Henry Rhodes, *Alphonse Bertillon: Father of Scientific Detection* (New York: Abelard-Schuman, 1956).

[12] Alphonse Bertillon, *Alphonse Bertillon's Instruction for Taking Descriptions for the Identification of Criminals and Others, by Means of Anthropometric Indications*, trans. Gallus Muller (Joliet: Illinois State Penitentiary, 1889).
[13] Rhodes, *Alphonse Bertillon*.
[14] Alphonse Bertillon, *Signaletic Instructions Including the Theory and Practice of Anthropometric Identification* (Chicago: The Werner Company, 1896), 61.
[15] Ibid., 99.
[16] Ibid., 76.
[17] Ibid.
[18] Ibid., 11.
[19] Ibid.
[20] Bertillon, *Signaletic Instructions*, 29.
[21] Ibid., 30.
[22] Ibid., 32.
[23] Ibid., 39.
[24] Ibid., 40.
[25] Ibid., 161.
[26] Cole, *Suspect Identities*.
[27] Allan Sekula, "The Body and the Archive," *October*, 39, Winter, (1986): 3-64.
[28] Nalini Ratha and Ruud Bolle, *Automatic Fingerprinting Recognition Systems* (New York: Springer, 2004).
[29] Ibid.
[30] Ibid.
[31] Ibid.
[32] Raymond Fosdick, "The Passing of the Bertillon System of Criminal Identification," Journal of the American Institute of Criminal Law and Criminology 6, no. 3 (1915), 368.
[33] Sekula, "The Body and the Archive," 33.
[34] Bertillon, *Signaletic Instructions*, 151.
[35] Bernard Harcourt, *Against Prediction: Profiling, Policing, and Punishment in an Actuarial Age* (Chicago: University of Chicago Press, 2007), 53.
[36] National Prison Association of the United States, 1888, 74.
[37] Frank Morn, *Forgotten Reformer: Robert McClaughry and Criminal Justice Reform in Nineteenth Century America* (Lanham: University Press of America, 2010), 250.
[38] Andrew Bruce, Ernest Burgess, Albert Harno, and John Landesco, *The Workings of Indeterminate Sentencing Law and the Parole System in Illinois: A Report to the Honorable Hinton G. Clabaugh, Chairman, Board of Parole* (Springfield: State of Illinois Board of Parole and Pardon, 1928), 73.
[39] Robert Park and Ernest Burgess, *Introduction to the Science of Sociology* (Chicago: University of Chicago Press), 339.
[40] Bruce, et al., *Workings of Indeterminate Sentencing Law*, 88.
[41] Before the indeterminate sentencing and parole study, this data was largely ignored and information on the prisoner came to the parole board in bulky, disorganized files containing "letters from relatives and friends, political personages, lawyers and

physicians, lengthy petitions signed literally by the members of whole communities and various other items" which was often only skimmed. Bruce et al., *Workings of Indeterminate Sentencing Law*, 68.
[42] Ibid., 221
[43] This interchangeability makes sense in the context of the last quarter of the nineteenth century and the first quarter of the twentieth since, as Matthew Frye Jacobson and others have shown, whiteness then was a much narrower category deeply tied to national origin. Bruce, et al., *Workings of Indeterminate Sentencing Law*, 223; Matthew Frye Jacobson, *Whiteness of a Different Color: European Immigrants and the Alchemy of Race* (Cambridge: Harvard University Press, 1998).
[44] Burgess's data also includes the national or racial origin categories of English, Scotch, Welch, Irish, German, Italian, Austrian, Polish, Russian, Lithuanian, Swede, French, Slavish, Danish, Bohemian, Swiss, Hungarian, and Serbian. Ernest Burgess, "Nationality in Relation to Record on Parole," *Ernest Watson Burgess Papers*, Box 35, Folder 2 Archive of the University of Chicago, Chicago.
[45] Bruce, et al., *Workings of Indeterminate Sentencing Law*, 223.
[46] Ernest Burgess, "Nationality in Relation to Record on Parole."
[47] Bruce, et al., *Workings of Indeterminate Sentencing Law*, 226.
[48] Ibid.
[49] Ernest Burgess, "Neighborhood in Relation to Record on Parole," *Ernest Watson Burgess Papers*, Box 35, Folder 2 Archive of the University of Chicago, Chicago.
[50] Harcourt, *Against Prediction*, 59.
[51] Ibid., 63.
[52] Ibid., 279.
[53] Ibid., 280.
[54] Ibid., 282.

Chapter 4
[1] Though previous scholarship cites the 1936 or 1938 (or in rare instances the 1935) versions of the Underwriting Manual, in this chapter I refer to the original 1934 version, which I obtained from the United States National Archives and Records Administration. It contains no version date and no references to revisions, so it can be safely assumed that it is the first edition. The catalog of Public documents of the Seventy-third Congress dates the first edition to November of 1934 and the NARA copy has a hand-written catalog date of January 29, 1935 on the text's first page. While not as elaborate as subsequent versions, the race-based risk assessment in this first printing was significant enough to ban minority applicants and restrict coverage of loans in areas in which racial minorities were present or threatened to become present. Race, this version illustrates, was foundational in the agency's underwriting standards. Federal Housing Administration, *Federal Housing Administration Underwriting Manual* (Washington DC: Office of Government Printing, 1934), Part II, Section 3.
[2] Susan Carter et al., eds., *Historical Statistics of the United States: Millennial Edition On Line* (Cambridge, UK: Cambridge University Press 2006).

[3] Ibid.; U.S. Federal Housing Administration, *The FHA Story in Summary* (Washington, DC: Office of Government Printing, 1959), 2.
[4] U.S. FHA, *The FHA Story*, 2.
[5] *National Housing Act of 1934*, HR 9620, 73rd Cong., 8.
[6] In the 1936 version of the manual, this section is expanded and redubbed "Rating of Location."
[7] FHA, *Underwriting Manual*, 1934 Edition, Part II, Section 3.
[8] John Dean, "Only Caucasian: A Study of Race Covenants," *The Journal of Land & Public Utility Economics* 23, no.4 (1947), 430.
[9] The isolation index measures "the extent to which blacks live within neighborhoods which are predominantly black. A value of 100% indicates complete ghettoization and means that all black people live in totally black areas; a value under 50% means that blacks are more likely to have whites than blacks as neighbors." The dissimilarity index measures "the degree to which blacks and whites are evenly spread among neighborhoods in a city. Evenness is defined with respect to the racial composition of the city as a whole." Douglas Massey and Nancy Denton, *American Apartheid* (Cambridge, MA: Harvard University Press, 1993), 20, 23, 46-47.
[10] U.S. FHA, *The FHA Story*, 11.
[11] Ernest Fisher, *Principles of Real Estate Practice* (New York: Macmillan, 1923), x; Frederick Babcock, *The Appraisal of Real Estate* (New York: Macmillan, 1924), v.
[12] Francis J. Rigney, Jr., *Frederick L. Hoffman: His Life and Works*, (Dartford: Xlibris Corporation, 2002).
[13] Richard Ely and Edward Morehouse, *Elements of Land Economics* (New York: Macmillan, 1924), 201.
[14] Fisher, *Real Estate Practice*, 115.
[15] Ibid., 116.
[16] Ibid., 209.
[17] Ibid., 216.
[18] David Freund *Colored Property: State Policy and White Racial Politics in Suburban America* (Chicago: University of Chicago Press, 2007).
[19] Individual *men,* at least.
[20] Frederick Babcock, *The Valuation of Real Estate* (New York: McGraw-Hill Book Company, 1932), 132.
[21] Babcock, *The Appraisal of Real Estate*, 71.
[22] Babcock, *The Valuation of Real Estate*, 86.
[23] Babcock, *The Appraisal of Real Estate*, 74.
[24] Babcock, *The Valuation of Real Estate*, 91.
[25] Ibid.
[26] Hoyt worked with the who's who of Chicago sociologists—Robert Park, Roderick McKenzie, Ernest Burgess, and Louis Wirth—on *One Hundred Years of Land Values in Chicago*. They quite possibly influenced his view on the purpose of social science, which, in the words of Park and Burgess, "aims at prediction and control based on an investigation of the nature of man and society, and nature means here, as elsewhere in

science, just those aspects of life that are determined and predictable." Homer Hoyt, *One Hundred Years of Land Values in Chicago* (Chicago: University of Chicago Press, 1933); Robert Park and Ernest Burgess, *Introduction to the Science of Sociology* (Chicago: University of Chicago Press, 1921), 339.
[27] Hoyt, *One Hundred Years of Land Values*, 6.
[28] Ibid., 299.
[29] Ibid.
[30] Ibid., 314.
[31] FHA, *Underwriting Manual*, 1934 Edition, Part II, 303.
[32] Ibid., 309-10.
[33] Federal Housing Administration, *Federal Housing Administration Underwriting Manual* (Washington DC: Office of Government Printing, 1935), Part II, 330.
[34] Ibid., Appendix B.
[35] Federal Housing Administration, *Federal Housing Administration Underwriting Manual* (Washington DC: Office of Government Printing, 1936), Part II, 229.
[36] Ibid., Part II, 228
[37] Bryn Hovde, "Negro Housing in Pittsburg," *Opportunity* October (1945): 356-58.
[38] Robert Weaver, "Race Restrictive Housing Covenants," *The Journal of Land & Public Utility Economics* 20, no. 3 (1944): 183-93.

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[2] Marian MacDorman and T.J. Mathews, "Understanding Racial and Ethnic Disparities in U.S. Infant Mortality," *National Center for Health Statistics Data Brief* 74, September (2011), 1.
[3] Center for Disease Control, *Reported Tuberculosis in the United States, 2011* (Atlanta: United States Department of Health and Human Services, 2012).
[4] Center for Disease Control, "Estimated Incidence among Adults and Adolescents in the United States, 2007-2010," *HIV Surveillance Supplement Report* 17, no. 4 (2012).
[5] United States Census Bureau, "Median Value of Assets for Households, by Type of Assets Owned and Selected Characteristics: 2011," *Survey of Income and Program Participation*, 2008 Panel, Wave 10 (2013).
[6] These are my own calculations based on: Howard Snyder, *Arrest in the United States, 1990-2010* (Washington D. C.: United States Department of Justice Bureau of Justice Statics, 2012); United States Census Bureau, *2010 Census Redistricting Data Summary Files* (Washington D. C.: United States Census Bureau, 2011).
[7] Marc Mauer, *The Changing Racial Dynamics of Women's Incarceration* (Washington D. C.: Sentencing Project, 2013).
[8] Melvin Oliver and Thomas Shapiro, *Black Wealth/White Wealth* (New York: Routledge, 1995).

[9] David Oshinsky, *Worse than Slavery: Parchment Farm and the Ordeal of Jim Crow Justice* (New York: Simon and Schuster, 1996).
[10] W. Michael Byrd and Linda Clayton, *An American Health Dilemma: A Medical History of African Americans and the Problem of Race: Beginnings to 1900* (New York: Routledge 2000).
[11] For a review of recent racial discrimination lawsuits brought against insurers, including an analysis of a 2005 Louisiana case that discovered the state offered racial minorities no protection against racialized underwriting, see: J. Gabriel McGlamery, "Race Based Underwriting and the Death of Burial Insurance," *Connecticut Insurance Law Journal* 15, no. 2 (2009): 531-70.
[12] Stephen Ross and John Yinger, *The Color of Credit: Mortgage Discrimination, Research Methodology, and Fair-Lending Enforcement* (Cambridge: MIT Press, 2002).
[13] How Pascal and Fermat go about solving the problem is tortuous and technical. For a thorough and enlightening discussion of Pascal and Fermat's correspondence on the division problem that both outline's their attempts and solution and deftly places it in historical context, see: A. W. F. Edwards, "Pascal and the Problem of Points," *International Statistical Review/Revue Internationale de Statistique* 50, no. 3 (1982): 259-66.
[14] Ibid., 261.

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