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**A PROGRAM OF RACE BETTERMENT: THE EMERGENCE AND EVOLUTION OF
EUGENIC IDEAS IN MICHIGAN**

by

BRANDEN MCEUEN

DISSERTATION

Submitted to the Graduate School

of Wayne State University,

Detroit, Michigan

in partial fulfillment of the requirements

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DOCTOR OF PHILOSOPHY

2022

MAJOR: HISTORY

Approved By:

_____	_____
Advisor	Date

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Introduction:

This dissertation examines the emergence, evolution, and transformation of eugenic ideas in the twentieth century by analyzing the ideas and activities of eugenicists from the state of Michigan. It attempts to explain how theories of the genetic transmission of traits emerged through social and political programs that its advocates considered beneficial for the general welfare of society. Further, it seeks to demonstrate how the mediation of such ideas between individuals in varying cultural and political contexts evolved and eventually transformed both the concepts and practices of eugenics.

The nineteenth-century British naturalist, Francis Galton, who founded the eugenics movement, defined it as “the science which deals with all influences that improve the inborn qualities of the race.”¹ Historians’ interpretations have expanded and restricted this definition. They have broadened eugenics to mean much more than just a science. As Diane Paul has noted, “eugenics has been variously described as an ideal, as a doctrine, as a science (applied human genetics), as a set of practices (ranging from birth control to euthanasia), and as a social movement.”² Simultaneously, much of the historiography on eugenics has linked it to a limited number of scientific theories and policies, which has subsequently influenced public understandings of eugenics. In the United States, commentators frequently characterize eugenics as the formation of coercive policies such as the sterilization of individuals deemed genetically unworthy of having children, based on

¹ Francis Galton, “Eugenics: Its Definition, Scope, and Aims,” *American Journal of Sociology* 10, no. 1 (1904): 1.

² Diane B. Paul, *The Politics of Heredity: Essays on Eugenics, Biomedicine, and the Nature-Nurture Debate*, SUNY Series, Philosophy and Biology (Albany: State University of New York Press, 1998), 95.

a faulty understanding of classical Mendelian genetics.³ Consequently, contemporary discussions of eugenics commonly describe it as a pseudoscience and invoke its connections to the holocaust.⁴

There is no doubt that the re-emergence of Mendel's work on the inheritance of peas influenced many American eugenicists. They frequently cited Mendel's three "laws" of heredity, that is, the laws of segregation, dominance, and independent assortment, to explain how superior or inferior people inherited various physical, mental, and behavioral traits.⁵ In this framework, each organism contains a pair of units or "alleles" that together form the gene for a trait; for example, a pea can have two "tall" alleles (AA), two "short" alleles (aa), or a mix of the two (Aa). Mendel's law of segregation states that the reproductive cells (spermatozoa or ovum) contain only one of the two alleles, so that when a sperm cell fertilizes an egg cell, the offspring's genes will be a combination from both parents. The law of dominance postulates that if an offspring receives different alleles from each parent, such as one tall and one short allele (Aa), the dominant allele will express itself and mask the other "recessive" allele. In this example, the pea will be tall, despite also possessing the short allele. The law of independent assortment claims that the inheritance of one trait, such as pea height, will not influence the inheritance of another trait, such as pea color. From this foundation, eugenicists such as Henry Goddard determined that intelligence is inherited as if it was a single Mendelian gene. The data, he insisted, forced him to conclude that feeble-mindedness, or below average intelligence, was a recessive trait.⁶

³ Hamilton Cravens, *The Triumph of Evolution: American Scientists and the Heredity-Environment Controversy, 1900-1941* (Philadelphia: University of Pennsylvania Press, 1978), 46; Garland E. Allen, "The Misuse of Biological Hierarchies: The American Eugenics Movement, 1900-1940," *History and Philosophy of the Life Sciences* 5, no. 2 (1983): 107.

⁴ Gillian Brockell, "Britney Spears, Carrie Buck and the Awful History of Controlling 'Unfit' Women," *Washington Post*, September 30, 2021, <https://www.washingtonpost.com/history/2021/09/30/carrie-buck-britney-spears-eugenics/>.

⁵ Charles Benedict Davenport, *Eugenics: The Science of Human Improvement by Better Breeding* (New York: Henry Holt and Company, 1910), 5-8.

⁶ Henry Herbert Goddard, *Feeble-Mindedness: Its Causes and Consequences* (New York: The MacMillan Company, 1914), ix.

Such characterizations, however, belie the complexity and heterogeneity of eugenics. This is due to, in part, the emphasis placed on genetics in both our comprehension of heredity and its influence on eugenics. Staffan Müller-Wille and Christina Brandt have argued that such a gene-centric conceptualization of heredity “is much too narrow to get an appropriate historical understanding of developments in the life sciences” in the early twentieth century.⁷ In the early twentieth century, there were several competing theories attempting to elucidate the process of inheritance and its relationship to the evolution of species. One of these was neo-Lamarckism, the idea that one’s environment, behavioral changes, or the use or disuse of organs may result in alterations that could be passed down to the next generation. Scholars have noted that neo-Lamarckism was popular in the nineteenth century since it provided an evolutionary account of civilizational progress and morality while justifying environmental reforms. Yet historians such as Garland Allen suggest that Mendelism in the United States quickly repudiated neo-Lamarckism because the former was institutionalized alongside agricultural experiment stations to breed higher-yield cattle and crops.⁸ Others date Mendelism’s ascendancy to 1915, with the publication of Thomas Hunt Morgan’s *The Mechanism of Mendelian Heredity*, or in 1926 when the stalwart neo-Lamarckian Paul Kammerer committed suicide after he was accused of scientific fraud.⁹ Following this, eugenics is explicitly associated with hereditarianism based on Mendelian genetics.

⁷ Staffan Müller-Wille and Christina Brandt, “From Heredity to Genetics: Political, Medical, and Agro-Industrial Contexts,” in *Heredity Explored: Between Public Domain and Experimental Science, 1850-1930*, ed. Staffan Müller-Wille and Christina Brandt, Transformations: Studies in the History of Science and Technology (Cambridge, Massachusetts: The MIT Press, 2016), 5.

⁸ Jan Sapp, *Genesis: The Evolution of Biology* (Oxford: Oxford University Press, 2003), 68–69; Garland E Allen, “The Reception of Mendelism in the United States, 1900–1930,” *Life Sciences* 323, no. 12 (December 2000): 1083–84, [https://doi.org/10.1016/S0764-4469\(00\)01254-3](https://doi.org/10.1016/S0764-4469(00)01254-3).

⁹ Kathy J. Cooke, “The Limits of Heredity: Nature and Nurture in American Eugenics before 1915,” *Journal of the History of Biology* 31, no. 2 (1998): 277–78; Maurizio Meloni, *Political Biology: Science and Social Values in Human Heredity from Eugenics to Epigenetics* (New York: Palgrave Macmillan, 2016), 29.

However, the work of scholars on the history of eugenics around the world have demonstrated that eugenics has meant different things to different people, depending on their political, social, cultural, and historical context. From a theoretical perspective, Mendelian genetics was certainly not a prerequisite to employing eugenics. Biometry heavily influenced the British, while the French remained committed to neo-Lamarckism, and their theory of puericulture influenced Italians and many Central and South Americans.¹⁰ In China, social Darwinism was more of a “driving force for the introduction of eugenics” than any explicitly genetic theory of inheritance.¹¹

The political manifestations of eugenics, too, reveal an incredible amount of heterogeneity. In much of central and eastern Europe, for instance, eugenics was understood as a biopolitical formation of national identity in response to modernization.¹² In France, Italy, and Central and South America, eugenics primarily resulted in sanitary and maternal health laws rather than sterilization policies. Feminists in colonial India developed a maternalist eugenics in the 1920s and 1930s that emphasized women’s status as mothers of the nation.¹³ It was in the Scandinavian nations that eugenicists were most successful in promoting eugenics and sterilizing the greatest number of people by connecting it to social welfare, not Nazi Germany and its notions of racial purity.¹⁴ In the United States, moreover, all these biopolitical programs played out in varying degrees.

¹⁰ Nancy Stepan, *The Hour of Eugenics: Race, Gender, and Nation in Latin America* (Ithaca: Cornell University Press, 1991), 85–87, 102–3; Marius Turda and Aaron Gillette, *Latin Eugenics in Comparative Perspective* (London: Bloomsbury Academic, 2014), 1.

¹¹ Yuehtsen Juliette Chung, “Better Science and Better Race?: Social Darwinism and Chinese Eugenics,” *Isis* 105, no. 4 (December 2014): 796, <https://doi.org/10.1086/679426>.

¹² Maria Bucur, *Eugenics and Modernization in Interwar Romania* (Pittsburgh: University of Pittsburgh Press, 2002), 4–15; Marius Turda, *Eugenics and Nation in Early 20th Century Hungary*, *Science, Technology and Medicine in Modern History* (Houndmills: Palgrave Macmillan, 2014), 8–9.

¹³ Sarah Hodges, “South Asia’s Eugenic Past,” in *The Oxford Handbook of the History of Eugenics*, ed. Allison Bashford and Philippa Levine (Oxford: Oxford University Press, 2010), 228–30; Asha Nadkarni, *Eugenic Feminism: Reproductive Nationalism in the United States and India* (Minneapolis: University of Minnesota Press, 2014), 5.

¹⁴ Peter Weingart, “Science and Political Culture: Eugenics in Comparative Perspective,” *Scandinavian Journal of History* 24, no. 2 (June 1999): 163–77, <https://doi.org/10.1080/03468759950115782>; Gunnar Broberg and Nils Roll-Hansen, eds., *Eugenics and the Welfare State: Sterilization Policy in Denmark, Sweden, Norway, and Finland*, Rev. ed (East Lansing: Michigan State University Press, 2005).

To better understand the domestic complexity of eugenics, within the past twenty years scholars have analyzed eugenics from state or regional settings. In one of the earliest of these studies, Edward Larson revealed that despite the frequent connections between eugenics and scientific racism, this had little influence on the expansion of eugenic ideas and legislation in the Deep South. According to him, the influence of Jim Crow segregation was so pervasive that eugenics was unnecessary to justify white supremacy. When southerners did eventually adopt eugenics in the 1920s and 1930s, it was primarily directed towards poor whites.¹⁵ In contrast, Gregory Dorr claims that eugenics served as a way of bridging Southern traditionalism and racial hierarchies to progressive social reforms.¹⁶ Progressivism also served as the political impetus for eugenic policies in Oregon and Vermont. The former enacted a sterilization bill to improve society in a rational and efficient manner, while the latter passed a voluntary sterilization law in response to agricultural modernization.¹⁷ In California, eugenicists developed their ideas within the context of the conservation movement, marriage counseling, psychometric tests, and nativist concerns over Mexican immigration.¹⁸ North Carolina's government racialized their sterilization statute through its connection to the state's social welfare program, which resulted in the sterilization of a disproportionate number of African American women in the 1950s and 1960s by linking poverty with bad motherhood.¹⁹ Similarly, Molly Ladd-Taylor's investigation of eugenics in Minnesota demonstrates that eugenicists sterilized the "undeserving poor" as much for economic reasons as genetic,

¹⁵ Edward J. Larson, *Sex, Race, and Science: Eugenics in the Deep South* (Baltimore, MD: John Hopkins University Press, 1996).

¹⁶ Gregory Michael Dorr, *Segregation's Science: Eugenics and Society in Virginia* (Charlottesville, VA: University of Virginia Press, 2008).

¹⁷ Mark Largent, "'The Greatest Curse of the Race': Eugenic Sterilization in Oregon, 1909-1983," *Oregon Historical Quarterly* 103, no. 2 (2002): 188-209; Nancy L. Gallagher, *Breeding Better Vermonters: The Eugenics Project in the Green Mountain State* (Hanover, NH: Univ. Press of New England, 1999).

¹⁸ Alexandra Stern, *Eugenic Nation: Faults and Frontiers of Better Breeding in Modern America*, Second edition, American Crossroads 17 (Oakland, CA: University of California Press, 2016).

¹⁹ Johanna Schoen, *Choice & Coercion: Birth Control, Sterilization, and Abortion in Public Health and Welfare, Gender and American Culture* (Chapel Hill: University of North Carolina Press, 2005).

although they did not target minorities for surgical procedures.²⁰ Just as no single scientific theory can explain eugenics, no single policy program captures its entirety.

What, then, makes all these ideas and reforms *eugenic*? Frank Dikötter provided a useful starting point when he stated, “eugenics was not so much a clear set of scientific principles as a ‘modern’ way of talking about social problems in biologizing terms.”²¹ This statement contains two elements that are common in what most scholars have claimed eugenics to be: (1) the actions eugenicists proposed were both “modern” in the sense that they rejected individual rights for the welfare of the collective and were a response to fears stemming from components of modernization itself, such as industrialization, nationalism, or, in instances like the US, immigration; and (2) the means of ameliorating such issues were rooted in biological concepts, specifically those of inheritance and reproduction. Rather than a science or a social movement, I suggest that eugenics was an ideology in the sense that it consisted of “a system of collectively held normative and reputedly factual ideas and beliefs and attitudes advocating a particular pattern of social relationships and arrangements and/or aimed at justifying a particular pattern of conduct.”²² These factual ideas came from eugenicists’ comprehension of inheritance, of which they could choose from several competing conceptualizations. The social relationships they endorsed suppressed individual rights to reproductive autonomy for the welfare of society. They recommended specific numbers of children for various types of parents based on normative behaviors, and they were determined to restrict the reproduction of those who violated these norms. Scholars of ideologies may contest this

²⁰ Molly Ladd-Taylor, *Fixing the Poor: Eugenic Sterilization and Child Welfare in the Twentieth Century* (Baltimore: Johns Hopkins University Press, 2017).

²¹ Frank Dikötter, “Race Culture: Recent Perspectives on the History of Eugenics,” *The American Historical Review* 103, no. 2 (1998): 467–68.

²² Ideology is a term with several contested definitions, but Malcolm Hamilton’s definition matches what I mean when I speak of a eugenic ideology. Malcolm B. Hamilton, “The Elements of the Concept of Ideology,” *Political Studies* 35, no. 1 (March 1, 1987): 38, <https://doi.org/10.1111/j.1467-9248.1987.tb00186.x>.

use of the word for not restricting it to political dimensions.²³ However, this is not a dissertation on ideologies; rather, my use of the term is simply to frame what I mean when I refer to eugenics.

By framing eugenics as an ideology, one can grasp the contradictions of eugenicists more easily. Mendelians and neo-Lamarckians could advocate for the segregation and sterilization of the feeble-minded together because they both believed feeble-mindedness to be an inherited trait and that their growing numbers presented a menace to the social order. Some individuals, such as Aldred Scott Warthin whom we will see in Chapter 2, adhered to both Mendelian and neo-Lamarckian ideas simultaneously while advocating for eugenic measures. The specific genetic theory that an individual believed to be correct was less important than their agreement with the notion that certain traits were inherited and those that benefitted society should be increased while those that were deleterious should be reduced. Moreover, understanding eugenics as its own ideology helps elucidate the historiographical confusion surrounding the blend of conservative and progressive elements within the eugenics movement. Individuals are never influenced or guided by a single ideology; instead, they understand the world through an amalgamation of several, sometimes competing, ideologies. Thus, staunch conservatives like Charles Davenport and Madison Grant and progressive health reformers like John Harvey Kellogg and Victor Clarence Vaughan could collaborate towards achieving the same common eugenic goals. Rather than being a conservative or progressive program, eugenics was its own set of ideas and reforms that developed alongside progressivism and conservatism.

Central to the ideology of eugenics was the growing technocratic expertise of scientists in the early-twentieth century. Eugenics ascended in tandem with progressivism because they both attempted to reform the United States and its population by utilizing the latest scientific findings

²³ Michael Freeden, *Ideology: A Very Short Introduction* (Oxford: OUP Oxford, 2003), 3.

to address social issues. The progressive veneration of science as the ultimate source of secular reform aided eugenics, whose advocates frequently highlighted their scientific credentials as they endorsed marriage restriction and sterilization legislation. The human body, whose output had already been subject to observation, tabulation, and reform through scientific management, had also become a laboratory, where scientists would simultaneously investigate and intervene into the human body through experimentation and research.²⁴ For eugenicists, this meant the study of human inheritance and the intervention into their reproductive capacities through segregating unfit individuals by sex or through sterilization. By the mid-1920s, American jurists deferred to eugenic experts in determining whether surgically removing the procreative capacities of individuals was a justifiable use of the state's police power.

Understanding eugenics as an ideology, rather than exclusively as an applied science of human genetics, also explains its influence in medical genetics and population control after World War II. Although advances in genetic science—particularly those in population genetics following the Modern Synthesis—repudiated much of the simple Mendelian explanations of human traits espoused by eugenicists, the ideological inclination that social benefits would incur resulting from the suppression of certain individuals from reproducing remained a powerful force. While eugenicists believed that those who inherited certain socially deviant traits such as feeble-mindedness or criminality should be prevented from having children, medical geneticists counseled those with inherited physical disorders of the likelihood their children would have the same disease. Eugenicists in the early-twentieth century who feared the quality of the American population was deteriorating on account of growing numbers of southern and eastern Europeans eventually gave way to demographers fearing the quantity of the global population was too large to be sustainable. Both

²⁴ Helen Tilley, *Africa as a Living Laboratory: Empire, Development, and the Problem of Scientific Knowledge, 1870-1950* (Chicago: University of Chicago Press, 2011).

groups, for different reasons and based on different epistemological foundations, advocated limiting the number of children. Otherized groups had compared to middle-class parents whose ethnicity came primarily from Western Europe.

This dissertation follows the recent trend of studies on eugenics in the US by analyzing the ideology of eugenics in the state of Michigan. It attempts to situate the development of eugenics in Michigan within the broader national movement. Reference will be frequently made to eugenicists outside of the state, to reveal how Michiganders were like their contemporaries and where they differed. Furthermore, people and ideas are never stationary. Eugenics is an excellent example of the globalization of ideas, for the communication and transportation networks that were being developed in the early-twentieth century facilitated the adoption of eugenic ideologies around the world. Therefore, although this is a study of eugenics “in Michigan,” we will see the mediation and effects of the ideas Michigan eugenicists put forth from California to New York, and from the United States to India, Taiwan, and Pakistan. In each of these places, such ideas were debated, rejected, or accepted according to differing local, social, political, and cultural contexts. But the frame of reference for this study will be on those people and institutions that call Michigan their home.

Michigan is a unique case study for understanding the eugenics movement because of several reasons. As we will see in the coming chapters, geneticists played a minimal role in advancing eugenic ideas in the state. This contrasts with the emphasis historians have given geneticists in national analyses on eugenics. Highlighting the different justifications Michigan eugenicists gave for their adoption of eugenics therefore provides more nuance in understanding its influence on Americans in the early-twentieth century and its legacy today. Furthermore, the Michigan legislature was the first in the country to attempt to enact sterilization legislation. As will be discussed in

Chapter 4, understanding what the initial impetus was for sterilization policies, and how they evolved over time as eugenics was popularized, helps us understand why sterilization legislation was eventually ratified in more than half the states in the country. The roughly 3,800 individuals sterilized in Michigan was also fourth-most of any state. Michigan, then, is an important case study for the theoretical and practical components of eugenics.

In this dissertation, I argue that demographic pressures led psychiatrists, physicians, and ecologists to adopt eugenic ideas and endorse eugenic policies. In their advocacy of sterilization legislation, promotion of birth control, and population planning, they were concerned that the “wrong” types of people were having too many children. Eugenicists in Michigan demarcated proper from improper parents according to the prevailing values and norms of society alongside their personal conceptualizations of inheritance. From 1900 to 1945, their efforts were primarily in preventing the reproduction of the mentally disabled. Their efforts were successful by tying eugenics to preventive public health. Eugenics, they reasoned, was a complementary effort alongside other public health reforms to improve the hereditary health of the nation. After World War II, medical geneticists turned their attention towards those with physical disorders caused by genetics, while population planners attempted to reduce the number of children born to poor women throughout the Global South. The postwar splintering of eugenics was part of the continuing professionalization and specialization of academic disciplines. Geneticists, although synthesizing theories from multiple disciplines to formulate the Modern Synthesis, turned their attention towards the distribution of genes within a population and how that distribution changed over time through natural selection. Ecologists stressed the role large groups of humans have on their surrounding environment. Demographers, the most recent of the groups to become an established academic discipline, focused on population growth in relation to economic development. Although

there was occasional overlapping between these groups, it was far less frequent in the second half of the century than in the first.

Chapter 1 explores the emergence of eugenics in the early-twentieth century by investigating the ideas and institutional practices of psychiatric superintendents of mental institutions in Michigan. I argue that state policies shifting care of the poor from private to public institutions created demographic pressures in state hospital populations, which partly caused psychiatrists to emphasize preventive over curative measures for mental disease. With the ascendancy of eugenic claims for the hereditary nature of mental disabilities occurring simultaneously, I demonstrate that psychiatrists borrowed these ideas to emphasize preventive medicine, expand their facilities to house growing numbers of individuals, and justify lifetime institutionalization for some patients and sterilization and parole programs for others. That said, they advocated for eugenic measures even before the rediscovery of Mendel's laws in 1900 and only gradually adopted Mendelian genetics to explain the hereditary nature of mental illness. When they began sterilizing patients of state hospitals in earnest, they did so at a time when geneticists, anthropologists, and sociologists were attacking the intellectual foundations of eugenics. Rather than relying solely on genetic reasons, psychiatrists justified curtailing the reproduction of their patients on economic and social grounds.

The historiography on eugenics in the United States frequently minimizes the role physicians played in its ascendancy. Chapter 2 explains that in Michigan, physicians were instrumental in spreading eugenic ideas and promoting eugenic policies. I focus on Drs. John Harvey Kellogg and Victor Clarence Vaughan to demonstrate how their time together as members of the Michigan State Board of Health reveals connections between public health policies and eugenic ideas. I show how neo-Lamarckians like Kellogg were able to work with Mendelians like Vaughan to endorse

eugenics within a public health framework. Broadly speaking, Kellogg and Vaughan argued that a rationally planned form of artificial selection (eugenics) needed to supplant natural selection. Rather than deplore modern medical advances for decreasing the infant mortality rate, which consequently allowed more poor children to also survive, they offered eugenics as a necessary countermeasure. In advocating for sterilizing the feeble-minded alongside vaccinations and cleaning the water supply, they claimed that eugenics would improve the “seed” or hereditary capabilities of the population, while eugenics improved the “soil” in which that seed grew. For these public health physicians, environmental and hereditary reforms blended in a program for “race betterment.”

Any examination of the ideology of eugenics also must disclose how science can impact society. The third and fourth chapters assess how eugenicists’ public education efforts resulted in the enactment of sterilization and laws to prevent individuals deemed “genetically unfit” from having children. Chapter 3 looks at the three Race Betterment Conferences organized by John Harvey Kellogg’s Race Betterment Foundation and publications from his *Good Health* magazine. It reveals that eugenicists provided the public with a mixture of lay and scientific conceptualizations of heredity to support eugenic policies while quickly responding to critics of eugenics. All three of the Race Betterment Conferences included both environmentalists and hereditarians, and their programs emphasized how eugenics could help with contemporary issues. The second conference, held in 1915, included a “morality masque” that stressed the dysgenic effects of war, while the 1928 conference had several speakers relating eugenics to immigration. Readers of *Good Health* would come away with the basics of Mendelian inheritance and how it applies to various hereditary traits, while also being introduced to studies on alcohol and tobacco as race poisons. Writers disproportionately discussed proper marriage selection as a way to produce eugenic

change among its audience, who were presumed to not be among those subject to coercive sterilization.

Chapter 4 demonstrates how progressive notions of professional expertise through the division of labor influenced two Michigan Supreme Court cases on sterilization legislation. In 1918, the court repealed the state's 1913 sterilization law in *Haynes v. Lapeer* because it violated the equal protection clause of the 14th amendment. Eugenicists responded by constructing new model sterilization laws that addressed the reasons why their initial bills were repealed. In Michigan, Burke Shartel ensured that the revised law could theoretically apply to anyone the probate court determined to be feeble-minded. Although the statute passed in 1923 contained a *de jure* sterilization clause, its applicability only through probate rulings ensured a *de facto* separation in which those who were institutionalized remained the targets of sterilization operations. In 1925, the state Supreme Court ruled the state's second bill constitutional after consulting with experts in genetics and psychiatry. The justices determined that feeble-mindedness was an inherited trait and that because they were becoming a greater proportion of the total population, their sterilization was a proper exercise of the state's police power for the general welfare of society.

Scholars have shown eugenic assumptions remained embedded in medical genetics and genetic counseling after 1945, despite the development of the Modern Synthesis that culminated in a new understanding of heredity and evolution through population genetics and the ascent of molecular genetics after 1953. In chapter 5, I expand on this work through an examination of the Institute of Human Biology and the Heredity Clinic at the University of Michigan. I demonstrate that the individual who created these institutions, Lee Dice, did so with clearly stated eugenic intentions. His concerns with differential reproduction (how many children various groups within the population were having) resulted in the Assortative Mating Study that attempted to ascertain

whether upper- and lower-class individuals tended to marry others within their socioeconomic class. I also argue that James Neel, while repeatedly repudiating eugenics and racism, nevertheless provided the theoretical basis for sickle cell screening programs that targeted African Americans in the 1970s. I explain how Neel's work on the Yamamomo tribes in Brazil were rooted in similar beliefs to those of eugenicists about the diminishing role natural selection plays on "advanced" civilizations, and how such beliefs caused him to promote the idea of preserving the gene pool, something that eugenicists would have agreed with. I also trace the parallels between Neel's "euphenics" program and John Harvey Kellogg's euthenic reforms. This does not mean that all medical genetics is eugenic; however, I suggest that a fundamental difference between the two is that medical geneticists limited their research to hereditary diseases that had observable physiological characteristics, while eugenicists frequently examined the inheritance of social behaviors.

In constructing theories to identify people as unworthy of reproductive autonomy, eugenics intersects with issues of race, class, and gender. Scholars have previously indicated how ecological and economic concerns converged with an evolved form of eugenics that accepted the idea that environments play a role in people's development in the 1940s and 1950s. Chapter 6 examines how the ideology of eugenics translated into population control policies after World War II to restrict the reproduction of poor people of color, mostly women, throughout much of the Global South and in the United States. I use the Michigan Population Studies Center's study of the Taiwan family planning program as a case study for how processes of quantification fostered the development of systems of controlling a population's fertility through the tabulation of individuals. I then compare this with family planning programs in India and the United States to demonstrate how both countries ignored cultural and social differences in pursuit of achieving desired reductions in population growth. While the scientific rationale behind the eugenic ideology was significantly

altered, population planners justified policies that remained rooted to this framework and overall goals.

I conclude with a brief discussion of how leaders at various Michigan institutions have ignored the state's eugenic past. One example is the 1998 state Supreme Court's determination that a probate court had proper authorization to sterilize Lora Wirsing on account of her being mentally incompetent to consent. Another is the failure of Governor Jennifer Granholm to issue a public apology in the early 2000s, after North Carolina and several other states made similar pronouncements. I also discuss the delayed response of the University of Michigan, despite student protests, in removing Clarence Cook Little's name from public buildings and addressing the institution's own eugenic past. At a time when technologies like CRISPR invoke fears of the resurgence of eugenic practices, several states are diminishing women's reproductive autonomy, and COVID-19 responses towards those with disabilities have been attacked as a form of eugenic genocide, I argue that we must confront our eugenic past to help forge a more equitable future. Although it is unlikely that we will see the return of sterilization laws to prevent those with specific genes from reproducing, remnants of the eugenic ideology nonetheless remain, and it is important to recognize how it shapes our world today.

Chapter 1 Psychiatric Genetics and the Emergence of Eugenics

Eugenics, as defined by its founder Francis Galton, was “the science which deals with all influences that improve and develop the inborn qualities of a race.”¹ Accordingly, scientists and professionals around the world had differing interpretations as to what these “influences” exactly were. As a field of science in the United States, scholars have largely understood eugenics as the application of Mendelian ideas to help solve social questions in the early twentieth century. Under this framework, hereditarianism “hardened” in the sense that genetics determined the manifestation of traits while the environment played a much lesser role, if at all.² Eugenicists, responding to the increasing number of allegedly undesirable traits in the population, believed that the regulation of reproduction was the only available action.

That said, there were undercurrents of eugenic thought prior to the rediscovery of Mendel’s pea experiments in 1900. Mark Haller, in his pioneering work on the intellectual history of eugenics, defines three “different but somewhat overlapping groups” that borrowed eugenic ideas in solving their own questions and concerns: first, psychiatrists and psychologists who wished to prevent both crime and mental illness; second, mostly economists and anthropologists who were concerned about demographic questions arising from changes in immigration patterns; and, third, geneticists seeking to know how human traits were inherited. It was largely the first group, Haller argues, that “provided the principal eugenics impulse” through their “concern with hereditary defect.”³ Superintendents of mental hospitals developed this concern with heredity due to both

¹ Galton, “Eugenics: Its Definition, Scope, and Aims.”

² Meloni argues that the “crystallization” of hard heredity after 1900 “fostered new demarcations between the ontological domains of the biological and the social, nature and nurture, the life and the social sciences.” Meloni, *Political Biology*, 2.

³ Mark H. Haller, *Eugenics: Hereditarian Attitudes in American Thought* (New Brunswick, NJ: Rutgers University Press, 1963), 92–93.

intellectual developments and their own professional experience as heads of these institutions. By the turn of the twentieth century, and in Europe nearly half a century before, many had supported eugenics in all but name.⁴ When Mendelian genetics shepherded a new paradigm for understanding human inheritance—essentially ushering in genetics as a legitimate field of science—many psychiatrists already accepted heredity as an important component of mental disease. Psychiatrists continued to recognize the hereditary nature of mental disability from a pre-Mendelian perspective, only gradually adopting Mendelian genetics. Rather than transforming the way psychiatrists conducted research or advocated preventive medicine, Mendelism helped to draw in a new professional group as supporters of the same measures superintendents of mental institutions were already advocating for; specifically, segregation and sterilization of the unfit.

Superintendents of mental institutions, throughout the nineteenth century, gradually altered their understanding of heredity in their attempts to comprehend the causes of mental diseases. As Charles Rosenberg has noted, for much of the century physicians' discernment of heredity was based on its supposedly protean quality.⁵ According to this view, the presence of various mental diseases, whether it be feeble-mindedness—an ambiguous concept that included a variety of mental disabilities, insanity, criminality, pauperism, etc., in a family line was the result of a weakened constitution. Studies of the families of patients at asylums and institutions confirmed to superintendents how closely related these diseases were.⁶ Integral to the conceptualization of inheritance among nineteenth-century psychiatrists in the United States were three strains of thought: first, Jean Baptiste de Lamarck's use-inheritance theory, or the theory of the heredity of acquired char-

⁴ Porter says that “by 1859, eugenics, in a broad sense, was old hat” for asylum doctors. Theodore M. Porter, *Genetics in the Madhouse: The Unknown History of Human Heredity* (Princeton, NJ: Princeton University Press, 2018), 146.

⁵ Charles E. Rosenberg, *No Other Gods: On Science and American Social Thought* (Baltimore: Johns Hopkins University Press, 1976), 29.

⁶ Haller, *Eugenics*, 24.

acters; second, Benedict Augustin Morel's theory of degeneration; and, third, the biological theories emerging from the nascent field of criminology.

Nineteenth-Century Theories of Heredity

In the second half of the nineteenth century, as professionals largely accepted the idea of evolutionary change, if not explicitly Darwin's theory of natural selection, the question of the mechanism of heredity remained. Most Americans, including psychiatrists, continued to accept Lamarck's theory of acquired characters as the best formulation of inheritance available. Three ideas of Lamarck, in particular, influenced neo-Lamarckian notions of heredity and evolution: (1) that evolution was a progressive process, in that species continually evolved into more complex organisms; (2) that organisms adapted and evolved according to the pressures placed on them from the environment around them; and (3) that the use, or disuse, of certain organs or body parts led to inherited changes in the offspring, with the classic example of the long necks of giraffes being a result of ancestors reaching for leaves on trees.⁷ Scholars have noted that Lamarckism provided an understanding of heredity and evolution that allowed for the existence of a beneficent deity, where organisms progressed through stages toward man, seen as the perfect evolutionary form in the image of God.⁸ It also afforded the environment a substantial role in the progression and development of species. Thus, among alienists, Lamarckian ideas of inheritance coincided with the practice of "moral treatment," which involved placing the mentally disabled in peaceful environments, offering an education and recreation, and eventually restoring them to health so that they may return to the community.⁹

⁷ For some explanations of neo-Lamarckian ideas of evolution and inheritance, see Peter J. Bowler, *Evolution: The History of an Idea* (Berkeley: University of California Press, 1984), 80–83; Cravens, *The Triumph of Evolution*, 34–36.

⁸ Cravens, *The Triumph of Evolution*, 36; Christine Rosen, *Preaching Eugenics: Religious Leaders and the American Eugenics Movement* (New York: Oxford University Press, 2004), 8.

⁹ Peter L. Tyor and Leland V. Bell, *Caring for the Retarded in America: A History*, Contributions in Medical History, no. 15 (Westport, CT: Greenwood Press, 1984), xiii–xiv.

However, starting in the second half of the nineteenth century and proceeding into the first few decades of the twentieth, the government incorporated almshouses and poor homes previously run at the county-level into state-funded mental hospitals, thus increasing the population of elderly and chronic patients in these institutions. A special commission to investigate public institutions in Michigan in 1871, for instance, called for moving the mentally ill from county-level almshouses into state hospitals, while simultaneously appealing for the immediate development of a new asylum to house some of these patients. The commissions' findings and recommendations helped facilitate the construction of three state asylums for the insane and the creation of the Michigan Home for the Feeble-Minded and Epileptic in the last three decades of the nineteenth century.¹⁰ As greater proportions of the institutional population consisted of incurable cases, superintendents shifted their professional focus towards long-term custodial care. When curative therapies became less practical, superintendents placed a greater emphasis on applying preventive measures to decrease the number of mentally ill.¹¹ Although some superintendents, especially those in the eastern United States, made this transition as early as the 1870s, the heads of state asylums in Michigan only began emphasizing custodial care over cure in the 1890s.¹² This can be seen at the turn of the century in places like the Michigan Asylum for the Insane in Kalamazoo, where Dr. William Edwards, the medical superintendent of the institution, reasoned that "the efficiency of the asylum"

¹⁰ Catherine Jean Whitaker, "Almshouses and Mental Institutions in Michigan, 1871-1930" (Unpublished dissertation, Ann Arbor, MI, University of Michigan, 1986), 36–38.

¹¹ Grob notes that this shift towards preventive medicine was not limited to physicians focusing on mental disease, but was rather part of a general trend in medicine at the time. Gerald N Grob, *Mental Illness and American Society, 1875-1940* (Princeton, N.J.: Princeton University Press, 1983).

¹² Whitaker notes this later transition towards somatic etiology, custodial care, and a general pessimistic view towards the curability of mental disease. That said, Whitaker equates moral treatments such as "employment and amusements" with an optimistic view of the curability of mental illness. However, employing patients, especially following the transition to custodial care, was primarily a financial imperative that may also have had some therapeutic effect. Meanwhile, amusements could be still utilized as a deviation from the daily routines, while providing a distraction for patients that superintendents often considered to be potentially violent. Whitaker, "Almshouses and Mental Institutions in Michigan, 1871-1930," 88–97.

should not be measured by cure rates, but, rather, “by the standard of maintenance and care that is afforded to its resident population from day to day.”¹³

Simultaneous with these developments was the dissemination of Benedict Morel’s concept of degeneration from France to the United States. By the 1880s, Morel’s degeneration theory influenced psychiatric understandings of deviancy and criminality within a neo-Lamarckian framework of heredity.¹⁴ Morel argued in his 1857 *Treatise on Degeneracy* that various poisons, such as alcohol and drugs, caused the deterioration of one’s physical, mental, and moral faculties and could be passed down from generation to generation.¹⁵ Families suffering from degeneration, according to Morel, would also become sterile after the third generation.¹⁶ Similar to other theories of heredity in the nineteenth century, Morel’s degeneration concept was protean in nature. Following the initial onset of mental degeneration—as a result of alcoholism, venereal disease, or some other environmental cause—psychiatrists diagnosed patients from the second or third generation with a variety of more specific pathologies, to the point where degeneration referred to most psychological deviations from normality.¹⁷ Some scholars have suggested that the mutable nature of degenerationist diagnoses made the theory inapplicable to psychiatric statistical research outside of France.¹⁸ However, as Daniel Pick has discussed in his influential work on the concept, psychiatrists adapted and transmuted the theory of degeneration outside of France based on differing

¹³ “Report of the Board of Trustees of the Michigan Asylum for the Insane” (Kalamazoo, MI: Kalamazoo State Hospital, 1898), 46.

¹⁴ Haller, *Eugenics*, 40.

¹⁵ Michael Billinger, “Degeneracy,” The Eugenics Archives, April 28, 2014, <http://eugenicsarchive.ca/discover/tree/535eeb0d7095aa0000000218>.

¹⁶ Ian Robert Dowbiggin, “Degeneration and Hereditarianism in French Mental Medicine,” in *The Anatomy of Madness: Essays in the History of Psychiatry*, ed. W. F. Bynum, Roy Porter, and Michael Shepherd (London: Tavistock Publications, 1985), 191–92.

¹⁷ Dennis L. Durst, *Eugenics and Protestant Social Reform: Hereditary Science and Religion in America, 1860-1940* (Eugene, OR: Wipf and Stock Publishers, 2017), 4; Daniel Pick, *Faces of Degeneration: A European Disorder, c.1848-c.1918*, Ideas in Context (Cambridge: Cambridge University Press, 1989), 50.

¹⁸ Porter argues that degeneration theory “had almost no use for statistics” of hereditary degeneracy. Porter, *Genetics in the Madhouse*, 179.

national contexts. In both psychiatry and its influence on cultural works, degeneration did not refer to “the reproduction of a constant anomaly from one body to another,” but, rather, emphasized “an infinite network of diseases and disorders” that parents passed down to progeny throughout society.¹⁹ Thus, although Morel emphasized the social conditions that led to degeneration, while limiting the concept to explain the manifestation of cretinism, medical and social professionals in Europe and the United States adopted and altered the concept to refer to a “biological force,” in which degeneration was “not the effect but the cause of crime, destitution and disease.”²⁰ In the United States, specifically, degeneration helped elucidate, in a neo-Lamarckian biological framework, relationships between crime and other social ills. However, although neo-Lamarckism provided an optimistic belief in the potential improvement of the genetically unfit through environmental reforms, it would gradually be superseded by a more rigid hereditarianism in the late-nineteenth and early-twentieth century, eventually resulting in more radical measures to alleviate society from a variety of perceived ills.²¹

Finally, works on the supposed hereditary nature of criminals in the late-nineteenth century influenced psychiatric and public ideas of heredity. One of the most popular works in the United States to suggest that criminality was hereditary was Richard Dugdale’s analysis of the “Juke” family in 1877. Beginning with prisoners in correctional facilities in New York, Dugdale—whose background was in business rather than sociology or medicine—traced their lineage all the way back to the Revolutionary War, revealing how criminal tendencies continued across generations. Unlike the family studies that would appear in the twentieth century, however, Dugdale attributed hereditary criminality, pauperism, and vice to both inheritance and the environment, arguing at

¹⁹ Pick, *Faces of Degeneration*, 50.

²⁰ Pick, *Faces of Degeneration*, 21.

²¹ Nicole Hahn Rafter, *The Criminal Brain: Understanding Biological Theories of Crime* (New York: New York University Press, 2008), 100–101.

one point that “the tendency of heredity is to produce an environment which perpetuates that heredity. . . The correction is change of environment.”²² Appearing before Mendel’s work was recognized, *The Jukes* demonstrated the inheritance of socially maladaptive traits through a neo-Lamarckian and degenerationist framework.²³

The other significant works linking mental defect to criminality in the nineteenth century came from criminal anthropologists in Europe. The first work introduced in the United States was E.P. Fowler’s translation of Moriz Benedikt’s *Anatomical Studies upon Brains of Criminals* in 1881. Benedikt, a Hungarian neuropathologist in Vienna, dissected the brains of criminals to argue that their brains could be characterized by a greater number of fissures and a lack of gyre development.²⁴ Criminals, according to Benedikt, were “A DEVIATION FROM THE NORMAL TYPE,” and should “BE VIEWED AS AN ANTHROPOLOGICAL VARIETY OF THEIR SPECIES, AT LEAST AMONGST THE CULTURED RACES.”²⁵ The other major influence in late-nineteenth-century criminology was Cesare Lombroso. Although his own work on the physical stigmata of criminals was not translated into English until 1911, American criminal anthropologists and psychiatrists digested his work from secondary sources, the most popular being British eugenicist Havelock Ellis’ *The Criminal*.²⁶ While Benedikt claimed that criminals represented a deviation from the normal type, Lombroso maintained that “criminals were the atavistic products of heredity.”²⁷ Thus, criminals were less a contemporary aberration, but rather an evolutionary retrogression that investigators could identify according to certain physical traits. Despite these

²² Richard L. Dugdale, *The Jukes: A Study in Crime, Pauperism, Diseases, and Heredity*, 4th ed. (New York: G.P. Putnam’s Sons, 1910), 65–66.

²³ Rafter, *The Criminal Brain*, 108.

²⁴ Moriz Benedikt, *Anatomical Studies upon Brains of Criminals*, trans. E. P. Fowler (New York: William Wood and Company, 1881), viii.

²⁵ Benedikt, *Anatomical Studies upon Brains of Criminals*, 157 Capitalization in original.

²⁶ Nicole Hahn Rafter, “Criminal Anthropology in the United States,” *Criminology* 30, no. 4 (1992): 530.

²⁷ Haller, *Eugenics*, 15.

differences in the evolutionary nature of criminality, however, the work of criminal anthropology further strengthened the links between mental deficiency, criminal tendencies, and a hereditary basis explaining their cause.²⁸

These connections can be seen in the work of both eugenicists and alienists. For instance, Francis Galton developed the technique of composite portraiture to attempt to determine the typical facial characteristics of criminals in 1883. By layering on top of one another several portraits of a particular type of person, Galton claimed to find the “ideal composition” of several “types” of groups. Although he was unable to extract specific commonalities between faces of individuals who committed particular crimes, Galton nevertheless claimed that the composite portraits of criminals revealed a “common humanity of a low type” that differed from the normal law-abiding citizen.²⁹ Walter Fernald, one of the leading medical superintendents in the United States in the early twentieth century, argued in 1909 that his theory of mental defect matched Lombroso’s theory of criminality, asking “is not the typical instinctive criminal of Lombroso a typical adult imbecile of middle or high grade, plus opportunity and experience in the community?”³⁰

Psychiatric Eugenics Before Mendel

Following the publication of Richard Dugdale’s study of the Jukes family in 1877, but well before the recognition of Mendelian inheritance, psychiatrists gradually pushed for more extreme measures regarding the removal of the feebleminded and other defectives from society.³¹ Isaac Kerlin, head of the Pennsylvania Training School in Elwyn, called in 1884 for a more “paternal government” towards the institutionalization of the “disorderly, contaminating, and misery-breed-

²⁸ Haller, *Eugenics*, 40.

²⁹ Francis Galton, *Inquiries into Human Faculty and Its Development*, 2nd ed. (New York: E.P. Dutton & Co., 1907), 8–11.

³⁰ Walter E. Fernald, “The Imbecile with Criminal Instincts,” *Journal of Psycho-Asthenics* 14 (1910 1909): 35.

³¹ Porter identifies Ludvig Dahl, of Norway, as the first to use the family pedigree study to explain hereditary mental illness. However, while it was disseminated and appreciated by psychiatrists, it failed to captivate the American public like Dugdale’s study on the Jukes did. Porter, *Genetics in the Madhouse*, 103, 136–44.

ing elements” of the population, as well as continued studies like that conducted by Dugdale.³² By 1892, it was not uncommon to find superintendents arguing that imbeciles produced “incalculable mischief through reproduction of its kind” and that they should “be kept for a lifetime under restraint, oversight, and wise direction” at mental institutions.³³ Beyond the segregation of those medically and socially determined as unfit members of society, some psychiatrists advocated for asexualization as another preventive measure. Dr. F. Hoyt Pilcher, of the Institution for Feeble-Minded Children in Winfield, Kansas, castrated 58 inmates from 1894 to 1898 in order to control their “sexual instincts,” specifically, masturbation.³⁴ A year later, Dr. Harry C. Sharp, started performing vasectomies on boys at the Reformatory in Jeffersonville, Indiana, where he was the surgeon. He continued to sterilize patients, without any legal authority to do so, until Indiana passed the first sterilization law in 1907.³⁵

Despite the Michigan state legislature’s attempt to be the first in the country to enact an asexualization law in 1897, none of the superintendents of mental institutions in the state at the turn of the century publicly advocated for sterilization as a prophylactic measure to prevent insanity or degeneracy. Rather, following the transition to custodial care in other asylums throughout the country, much of their treatments were hygienic. This was due, in part, to the dual influences of George Beard’s theory of neurasthenia and the turn towards somatic pathology within neuropsychiatry. Beard argued that neurasthenia was the result of an individual exhausting their nervous

³² Isaac N. Kerlin, “Provision for Idiotic and Feeble-Minded Children,” *Proceedings of the National Conference of Charities and Correction* 11 (1884): 246–63.

³³ George H. Knight, “The Colony Plan for All Grades of Feeble-Minded,” *Proceedings of the National Conference of Charities and Correction* 19 (1892): 158.

³⁴ Trent argues that sterilizations around the turn of the century were primarily done to control sexual behavior, rather than for explicitly eugenic reasons. However, Dr. Harry Sharp explicitly mentioned the eugenic benefits of the vasectomy procedure. James W. Trent, *Inventing the Feeble Mind: A History of Mental Retardation in the United States*, 1st paperback printing, Medicine and Society 6 (Berkeley: University of California Press, 1994), 193–94.

³⁵ A brief account of both Pilcher and Sharp is given in Harry Hamilton Laughlin, *Eugenical Sterilization in the United States: A Report of the Psychopathic Laboratory of the Municipal Court of Chicago* (Chicago, IL: Psychopathic Laboratory of the Municipal Court of Chicago, 1922), 351–52.

energy, which was becoming more commonplace with the advent of modern civilization.³⁶ Meanwhile, psychiatrists started to perform autopsies as a means to check diagnoses and their findings suggested a link between mental disease and physiological changes in the central nervous system, particularly lesions on the brain.³⁷ It was those suffering from physiological changes in their brain's structure, rather than those with a hereditary predisposition, that psychiatrists reasoned were least amenable to cure.³⁸

Thus, superintendents like Dr. Edwards incorporated hydrotherapies, massages, calisthenics, and improved diets into their treatment program, claiming that patients' recoveries were largely due to the physician's "ability to build up a run down and depraved physical system."³⁹ This emphasis on hygiene to cure physiological and mental degeneration, rather than on the propagation of the unfit, may be in part due to the growing presence of the elderly at the Kalamazoo Asylum, which received larger numbers of elderly patients in the late-nineteenth century than the other state institutions.⁴⁰ There was also the consistent use of patients as part of the general labor

³⁶ Like Morel's concept of degeneration, Beard's concept of neurasthenia was protean in nature and laid blame on "civilization" for the rise of cases of insanity. A variety of causes resulted in a variety of symptoms, which were broadly placed under the umbrella term neurasthenia. George Beard, "Neurasthenia, or Nervous Exhaustion," *The Boston Medical and Surgical Journal* 3, no. 13 (April 29, 1869): 217–21.

³⁷ For instance, Dr. James D. Munson, superintendent of the Traverse City Asylum, detailed some of the autopsies he performed in his biennial reports. "Report of the Board of Trustees of the Northern Michigan Asylum" (Traverse City, MI: Northern Michigan Asylum, 1896), 36–40; Grob describes the somatic concept of mental disease as "both an act of faith and a starting assumption" for late-nineteenth century psychiatrists. Grob, *Mental Illness and American Society, 1875-1940*, 34.

³⁸ Before he adopted the classification of Emil Kraepelin, Dr. Munson placed patients of the Traverse City Hospital into three groups. Group "C" represented about half of all the patients at the asylum and were identified as patients suffering from "organic" mental diseases that were incurable. "Report of the Board of Trustees of the Northern Michigan Asylum" (Traverse City, MI: Northern Michigan Asylum, 1908), 46; Porter notes that in the late-nineteenth century, asylum doctors cited hereditary statistics to show inherited cases of insanity were more curable than other forms. Porter, *Genetics in the Madhouse*, 94.

³⁹ Edwards noted in this report that the only development in psychiatry worthy of noting recently was that "the consciousness of the physical basis of insanity has seemed perhaps more clearly defined than ever before," alongside the "immense, constant, and never failing value of procedures purely hygienic." "Report of the Board of Trustees of the Michigan Asylum for the Insane," 1898, 56–59.

⁴⁰ For instance, Edwards considered the growing number of "aged, sick, or feeble friends and relatives" being brought to the institution as a sign that the general population had begun to see the asylum as a hospital "in the fullest sense of the term," rather than a detention facility. "Report of the Board of Trustees of the Michigan Asylum for the Insane" (Kalamazoo, MI: Kalamazoo State Hospital, 1900), 63; By 1900, over a quarter of the patients admitted to the

force of the hospital, particularly its farm work, that continued well into the twentieth century as a cost-cutting measure and, according to the superintendents, a form of treatment for the mentally ill. In 1916, it was estimated that about half the male patients at the Traverse City State Hospital were performing some form of labor, the majority of which was on the farm.⁴¹ The goal at these institutions was to provide as comfortable and productive a life as possible for patients that alienists viewed as incurable and unable to participate in society.

Moreover, while psychiatrists were convinced that hereditary factors were an important component to understanding the nature of mental disease, their methodology towards questions of inheritance were statistical and undoubtedly non-Mendelian. The heredity tables included in the biennial reports of psychiatric institutions in this period neglected to organize their findings according to anything that could be considered an inherited trait, including the obvious categorization by diagnosis. As late as 1904, some state hospitals organized these tables according to the sex of the patient admitted and where in their family line any hereditary factor deemed significant was found. Thus, superintendents included the number of patients who received some hereditary taint from their parents, grandparents, or “neuropathic relatives”, but they failed to specify what they were diagnosed with.⁴² This sort of methodology would be characteristic of Morelian understandings of degeneracy, in which different forms of a variable “degeneracy” were inherited across generations. In this framework, alcoholism, for instance, could cause feeble-mindedness in the progeny, followed by insanity in the next generation.

Kalamazoo Asylum for the Insane were over the age of 60, compared to 15% of the Pontiac Asylum's, 10% of Traverse City's, and 3% of Newberry's. Whitaker, “Almshouses and Mental Institutions in Michigan, 1871-1930,” 256–59.

⁴¹ “Report of the Board of Trustees of the Traverse City State Hospital” (Traverse City, MI: Northern Michigan Asylum, 1916), 9.

⁴² “Report of the Board of Trustees of the Eastern Michigan Asylum at Pontiac” (Pontiac, MI: Eastern Michigan Asylum, 1904), 55.

Thus, while the rediscovery of Mendel's pea experiments in 1900 ushered in a paradigm shift among American geneticists in appreciating the hereditary nature of human and animal traits and their potential social applications, for psychiatrists supervising and studying the mentally ill, it simply provided a new conceptual tool for them to use in their research on mental disease. Even then, it would take years before psychiatrists shifted their interpretations of the inheritance of mental disease to fall more in line with Mendelian genetics. In the meantime, psychiatrists continued to comprehend the ways mental disabilities were inherited through the construction of statistical tables much like they did in the nineteenth century.⁴³ Human genetics was just one component of a broad program seeking to better define and delineate a variety of mental diseases by means of a more comprehensive understanding of its etiology. The work of Dr. Albert Barrett, head of the State Psychopathic Hospital at the University of Michigan, offers a lens to the state of psychiatric research in the early 1900s, and its subtle transitions as eugenics gained support throughout the state and country.

Dr. Albert Moore Barrett and the Psychopathic Ward

The Psychopathic Ward of the University of Michigan Hospital, which was built in 1906 and a year later renamed to the State Psychopathic Hospital at the University of Michigan, was unique among mental institutions in the United States in its inception. Following the German model, it was created to treat acute mental disease, conduct clinical research, and teach medical students courses in neuropsychiatry.⁴⁴ Rather than provide long-term custodial care to patients, who were often transferred to the asylums in the state, the primary focus of the State Psychopathic

⁴³ Porter, *Genetics in the Madhouse*.

⁴⁴ "First Biennial Report of the Board of Trustees of the State Psychopathic Hospital at the University of Michigan" (Lansing, MI: State Psychopathic Hospital, 1909), 8–10.

Hospital was conducting research.⁴⁵ The head pathologist of this institution from its start was Dr. Albert Moore Barrett, who prior to his employment in Ann Arbor worked at the Iowa State Hospital for the Insane, the Danvers State Hospital under Adolf Meyer, and was an assistant professor of neuropathology at Harvard University.⁴⁶ As head of the State Psychopathic Hospital, he collaborated with the superintendents of asylums throughout the state in standardizing research, particularly in the “classification, definitions and analyses” of mental diseases.⁴⁷ Being designed specifically for clinical research, the State Psychopathic Hospital served as the lead institution in the state for understanding the state of psychiatry and the direction of psychiatric research.⁴⁸

Dr. Barrett was not an innovative theoretician of mental illness. Despite being the head of an institution specifically formed for neuropathological research, he failed to put forth any new theories regarding the etiology or treatment of mental disease. Nevertheless, he had a firm background in the hereditary and somatic schools of neuropathology, and under his direction the State Psychopathic Hospital established a serological laboratory and implemented psychiatric social work.⁴⁹ This reflects the state of psychiatric science at the time, which, compared to the innovations made in general medicine, was slow to provide conceptual advances in the field.⁵⁰ As late as

⁴⁵ By 1914, nearly 20% of all the hospital’s discharged patients were transfers to other mental institutions in the state. “Fourth Biennial Report of the Board of Trustees of the State Psychopathic Hospital at the University of Michigan” (Lansing, MI: State Psychopathic Hospital, 1915), 31.

⁴⁶ Lisa B. Hum, “Albert M. Barrett Papers,” Bentley Historical Library Finding Aid, 1997, <https://quod.lib.umich.edu/cgi/f/findaid/findaid-idx?cc=bhlead;c=bhlead;idno=umich-bhl-9766;didno=umich-bhl-9766;view=text>; Horace W. Davenport, *Victor Vaughan: Statesman and Scientist*, Historical Center for the Health Sciences Monographs 4 (Ann Arbor, MI: University of Michigan, 1996), 25–26.

⁴⁷ “Second Biennial Report of the Board of Trustees of the State Psychopathic Hospital at the University of Michigan” (Lansing, MI: State Psychopathic Hospital, 1911), 9.

⁴⁸ Barrett devised, in collaboration with the other superintendents, a plan where research could be conducted at each institution, but would be guided by, and collaborate with, the research conducted at the State Psychopathic Hospital. Albert M. Barrett, “Hospitals for the Acute and Recoverable Insane,” *Proceedings of the National Conference of Charities and Correction* 34 (1907): 410.

⁴⁹ Meyer considered Barrett a “thoroughly competent investigator of the structure of the brain,” and his work under both Meyer and Kraepelin likely introduced him to hereditary etiology. Davenport, *Victor Vaughan*, 25–26.

⁵⁰ At this time, there was no unified agreement among psychiatrists on the etiology or nosology of mental illnesses. Grob, *Mental Illness and American Society, 1875-1940*, 110–11.

1907, psychiatrists had not yet defined important diagnostic terms such as idiocy or insanity.⁵¹ As the number of institutionalized persons continued to expand, superintendents spent less time on research and more time on custodial and administrative work. Furthermore, the increased population also brought with it a variety of clinical symptoms, behaviors, and learning disabilities. As a result, in the first decade of the twentieth century, each institution diagnosed its patients differently, based on whether the superintendent emphasized their physiological, intellectual, or sociological differences compared to the general population.⁵²

Moreover, Barrett's work was largely on insanity, rather than feeble-mindedness. By the mid-nineteenth century psychiatrists recognized that there were significant differences between mental illness that resulted in insanity or psychosis, and mental defect, which produced idiocy, imbecility, or feeble-mindedness. The French alienist Etienne Esquirol, whose *Des Maladies Mentales* was translated and published in the United States in 1845, noted that the individual suffering from insanity was "deprived of advantages which he formerly enjoyed," while "the idiot, on the contrary, has always been in a state of want and misery."⁵³ This demarcation between mental defect and mental illness had a clear influence on psychiatry in the United States. For example, William White's textbook *Outlines of Psychiatry*, printed more than sixty years after Esquirol's work reached the country, still cited him in explaining the difference between the two.⁵⁴ Put another way, "the idiot, the imbecile, the feeble-minded lack something; the insane are suffering from a disorder of that which they possess."⁵⁵

⁵¹ See, for example William White's textbook on psychiatry. William A. White, *Outlines of Psychiatry* (New York: The Journal of Nervous and Mental Disease Publishing Company, 1907), 7, 222.

⁵² Leila Zenderland, "The Debate over Diagnosis: Henry Herbert Goddard and the Medical Acceptance of Intelligence Testing," in *Psychological Testing and American Society, 1890-1930*, ed. Michael M. Sokal (New Brunswick: Rutgers University Press, 1987), 55.

⁵³ Etienne Esquirol, *Mental Maladies: A Treatise on Insanity*, trans. E. K. Hunt (Philadelphia, PA: Lea & Blanchard, 1845), 447.

⁵⁴ White, *Outlines of Psychiatry*, 11-12.

⁵⁵ White, *Outlines of Psychiatry*, 222.

This differentiation between mental enfeeblement and mental disorders influenced how alienists understood the two manifestations. They would eventually view the insanities as being the result of diseases, thus, they sought to study their etiology much like the physician analyzed physical disease. Psychiatrists geared questions on the psychoses by clinical, pathological, and chemical investigations of the central nervous system in the late-nineteenth and early-twentieth century. Some of this research produced significant findings on the causative factors of a few mental diseases, such as the role of hypothyroidism in the manifestation of myxedema.⁵⁶ Psychiatrists also borrowed concepts from biology, reframing insanity as a peculiar inability to adapt oneself to their environment. It also seemed to resolve the mind-body problem of consciousness, which psychiatrists considered to be the holistic function of several broad cerebral processes such as “thinking, feeling, and acting” by the early twentieth century.⁵⁷ Insanity, then, manifested itself as a disorder that disrupted the patient’s usual consciousness, resulting in an incapacity to adjust to their environment. Disorders such as myxedema notwithstanding, a significant development in psychiatric research at this time was the recognition that most manifestations of insanity had several etiological factors and, conversely, that a single causative mechanism could produce various types of insanity. Psychiatrists observed alcoholism, for instance, to cause delirium tremens, acute hallucinosis, and Korsakoff’s psychosis.⁵⁸ Moreover, psychiatrists recognized that several factors causing insanity, such as stress from business or the loss of a loved one, also affected the general population, who did not become insane.

⁵⁶ Stewart Paton, *Psychiatry: A Text-Book for Students and Physicians* (Philadelphia, PA: J. B. Lippincott Company, 1905), 17–18.

⁵⁷ Both Paton and White felt this to be an important enough contribution to include in their introductions of their textbooks. Paton, *Psychiatry: A Text-Book for Students and Physicians*, 5; White, *Outlines of Psychiatry*, 6, 13.

⁵⁸ White, *Outlines of Psychiatry*, 17–18.

To try to resolve these issues, psychiatrists differentiated between “exciting” and “predisposing” factors of insanity. In this framework, individuals with certain predisposing factors, such as a “neurotic ancestry,” resulted in their being endowed with a “small resistive power” to the stresses imposed on them from their environment. Thus, exciting factors such as “domestic infelicities” or “disappointment in married life,” which only affected the emotions of normal individuals, developed into psychosis in those predisposed to insanity.⁵⁹ While this seemingly resolved some issues in psychiatry, alienists also realized that they needed further research to understand why, in some cases, the same mental disease occurred in a family line across multiple generations, i.e., “the heredity is *similar*,” while in others it occasioned the development of different mental disorders, i.e., “the heredity is *dissimilar*.”⁶⁰ Psychiatrists would thus direct their questions on the role of genetics in psychoses towards answering such questions by the second decade of the twentieth century.

Barrett, then, was a member of a profession in a period of intellectual crisis, and his personal progression towards eugenics represents a microcosm of the broader shift among medical professionals in the early twentieth century. By the time the State Psychopathic Hospital received its first patients in February 1906, psychiatrists considered heredity an important component of understanding the nature of mental disorders, even if the relationship between inheritance and mental disease was by then still unclear. In each of the first six biennial reports from the institution, Dr. Barrett entered statistical tables relating to the hereditary nature of a variety of mental diseases. However, these tables do not indicate that Barrett included them to prove that these afflictions were transmitted via Mendelian inheritance. Mendel’s tables on the inheritance of peas, and those

⁵⁹ Dr. James Munson discusses this regarding hysteria in “Report of the Board of Trustees of the Northern Michigan Asylum,” 1896, 49–50.

⁶⁰ White, *Outlines of Psychiatry*, 23 Italics in original.

of geneticists in the early twentieth century, emphasized a direct inheritance of a presumably singular and specified trait. For Mendel, it was the color of the peas and whether they were wrinkled or round; for eugenicists, it involved tracing the inheritance of what they considered to be a single trait such as Huntington's chorea or feeble-mindedness. The tables of psychiatrists at mental institutions, however, suggest a pre-Mendelian understanding of genetics, in which mental abnormalities in a patient's family imply a weakened constitution that could then manifest itself into a variety of clinical diagnoses.

Moreover, while some psychiatrists, notably Ludvig Dahl in Norway, used family studies—the other primary methodology among eugenicists—to demonstrate the inheritance of mental illness as early as 1859, few psychiatrists employed similar methods until the rediscovery of Mendelian genetics and their relevance to inheritance was more clear.⁶¹ Eugenics field workers and social workers, rather than psychiatrists themselves, largely conducted family studies in the nineteenth and the first decade of the twentieth centuries, even as they utilized psychiatric patients as the “data” of their research.⁶² Only later would some psychiatrists adopt this methodology, when they came to accept a Mendelian framework of understanding heredity. The Mendelian concept of the gene, which represented a material unit that described the intergenerational stability of certain traits, was a necessary prerequisite before psychiatrists believed the use of family studies would explain the hereditary nature of mental disease.⁶³

Following the theories of Morel and Beard, as well as his experience with Emil Kraepelin at the University of Heidelberg, Barrett's figures suggest that, for example, psychopathic conditions or apoplexy in an uncle or grandparent may cause schizophrenia—then known as dementia

⁶¹ Porter, *Genetics in the Madhouse*, 103.

⁶² Amy Sue Bix, “Experiences and Voices of Eugenics Field-Workers: ‘Women’s Work’ in Biology,” *Social Studies of Science* 27, no. 4 (1997): 625–68.

⁶³ Evelyn Fox Keller, *The Century of the Gene* (Cambridge: Harvard University Press, 2000), 13.

praecox—in future generations.⁶⁴ They do not attempt to demonstrate the inheritance of single or specified characteristic across generations, thus revealing the genetic nature of the trait. Compared to the heredity tables just a few years before, however, they allowed for neuropathologists to try to understand if certain mental illnesses had a greater likelihood than others in transferring constitutional weaknesses onto the next generation. In attempting to obtain a greater uniformity of results, the other mental hospitals in the state adopted these heredity tables within a few years.⁶⁵

Moreover, Barrett did not believe, as did the more hereditarian eugenicists, that a patient's environment was not an important factor in the onset of mental disease. In his push for preventive psychiatric medicine, he argued that many mental disorders “are the result of causes and conditions deeply rooted in our social life,” not simply due to genetic inheritance.⁶⁶ Thus, for Barrett, the growing presence of insanity was the outcome of weakened genetic constitutions alongside environmental stressors—which could be as specific as losing a job or as broad as urbanization—a view still fairly common among psychiatrists in the late nineteenth and early twentieth century.⁶⁷

However, while Barrett granted the environment a role in the cause of mental disease, he also gradually adopted Mendelism and certain hereditarian positions shared among eugenicists.⁶⁸ This was true of much of the psychiatric profession at the time. Specifically, the work of Dr. Henry Goddard, a psychologist at the Vineland Training School in New Jersey, on intelligence testing in

⁶⁴ Like other psychiatrists of the period, Barrett spent time traveling to institutions in Europe before leading the State Psychopathic Hospital. Davenport, *Victor Vaughan*, 25–26.

⁶⁵ See, for example, the change in Dr. Edmund Christian's heredity tables from the Eastern Michigan Asylum for the Insane from 1908 to 1910. “Report of the Board of Trustees of the Eastern Michigan Asylum at Pontiac” (Pontiac, MI: Eastern Michigan Asylum, 1909); “Report of the Board of Trustees of the Eastern Michigan Asylum at Pontiac” (Pontiac, MI: Eastern Michigan Asylum, 1910).

⁶⁶ Albert M. Barrett, “The Relation of the State Psychopathic Hospital to Problems of Juvenile Mental Disorders,” in *Proceedings of the Meeting of the Joint Board of Trustees of the State Hospitals of Michigan Held at Traverse City, July 17, 1913*, vol. 2 (Lansing, MI: Wynkoop Hallenbeck Crawford Co. State Printers, 1913), 13.

⁶⁷ For a discussion on the etiology of manic-depressive psychosis, see Edward Mapother, “Discussion on Manic-Depressive Psychosis,” *The British Medical Journal* 2, no. 3436 (1926): 874.

⁶⁸ Rosenberg notes that “the medical profession responded, on the whole, comparatively slowly and then in traditional fashion” to the rediscovery of Mendel's work. Rosenberg, *No Other Gods*, 216.

the first two decades of the twentieth century provided conceptual clarity for psychiatrists. His translation of the Binet-Simon mental test and its acceptance within the American Association for the Study of the Feeble-Minded unified psychiatric diagnoses of mental defect within a shared vocabulary.⁶⁹ By 1910, superintendents around the country largely redefined mental deficiency as a subnormal intelligence compared to the general population, diagnosed according to available intelligence tests.⁷⁰ Following Goddard's findings, feeble-mindedness became a term to denote any individual with subnormal intelligence, while the terms "idiot," "imbecile," and "moron," demarcated the feeble-minded according to their mental age.

Mental defect, as stated earlier, was seen as the outcome of incomplete mental development in the patient, rather than the loss of function resulting from disease. Alienists thus understood it as a condition that largely developed before the individual was born, except in cases of trauma to the head occurring before mental development was completed. Moreover, they believed that the only available cure for mental deficiency was educating the individual to hopefully become self-sufficient.⁷¹ Thus, while psychiatrists attempted to better comprehend the causes and nature of mental illnesses to better aid therapeutics, they failed to devote similar attention to mental defect. Those that examined the physiological or anatomical changes in the brain that caused imbecility reinforced the idea that such conditions occurred primarily before birth and due largely to hereditary defects. Such was the state of research on feeble-mindedness that William Polglase, the first superintendent of the Michigan Home for the Feeble-Minded and Epileptic in Lapeer (later named the Michigan Home and Training School and hereafter referred to as MHTS), could claim that

⁶⁹ "Report of Committee on Classification of Feeble-Minded," *Journal of Psycho-Asthenics* 15, no. 1 (September 1910): 61–67.

⁷⁰ Leila Zenderland, *Measuring Minds: Henry Herbert Goddard and the Origins of American Intelligence Testing*, Cambridge Studies in the History of Psychology (Cambridge, U.K.: Cambridge University Press, 1998), 103–4.

⁷¹ White, *Outlines of Psychiatry*, 226.

“mental deficiency generally, if not always, is the result of definite cerebral abnormality or defect,” and that “an idiot was born one or became one in early childhood,” in contrast to the insane patient whose “more or less developed mind is afterwards impaired or lost.”⁷²

In 1912, Goddard demonstrated that deficient heredity caused feeble-mindedness with the publication of *The Kallikak Family*. The most popular of all the eugenic family studies, it traced the lineage of two family lines from the revolutionary period, both started by the same father. As the family mothered by a respectable, middle-class woman continued to live respectable, middle-class lives, the family mothered by an allegedly feeble-minded tavern girl produced six generations of criminals, paupers, and drunkards.⁷³ The Kallikaks served as an example of both the hereditary nature of feeble-mindedness and its connection to moral and social vice for the next three decades.⁷⁴ *The Kallikak Family*, in contrast to Dugdale’s study of the Jukes, epitomized how hereditarianism had hardened in 35 years. Whereas Dugdale included both hereditary and environmental factors in explaining the Juke family, Goddard attributed the degeneracy of the Kallikaks entirely to Mendelian inheritance. Goddard’s work, according to James Trent, sharpened the links degeneration theorists formed between mental deficiency and social vice, while clarifying the causal link between heredity and feeble-mindedness. Thus, psychiatrists and the public alike shifted their views

⁷² “Fourth Biennial Report of the Board of Control of the Michigan Home for the Feeble-Minded and Epileptic at Lapeer” (Lapeer, MI: Michigan Home for the Feeble-Minded and Epileptic, 1903), 36–37.

⁷³ Henry Herbert Goddard, *The Kallikak Family: A Study in the Heredity of Feeble-Mindedness*, 3rd Reprint (New York: The MacMillan Company, 1916); Nicole Rafter notes that the studies of the Kallikaks and the Jukes were the two most well known, with Goddard’s work on the Kallikaks being reprinted several times. Nicole H. Rafter, *White Trash: The Eugenic Family Studies 1877-1919* (Boston, MA: Northeastern University Press, 1988), 74.

⁷⁴ Amram Scheinfeld felt it necessary to refute the findings of the book thirty-two years after it was published, despite scientists largely rejecting it before this time, due to its popularity among the general population. Amram Scheinfeld, “The Kallikaks After Thirty Years,” *Journal of Heredity* 35, no. 9 (September 1, 1944): 259–64, <https://doi.org/10.1093/oxfordjournals.jhered.a105400>; Waldemar Kaempffert, “The Case Against the ‘Kallikaks’ as a Reliable Experiment in Heredity and Eugenics,” *New York Times*, December 24, 1944, sec. Review of the Week Editorials.

on the mentally disabled. Whereas before many considered them as a social burden, by the 1910s the feeble-minded were regarded as a social menace.⁷⁵

The Michigan Eugenics Commission Survey

With the development of a framework for diagnosing mental deficiency based on intelligence, as well as the proliferation of studies linking mental deficiency to hereditary causes, superintendents started to argue that limiting the reproduction of intellectually unfit individuals was a necessary measure to prevent mental degeneracy. Throughout the 1910s, those in Michigan adopted various eugenic policies and ideas at differing rates, with 1913 as a key year throughout the state. For instance, that year Dr. A. I. Noble, superintendent of the Kalamazoo State Hospital, suggested colonizing all alcoholics as well as segregating and sterilizing all the epileptic and feeble-minded.⁷⁶ While Barrett did not advocate these measures as strongly or as publicly, his belief in eugenics was apparent in his work as Chairman of a commission “to investigate the extent of feeble-mindedness, epilepsy, insanity, and other conditions,” created by the Michigan state legislature in 1913.⁷⁷ The legislature appropriated \$5,000 for this state survey, and Barrett attended the 37th annual session of the American Association for the Study of the Feeble-Minded, held that year at the MHTS, for ideas about how to obtain comparable data from the state institutions.⁷⁸ At this session, he heard Goddard report on his work at Vineland, where Goddard argued that although the “reproduction of defectives will be stopped in the cases of patients in institutions,” those outside the institution would continue to have defective offspring.⁷⁹ Part of the funds for the

⁷⁵ Trent, *Inventing the Feeble Mind*, 162–63.

⁷⁶ A. I. Noble, “The Curability of Insanity,” *American Journal of Insanity* LXIX, no. 4 (April 1913): 722.

⁷⁷ *Report of the Commission to Investigate the Extent of Feeble-mindedness, Epilepsy and Insanity, and Other Conditions of Mental Defectiveness in Michigan* (Lansing, MI: Wynkoop Hallenbeck Crawford Co. State Printers, 1915), 9.

⁷⁸ “Minutes of the Association,” *Journal of Psycho-Asthenics* 18, no. 1 (September 1913): 48–49, <https://doi.org/10.1056/NEJM191206201662501>.

⁷⁹ “Minutes of the Association,” 47–48.

Eugenics Commission went to hire Adele McKinnie, who was trained as a eugenics field worker at the Eugenics Record Office at Cold Spring Harbor, New York. After conducting family history studies of patients at the MHTS, likely as part of her year of field training following her graduation from the Eugenics Record Office, she helped conduct the survey, ensuring the reports were available to all the superintendents of mental institutions.⁸⁰

In discussing eugenics with the superintendents of Michigan mental institutions at a 1913 meeting of the Joint Board of Trustees of the State Hospitals, McKinnie noted that, due to declining birth rates among the “Anglo Saxon races,” society has shifted its attention from the “quantity of offspring” to their quality. After outlining the findings of Mendel’s pea experiments, as well as data from Henry Goddard regarding the inheritance of feeble-mindedness, she stated that “feeble-mindedness is undoubtedly the underlying cause of many of the so called ills of society.” Based on this work, as well as her own on 26 families of patients at the MHTS, McKinnie declared that it was “practically certain” that “two feeble-minded persons can only have feeble-minded children,” and that the solution was to deny such individuals “the privilege of parenthood.”⁸¹ To eugenicists, then, feeble-mindedness among humans was as much a Mendelian trait as color was for peas.

Despite McKinnie granting a role for the environment, suggesting that it played a complementary role to heredity in the development of individuals, the emphasis of the paper and the larger Eugenics Report were on the hereditary nature of feeble-mindedness and insanity. It should be

⁸⁰ Diane Paul notes that graduates of the fieldwork program at the Eugenics Record Office were sent to mental institutions throughout the country to spend a year conducting fieldwork. Porter argues this relationship represents part of the reliance eugenicists had on the records of mental institutions for their research. Diane B. Paul, *Controlling Human Heredity: 1865 to the Present*, The Control of Nature (Amherst, NY: Humanity Books, 2003), 57; Porter, *Genetics in the Madhouse*, 252.

⁸¹ Adele McKinnie, “Eugenics,” in *Proceedings of the Meeting of the Joint Board of Trustees of the State Hospitals of Michigan Held at Kalamazoo, January 16, 1913* (Lansing, MI: Wynkoop Hallenbeck Crawford Co. State Printers, 1913), 18–27.

noted that some superintendents had reservations about the claims of eugenicists regarding the prevalence of mental defectiveness and its biological basis. For instance, Dr. Edmund A. Christian, of the Pontiac State Hospital, remarked that feeble-mindedness was a broad term that included the “biologically deficient” as well as those “who come into the world defective because of some accident,” and that such reports should demarcate them. He also challenged the argument that feeble-mindedness was growing twice as fast as the normal population, ultimately calling the sterilization of the unfit “a radical procedure.”⁸²

Dr. Barrett, in this discussion, noted that although the environment plays a role “in the breeding of humans,” the importance of heredity is reinforced by “statistical studies in the frequency with which insanity and organic nervous diseases and criminality occur in the ancestors of the insane.” Dr. E.H. Campbell, superintendent of the Newberry State Hospital, agreed that “a large amount of insanity and feeble-mindedness is due to hereditary factors,” yet he was also concerned that any law approving sterilization of mental patients would become “a dead letter” like the law restricting the marriage of epileptics and the feeble-minded. Despite such reservations, the Joint Board of Trustees unanimously carried a motion to recommend to the state legislature a bill that would allow superintendents to sterilize “public charges and those who... would be a menace to the community.” Dr. J.C. Marker, superintendent of the Eloise Hospital, supported the motion and argued that such legislation “would check the growth of the feeble-minded and defective population.”⁸³ Less than three months later, the Michigan state legislature passed, and Governor

⁸² McKinnie, “Eugenics,” 24–25.

⁸³ McKinnie, “Eugenics,” 25–27.

Woodbridge N. Ferris signed a eugenics bill that authorized the sterilization of “any person who is mentally defective or insane” and in the custody of a state institution.⁸⁴

In the larger Eugenics Report, Dr. Barrett authored the chapter on insanity, where he argued that “the quality of the individual” is determined through “their basis in the strain of germ plasm,” and that experiments have proven “that the transmission of certain qualities follows demonstrable laws and corresponds to the Mendelian Theory.” He further contended that “the influence of heredity in insanity” is “the most important and far-reaching influence” in understanding its causes. In calling for measures to prevent insanity, therefore, Barrett suggested “that no person who has been insane should have children and it would be best for them not to marry.”⁸⁵ He also endorsed the recommendation from the “Eugenics Commission,” in light of the failure of state laws on marriage restriction and sterilization, to segregate all “feeble-minded women of child bearing age” in a state institution.⁸⁶ He brought the findings and recommendations of this report before other superintendents of mental institutions throughout the state, requesting institutions provide a list of all patients diagnosed with mental diseases to the State Board of Health, in order to make laws barring the marriage of the mentally ill more effective.⁸⁷ Thus, as was the case in other states that conducted these surveys, the Eugenics Report served to gather information on the prevalence and demonstrated the supposed danger of degeneracy and the urgent need to enact prophylactic measures in response.⁸⁸

⁸⁴ The entire text of the law can be found at Frederick C. Martindale, ed., *Public Acts of the Legislature of the State of Michigan Passed at the Regular Session of 1913* (Lansing, MI: Wynkoop Hallenbeck Crawford Co. State Printers, 1913), 52–54.

⁸⁵ *Eugenics Commission Report*, 34–37.

⁸⁶ *Eugenics Commission Report*, 107–9.

⁸⁷ *Proceedings of the Meeting of the Joint Board of Trustees of the State Hospitals of Michigan Held at Eloise, January 21, 1915* (Lansing, MI: Wynkoop Hallenbeck Crawford Co. State Printers, 1915), 7–8.

⁸⁸ Haller, *Eugenics*, 108–9.

Following his work on the Eugenics Commission survey, Dr. Barrett pushed for psychiatrists to expand their reach beyond institutional walls, a development seen among others in the field throughout the country.⁸⁹ The survey seemed to confirm to him and others that the number of mentally ill in the state was rapidly growing. Surveys in other states, as well as census reports and a plethora of statistics on social vice, convinced professionals in Michigan and elsewhere that degeneracy was on the rise.⁹⁰ These fears were worsened as waitlists continued to exceed the capacities of the state institutions, leaving many potential admits still outside the mental hospital system.⁹¹ Moreover, he was among many psychiatrists at the time who believed that “the most promising and rational point of attack upon the problem of insanity relates to prevention,” due to the incurability of many mental diseases.⁹² Following the report of the Eugenics Commission, the superintendents of the state hospitals agreed that their focus should be on “extra-mural” activities, in connection with workers outside of mental institutions, to help prevent “ill health, intemperance, delinquency, and human degeneracy.”⁹³

To expand their scope outside of the mental hospital, in May 1915, the State Psychopathic Hospital formed a local out-patient clinic connected to the University of Michigan’s General Hospital in Ann Arbor and developed a second clinic the following February in Detroit. The charities

⁸⁹ Grob, *Mental Illness and American Society, 1875-1940*, 110.

⁹⁰ Dowbiggin notes that these statistics led physicians to adopt a more pessimistic view towards the curability of mental disease. Ian Robert Dowbiggin, *Keeping America Sane: Psychiatry and Eugenics in the United States and Canada, 1880-1940*, Cornell Studies in the History of Psychiatry (Ithaca: Cornell University Press, 2003), 75–81.

⁹¹ The “greater demand for the admission of patients than the limited capacity of the hospital can satisfy” was a recurring problem in several institutions. “Fifth Biennial Report of the Board of Trustees of the State Psychopathic Hospital at the University of Michigan” (Lansing, MI: State Psychopathic Hospital, 1917), 5; “Report of the Trustees of the State Asylum at Ionia, Michigan for the Biennial Period Ending June 30, 1912” (Lansing, MI: Ionia State Asylum, 1912), 7; *Proceedings of the Meeting of the Joint Board of Trustees of the State Hospitals of Michigan Held at Traverse City, July 17, 1913*, vol. 2 (Lansing, MI: Wynkoop Hallenbeck Crawford Co. State Printers, 1913), 10.

⁹² Barrett cited the figures of Dr. Noble, of the Kalamazoo State Hospital, in claiming that about 6% of all patients were permanently cured. Barrett, “The Relation of the State Psychopathic Hospital to Problems of Juvenile Mental Disorders,” 16; “Second Biennial Report of the Board of Trustees of the State Psychopathic Hospital at the University of Michigan,” 8–9; Noble, “The Curability of Insanity,” 721.

⁹³ *Proceedings of the Meeting of the Joint Board of Trustees of the State Hospitals of Michigan Held at Pontiac, January 20, 1916* (Lansing, MI: Wynkoop Hallenbeck Crawford Co. State Printers, 1916), 12.

and probate courts of these areas referred patients to the out-clinics, where a physician from the Psychopathic Hospital would diagnose them. Moreover, social service workers obtained personal and family histories of these patients.⁹⁴ These investigations supplied information regarding both the mental diseases of family members as well as the social environment of the patient. As Angie Kennedy has noted, social workers used these and similar institutions to investigate family histories of social ills, particularly those centered around female sexuality.⁹⁵ Thus, the out-patient clinics helped to expand the scope of the psychiatric hospital's reach while simultaneously providing them with more data as to the potential hereditary etiology of mental diseases. Alienists established similar clinics in connection with the Traverse City and Kalamazoo State Hospitals.

While out-patient clinics undoubtedly offered some people suffering from mental illness the possibility of early diagnosis and cure or treatment, in the context of early-twentieth century medical practice, the emphasis was overwhelmingly on preventive medicine. Barrett stated that the primary goal of these clinics was to demonstrate to other agencies that “there is a certain group of individuals that cannot be helped and must be regarded as social waste,” by “detecting abnormal mental conditions with a view to ridding the community of this group,” so that their efforts “would not be lost.”⁹⁶ J.D. Munson hoped that the state legislature would allow the hospitals to employ “eugenic and after-care workers” alongside the establishment of outpatient clinics to aid in preventive measures.⁹⁷ The trustees of the Traverse City Hospital argued that community clinics could aid in identifying the “border line cases” of feeble-mindedness, Goddard's moron class.⁹⁸ Dr.

⁹⁴ “Fifth Biennial Report of the Board of Trustees of the State Psychopathic Hospital at the University of Michigan,” 27–30.

⁹⁵ Angie C. Kennedy, “Eugenics, ‘Degenerate Girls,’ and Social Workers During the Progressive Era,” *Affilia* 23, no. 1 (February 2008): 32, <https://doi.org/10.1177/0886109907310473>.

⁹⁶ “Sixth Biennial Report of the Board of Trustees of the State Psychopathic Hospital at the University of Michigan” (Fort Wayne, IN: State Psychopathic Hospital, 1919), 31–32.

⁹⁷ *Proceedings of the Meeting of the Joint Board of Trustees of the State Hospitals of Michigan Held at Kalamazoo, July 20, 1916*, vol. 2 (Lansing, MI: Wynkoop Hallenbeck Crawford Co. State Printers, 1916), 35.

⁹⁸ “Report of the Board of Trustees of the Traverse City State Hospital,” 1916, 17–18.

Herman Ostrander of the Kalamazoo State Hospital noted that outpatient clinics in Kalamazoo, Grand Rapids, Lansing, and Jackson had provided 83 Binet-Simon tests between 1916 and 1918.⁹⁹ These clinics, therefore, served as a tool to show other groups concerned over problems of social degeneracy, as well as the general public, that prophylactic measures are the only available option.

Similarly, psychiatric institutions in the state aimed to expand their reach into the community and promote preventive medicine through the development of general hospitals. The Traverse City Hospital formed a general hospital department in 1915 to provide general medical care to people in the area as well as to disseminate information regarding public health. Following its construction, the trustees of the hospital repeatedly emphasized its potential role as a “co-ordinating center from which preventive work should be directed,” especially in directing “all organized societies” to the problems of “feeble-mindedness, insanity, delinquency and to the suppression of prostitution and syphilis.”¹⁰⁰

Around this same time, the MHTS conducted its own eugenic research. Dr. Harley Haynes, who served as assistant superintendent from 1907-1912, directed the institution from 1912 to 1924, before becoming the director of the University of Michigan Hospital from 1924 to 1945.¹⁰¹ Aside from Dr. Barrett, Haynes seems to have been the superintendent of a mental institution in the state most interested in psychiatric research. However, unlike Barrett, whose primary focus was on the etiology of insanity, Haynes oversaw the only institution in the state designed for the care and treatment of the feeble-minded.

⁹⁹ *Proceedings of the Meeting of the Joint Board of Trustees of the State Hospitals of Michigan Held at Michigan Home and Training School, July 18, 1918*, vol. 2 (Lansing, MI: Wynkoop Hallenbeck Crawford Co. State Printers, 1918), 24.

¹⁰⁰ “Report of the Board of Trustees of the Traverse City State Hospital” (Traverse City, MI: Northern Michigan Asylum, 1919), 16.

¹⁰¹ Laura Fromwiller and Jan Gillis, *Oakdale: The Lapeer State Home*, Images of America (Charleston, SC: Arcadia Publishing Inc., 2014), 26.

To eugenicists generally, the hereditary nature of feeble-mindedness was better established than the various manifestations of insanity and also posed a greater threat to society.¹⁰² Charles Davenport, the head of the Eugenics Record Office in Cold Spring Harbor, New York and the nation's foremost eugenicist, argued in 1910 that imbecility was inherited from a single recessive gene, claiming that "two imbecile parents, whether related or not, have only imbecile offspring."¹⁰³ Insanity, however, consisted of "organic" and "functional" classes, each with a different etiological factor. While the former was the result of "mental deterioration associated with venereal diseases, alcoholism, degeneration of the blood vessels and trauma," the latter stemmed from a "distinct neuropathic taint" that, when transmitted from parent to offspring, could range from melancholia to dementia praecox.¹⁰⁴ Although Davenport speculated that insanity was due "to the absence of some factor," it was nevertheless more difficult to trace the inheritance of specific mental diseases as it was mental deficiency.¹⁰⁵

It was at the MHTS, under Haynes, where Adele McKinnie first went to conduct eugenic research in Michigan before being a part of the Eugenics Commission. This was also where the American Association for the Study of the Feeble-Minded held their annual conference in 1913 and where several delegates visited on their way to the first National Race Betterment Conference a year later. By 1914, Haynes believed that there were only "three ways of protecting the state" from the threat of feeble-mindedness: "First, to regulate the marriage laws; second, segregate; third, to prevent reproduction."¹⁰⁶ That same year, he and Charles Scott Berry, a psychologist from the

¹⁰² McKinnie, for instance, argued it as "fact that feeble mindedness is inheritable, according to a fixed law, which we must apply for its prevention." Adele McKinnie, "Preliminary Report of an Eugenic Survey of Michigan," *Public Health*, April 1912, 160.

¹⁰³ Davenport, *Eugenics*, 14.

¹⁰⁴ Charles Benedict Davenport, *Heredity in Relation to Eugenics* (New York: Henry Holt and Company, 1915), 77.

¹⁰⁵ Davenport, *Heredity in Relation to Eugenics*, 93.

¹⁰⁶ "Lapeer Home for 'Children Who Will Never Grow up' Is State's Provision for Eugenic Future; Colony Needed," *Detroit Free Press*, February 8, 1914.

University of Michigan, devised a summer school at the MHTS to train teachers how to properly identify and educate defective children.¹⁰⁷ While Berry saw the benefit of such a school for educating particularly gifted children in public schools, Haynes taught the courses on “Mental Deficiency,” which examined the “training and treatment of mental defectives; extent and prevention of feeble-mindedness; classification of defectives; and diagnosis of typical cases.” The course instructed educators how to properly administer the Stanford-Binet mental tests to identify the feeble-minded in public schools.¹⁰⁸

Aside from running the MHTS and directing summer courses for educators, Dr. Haynes also attempted to conduct research on feeble-mindedness. Following a brief trend in endocrinological research on mental disease, he and the industrial hygienist Carey Pratt McCord examined 1,134 patients at the MHTS. While noting that glandular dysfunction should not be inferred as a cause of feeble-mindedness, they found that 240, or just over one-fifth, of the patients suffered from various glandular syndromes, and argued that “heredity stands out as the foremost factor in the etiology” of glandular dysfunction.¹⁰⁹ A year later, he and staff psychologist Pauline Buck published a family study on the “Michome family,” from one of the patients at the Lapeer institution, in the Michigan State Board of Health’s monthly magazine. These studies confirmed to them that not only does society need to be protected from these individuals, but they also need to be protected from society. Their only solution, under current laws, was effective segregation to prevent reproduction.¹¹⁰

¹⁰⁷ “To Train Teachers of Feeble-Minded,” *Detroit Free Press*, February 12, 1914.

¹⁰⁸ “From One to Four Out of Every 100 Scholars in State Public Schools Are Feeble Minded, Say Authorities of Lapeer Home Now Conducting Course for Teachers of Backward Children,” *Detroit Free Press*, July 13, 1914.

¹⁰⁹ Carey Pratt McCord and Harley A. Haynes, “The Frequency and Significance of Dysfunction of the Internal Secretary System in the Feeble-minded,” *New York Medical Journal* 105, no. 13 (March 31, 1917): 588.

¹¹⁰ Z. Pauline Buck and Harley A. Haynes, “A History of One of Michigan’s Neuropathic Families,” *Public Health*, July 1918.

In 1920, Haynes was elected as vice president of the American Association for the Study of the Feeble-Minded. In his address to members at their annual conference, he reflected on the state of psychiatry in relation to feeble-mindedness at the time, as well as its failures to implement truly eugenic policies. He viewed the superintendents' foremost problem to be the ways in which they could curb the propagation of the feeble-minded. While noting that institutions can temporarily segregate large numbers of the mentally deficient, Haynes also believed the Army mental tests proved that institutionalization could only limit a fraction of the feeble-minded population from reproducing. In the end, he called for the continuation of marriage restriction laws, the legalization of sterilization, and the expansion of segregation measures by introducing colony plans, started by Dr. Charles Bernstein in Rome, New York.¹¹¹

From 1918-1921, when Harry Laughlin, secretary of the Eugenics Record Office, asked for their opinion on sterilization, most of the superintendents of mental institutions in Michigan believed that it had an eugenical value. Only Dr. Robert Haskell, superintendent of the Ionia State Hospital for the Criminal Insane, failed to support sterilization explicitly, stating that his opinion on the matter "would be purely theoretical." The rest, however, were far less reserved. Dr. Ostrander of Kalamazoo, for instance, lamented public opposition to sterilizing individuals diagnosed with manic-depressive psychosis, who he considered to be "the most dangerous." Dr. Munson of Traverse City felt that patients of reproductive age about to be discharged "should doubtless be sterilized" as long as the hospital had legal protection for the operation, while Dr. Harley Haynes mentioned that he attempted to have several patients "operated upon." Dr. Barrett, moreover, felt that the value of sterilization "as a eugenical measure is unquestioned."¹¹²

¹¹¹ Harley A. Haynes, "Address of the Vice President," *Journal of Psycho-Asthenics* 25 (1920): 14–20.

¹¹² These responses were part of a discussion on the legality of the first Michigan sterilization law, to be discussed in Chapter 4. Laughlin, *Eugenical Sterilization in the United States*, 73–74.

By the mid-1920s, Dr. Albert Barrett adopted a conceptualization of heredity that incorporated Mendelian and contemporary genetics research with the older notion that an individual's weakened constitution was a vital component in understanding the onset of mental illness. Despite historians' claims that Jenny Koller and Otto Diem's comparative research on the heredity of mental illness in psychotic and nonpsychotic individuals disproved ideas of eugenics and degeneration, Barrett cited both as proof that "hereditary tainting must be recognized as of fundamental importance in the etiology of the psychoses."¹¹³ This reflects psychiatric research in the 1920s, which strove to determine if patients inherited various mental illnesses along Mendelian lines by determining whether the occurrence of specific mental diseases in patients' families was statistically consistent with Mendel's ratios. This was primarily done by calculating the proportion of offspring a patient or the parents of a patient had who were similarly afflicted. If one out of every four children suffered from a mental illness or disease, the trait was considered a Mendelian recessive; if the percentage of children was greater, it was hypothesized that it was a dominant. Thus, Barrett considered manic-depressive psychosis a dominant Mendelian characteristic, since 31.4% of children whose parents had this disease also developed it—thereby disproving it as a recessive trait—and because he observed the disease occasionally through multiple generations of the same family.¹¹⁴ In this same paper, he also cited Charles Davenport and Henry Goddard's research as proof that "epilepsy and feeble-mindedness behave similarly in their hereditary relations," that is, they both are inherited as Mendelian recessive traits.¹¹⁵

¹¹³ Albert M. Barrett, "Hereditary and Familial Factors in the Development of the Psychoses," *Archives of Neurology and Psychiatry* 13, no. 1 (January 1, 1925): 3, <https://doi.org/10.1001/archneurpsyc.1925.02200070004001>; For one such claim, which notes that the comparison of ancestries of the occurrence of mental disease in normal and defective individuals was remarkably close, see Porter, *Genetics in the Madhouse*, 288.

¹¹⁴ Barrett, "Hereditary and Familial Factors in the Development of the Psychoses," 12.

¹¹⁵ Barrett, "Hereditary and Familial Factors in the Development of the Psychoses," 20.

At the same time, however, Barrett was aware that recent genetics research demonstrated that not all traits, including many of those for the onset of mental disease, were inherited according to Mendelian laws. This did not bring about a dismissal of heredity as a factor in the etiology of these illnesses, nor did it push him towards biometrical research. In many ways, this resembled the ideas Rosanoff and Orr presented in the *American Journal of Insanity* in 1911, in which they argued that, like skin pigmentation, neuropathic constitutions of the mentally afflicted could be graded according to “degrees of recessiveness.”¹¹⁶ According to Rosanoff and Orr, psychiatrists could trace “neuropathic taint” in a family according to family studies revealing degrees of clinical manifestations of mental illness, many of which did not result the institutionalization of individuals. Similarly, Barrett suggested that their hereditary nature was more complex than Mendelian inheritance at a single locus. Based on the work of Ernst Rüdin and other German racial hygienists, Barrett claimed that schizophrenia was the product of dihybrid inheritance, with one gene resulting in a weakened constitution and the other leading to the onset of mental deterioration.¹¹⁷ Thus, although scientific challenges to the simple Mendelism expressed in the first two decades of the century emerged, there was not a revolutionary paradigm shift that discredited the continued search for Mendelian explanations for the inheritance of mental disease.¹¹⁸ This, crucially, was still the primary intellectual model justifying the sterilization of the feebleminded, insane, and epileptic as the sterilization of patients started in the state.¹¹⁹

¹¹⁶ A. J. Rosanoff and Florence I. Orr, “A Study of Heredity in Insanity in the Light of the Mendelian Theory,” *American Journal of Insanity* LXVIII, no. 2 (October 1911): 221–61.

¹¹⁷ In reviewing the literature, he seems to agree with Eugen Kahn that “schizoid qualities” are inherited as a dominant trait, while the “anlage to the schizophrenic process is recessive.” Barrett, “Hereditary and Familial Factors in the Development of the Psychoses,” 14–18.

¹¹⁸ Pauline M.H Mazumdar, “‘Reform’ Eugenics and the Decline of Mendelism,” *Trends in Genetics* 18, no. 1 (January 2002): 48–52, [https://doi.org/10.1016/S0168-9525\(01\)02551-3](https://doi.org/10.1016/S0168-9525(01)02551-3).

¹¹⁹ The original 1913 law resulted in only one sterilization, while a new sterilization bill enacted in 1923 and amended in 1925 resulted in nearly 4,000 individuals being sterilized. An examination of the legal arguments and developments surrounding these laws will be discussed in a later chapter. Randall Hansen and Desmond S. King, *Sterilized by the*

Robert L. Dixon and Sterilization in Michigan

Among the psychiatrists in Michigan whose patients consisted of those deemed genetically unfit to reproduce, Dr. Alfred Moore Barrett seems to have been less focused on implementing sterilization into his practice than his contemporaries. This reflects his status as both a physician of largely short-term patients and as the primary researcher of mental disease amongst his colleagues. Superintendents of institutions treating chronic cases, however, were the “key actors in the history of state sterilization laws,” according to Hansen and King.¹²⁰ In Michigan, one such individual was Dr. Robert L. Dixon, who served as the secretary to the State Board of Health before becoming superintendent of the newly constructed Michigan Farm Colony for Epileptics at Wahjamega in 1914.

As the superintendent of the Farm Colony in the second decade of the twentieth century, Dixon’s ideas about the care and treatment of epileptics were, in broad strokes, like those of other superintendents at the time. For example, he believed that employing the more able-bodied patients with work around the colony was both a cost-effective means of running the institution and the best treatment available for an incurable affliction. Immediately following construction of the colony, he and Dr. Harley Haynes selected 24 epileptic patients from the MHTS “with especial regard to their usefulness” to begin work on the grounds and buildings. This included manufacturing more than 10,000 cement blocks, creating a tunnel to the local power supply, and digging over 5,000 feet for sewage and drainage, all of which, Dixon noted, “saved the institution much money and has been beneficial to the patients.” Their labor, he believed, was instrumental to quickly

State: Eugenics, Race, and the Population Scare in Twentieth-Century North America (Cambridge: Cambridge University Press, 2013), 86.

¹²⁰ Hansen and King, *Sterilized by the State*, 72–73.

growing the institution so that it may house the over 500 epileptics from other mental institutions throughout the state.¹²¹

Beyond those placed in mental institutions, Dixon argued in 1916 that there were at least an additional 2,000 epileptics in Michigan that needed to be institutionalized. To Dixon, the epileptic was “the most unstable member of society from a social and moral standpoint,” and thus represented a menace to the community, state, and nation. Because of the threat the epileptic posed, as well as the incurability of their disorder, Dixon called for their segregation from society on eugenic grounds, claiming that “the most satisfactory” method available “for ridding society of the unfit is the isolation of the unfit,” and that the purpose of the farm colony was to “relieve society of the epileptic.”¹²²

Dixon’s position on eugenics, and its evolution from the 1910s to the 1930s, can be partly explained by his different occupations. In the 1910s, his views were like those of his colleagues on the Michigan State Board of Health. Alongside the more nationally recognized Drs. John Harvey Kellogg and Victor Clarence Vaughan, Dixon and the entire board pushed for eugenic measures as part of a broader campaign to promote public health to combat what they considered to be incontrovertible evidence of race degeneracy. This is evidenced in the number of topics within *Public Health*, the monthly bulletin of the Michigan State Board of Health. When Dixon was secretary of the Board, as well as editor-in-chief of the bulletin, they advocated for eugenics alongside proper milk inspection, updated sewage infrastructure, and social hygiene measures to limit the spread of contagious diseases such as typhoid fever, tuberculosis, and yellow fever. Indeed, Dixon believed that the state should expand public health work to promote what he called

¹²¹ “First Biennial Report of the Board of Control and Officers of the Michigan Farm Colony for Epileptics at Wahjamega” (Wahjamega, MI: Michigan Farm Colony, 1914), 12–13.

¹²² “Second Biennial Report of the Board of Control and Officers of the Michigan Farm Colony for Epileptics at Wahjamega” (Wahjamega, MI: Michigan Farm Colony, 1916), 5–6.

“social service,” through the proper investigation and education of “positive principles” that would better “the conditions of the child from birth, and even before birth.”¹²³ This included, but was not limited to, more scientific research on “the make-up of this rapidly advancing and broadening stream of human existence.”¹²⁴

Dixon, like many others concerned with race degeneracy in the second decade of the twentieth century, viewed mental illness through a public health perspective. Although individuals cannot transmit feeble-mindedness, insanity, or epilepsy like typhoid fever or tuberculosis, he and many of the early adopters of eugenics in the United States advocated for measures that were remarkably similar to those utilized to limit epidemics; that is, to identify and segregate those individuals with the condition from others to reduce the threat they may pose to society. In this framework, limiting the spread of contagious diseases and mental deficiency fell within the purview of preventive medicine.

While Dixon promoted the segregation of epileptics and other unfit members of the population in the 1910s, he did not submit any of his patients at the Farm Colony for sterilization. He also did not, during this time, publicly advocate for the sterilization of patients, calling it in 1918 “a poor substitute for isolation or colonization.”¹²⁵ He was certainly a supporter of eugenics, as his previous statements attest. Dixon was also the secretary of the State Board of Health during the period when they advocated the adoption of eugenic sterilization legislation and developed the Eugenics Commission to obtain a census of the number of feeble-minded and insane in the state. His hesitancy to advocate for sterilization can be partly explained due to the questionable legality of Michigan’s 1913 eugenic sterilization law, discussed in a later chapter. Moreover, as the super-

¹²³ Robert L. Dixon, “Protection and Social Service, the Fundamental of Community Life,” *Public Health*, October 1913, 9–11.

¹²⁴ Dixon, “Protection and Social Service, the Fundamental of Community Life,” 11.

¹²⁵ Laughlin, *Eugenical Sterilization in the United States*, 74.

intendent of a newly created institution for epileptics, his argument for segregating, rather than sterilizing, the unfit to prevent their propagation likely was part of a strategy to convince the state legislature to accept appropriations to quickly expand the Farm Colony.¹²⁶ Finally, Dixon also may have been part of the group of medical superintendents at the time who supported segregation as the primary means of eugenically regulating the population, only to later push for sterilization when they believed segregation could not control the large numbers of feeble-minded in the population.¹²⁷ Nevertheless, while he opted for segregation in the 1910s, by the time he became the director of the MHTS in Lapeer from 1930-1937, R.L. Dixon was, as one scholar put it, “the leading advocate of compulsory sterilization and the instigator of the majority of compulsory sterilization procedures” in the state.¹²⁸

The numbers of sterilizations reported by institutions to the Human Betterment Foundation (which was also renamed Birthright Inc. and the Human Betterment Association of America) can shed light on which patients were selected for sterilization. It should be noted, however, that these numbers are certainly not representative of the total number of sterilization operations performed. For instance, a probate judge in Michigan claimed that he was aware of at least “71 ‘illegal sterilizations’” involving noninstitutionalized individuals, that had been performed, and there were doubtless many more instances of similar operations.¹²⁹ Nevertheless, according to available

¹²⁶ By 1919, when the Farm Colony had a capacity of 560, Dixon believed the institution was just large enough to “be of some importance and service in meeting one of the most important problems of society,” that problem being the segregation of people “classed as ‘unfit.’” “Third Biennial Report of the Board of Control and Officers of the Michigan Farm Colony for Epileptics at Wahjamega” (Wahjamega, MI: Michigan Farm Colony, 1919), 5.

¹²⁷ Trent argues that superintendents first used the fear of the “menace of the feeble-minded” to expand institutions. However, when these expansions still were not enough to house all the mentally deficient, many turned to sterilization and parole as a means of limiting the overcrowding in their facilities. Trent, *Inventing the Feeble Mind*, 165, 192–93.

¹²⁸ Jeffrey Alan Hodges, “Dealing with Degeneracy: Michigan Eugenics in Context” (Unpublished dissertation, East Lansing, MI, Michigan State University, 2001), 111 (n. 22).

¹²⁹ Philip Reilly, *The Surgical Solution: A History of Involuntary Sterilization in the United States* (Baltimore: Johns Hopkins University Press, 1991), 96.

sources, the feeble-minded constituted around 80% of all documented sterilizations in Michigan.¹³⁰ Although the records only began to separate sterilizations by diagnosis in 1941, it can be inferred that this figure largely remained the same in the years before.¹³¹ This reflects the greater concern eugenicists in Michigan and the country felt towards the feeble-minded compared to the insane. For the insane, as stated in an early article in the *Detroit Free Press* on eugenics, the case is relatively simple: they “can be confined behind bars until death brings relief.”¹³² However, the feeble-minded, and particularly the moron, posed a greater threat to the social fabric of the nation due to their ability to participate in society undetected, their criminal nature, and their sexual proclivity.¹³³ Moreover, while in the 1910s eugenicists called for the segregation of the feeble-minded alongside the insane, data such as that from the Army mental tests suggested that there were far more feeble-minded than could be accommodated in mental institutions. Thus, to many eugenicists, the only option that could truly remedy the situation was sterilization.

With Dixon as its superintendent, the MHTS authorized more sterilization procedures than any other institution in Michigan, at a time when more sterilizations were performed in the state than any other period. According to R.J. Ripple, assistant physician at the MHTS, by 1932 the

¹³⁰ James Bryant, director of the State Welfare Department, noted that the number of sterilizations recorded and given to the Human Betterment Foundation did not include those done in private hospitals, which included a significant number of those ordered by the Probate Courts. James G. Bryant to Paul Popenoe, March 3, 1937, Association for Voluntary Sterilization Records, Box Doc 6, Folder 52, Social Welfare History Archives, University of Minnesota.

¹³¹ Of the 2,145 sterilizations that occurred in Michigan up to the year 1941, 1,741, or 81%, were performed on people diagnosed with feeble-mindedness. 14% of those sterilized were diagnosed with some form of clinical insanity, while the remaining 5% were classified as “Others,” which presumably consisted mostly of the epileptic, but could also refer to those convicted of sex crimes or were classified as moral degenerates. Human Betterment Foundation, “Sterilizations Done in State Institutions under State Laws up to January 1, 1941” (n.d.), Association for Voluntary Sterilization Records, Box 91, Folder 27, Social Welfare History Archives, University of Minnesota.

¹³² “How About Your Thinker?,” *Detroit Free Press*, January 22, 1911.

¹³³ The claim that the feeble-minded “were more sexually irresponsible” than “normal” individuals was a common one. *Eugenics Commission Report*, 56; For the connection between feeble-mindedness and criminality, see “Report of the Trustees of the State Asylum at Ionia, Michigan for the Biennial Period Ending June 30, 1916” (Lansing, MI: Ionia State Asylum, 1917), 9; For one such claim about the difficulty in “detecting” the feeble-minded, see Hubert Work, “The Sociologic Aspect of Insanity and Allied Defects,” *American Journal of Insanity* LXIX, no. 1 (July 1912): 9.

institution conducted 676 sterilization operations, 505 on women and 171 on men.¹³⁴ He further contended that most of the sterilizations, both at the MHTS and throughout the state, followed the enactment of the 1929 eugenic sterilization law that included the insane, criminals, and epileptics alongside the feeble-minded as candidates for surgical procedures.¹³⁵ Two years later, *Time Magazine* reported that while the Wayne County Training School in Northville sterilized 14 boys and 47 girls from 1930-1934, the MHTS in that same period sterilized 216 males and 688 females.¹³⁶ By 1936, a total of 1,558 sterilizations were officially performed, with over half of them administered at the MHTS.¹³⁷ Although annual data is unavailable, by 1941 another 1,000 feeble-minded patients at state institutions in Michigan were sterilized, mostly at the MHTS.¹³⁸ Following the end of World War II, although the ratio of feeble-minded sterilizations relative to total sterilizations remained around the same, the number of sterilizations throughout the state steadily declined. Whereas the various institutions in Michigan averaged a little over 130 sterilizations per year from 1933-1944, from 1945-1960 that number dropped to just under 75 operations each year.¹³⁹

By the 1930s, when Dixon was head of the MHTS, sterilizations were performed on patients of mental institutions for eugenic, social, and economic reasons. Indeed, in 1932 his assistant physician argued that sterilizations constitute “more of an economical program than a eugenical one.”¹⁴⁰ Following the development of parole programs, in which institutions granted

¹³⁴ R.J. Ripple, “Sterilization vs. Segregation,” Staff Papers (Lapeer, MI: Michigan Home and Training School, March 3, 1932), 18, MHTS Staff Papers, HathiTrust.

¹³⁵ Ripple, “Sterilization vs. Segregation,” 1.

¹³⁶ “Sterilization in Michigan,” *TIME Magazine*, January 22, 1934.

¹³⁷ “Sterilization Law Praised,” *The Detroit News*, October 25, 1936.

¹³⁸ Human Betterment Foundation, “Sterilizations Done in State Institutions under State Laws up to January 1, 1941.”

¹³⁹ The numbers were compiled from annual surveys from Birthright Inc., later named the Human Betterment Association “Sterilizations Officially Reported from 1933-1960” (n.d.), Association for Voluntary Sterilization Records, Box 91, Folder 27, Social Welfare History Archives, University of Minnesota.

¹⁴⁰ Ripple, “Sterilization vs. Segregation,” 10–11.

patients supervised employment outside the institution, Dixon claimed that the institution's practice was to sterilize patients before their parole release.¹⁴¹ In Michigan, it was particularly female paroled patients that were subject to sterilization procedures. As one social service worker in connection with the MHTS stated, "mentally defective girls are, as a rule, a marrying class."¹⁴² The tendency to sterilize women over men, especially by the 1930s, is also observed in other states such as California and North Carolina.¹⁴³ As some scholars have noted, this was part of a broader trend among eugenicists to shift their focus from hereditary defects to questions of proper motherhood and family preservation.¹⁴⁴

While superintendents sterilized patients displaying a variety of clinical manifestations of mental disease, the primary target for eugenic sterilizations was, undoubtedly, the feeble-minded. Thus, Dixon's transfer from the Epileptic Farm Colony in Wahjamega to the MHTS in Lapeer can explain his adoption of sterilization as a procedure for patients within his institution. Superintendents viewed the feeble-minded as a particular menace to society compared to the insane, epileptic, or criminal classes. As late as 1929 Dr. O. R. Yoder, of the Kalamazoo State Hospital, argued that the insane may still exhibit remarkable intelligence, "and that in order to have genius we must have mental peculiarities." Despite his hesitancy to sterilize the insane, Yoder agreed that "sterilization of the feeble-minded is a good thing" because feeble-minded parents inherently produce feeble-minded children.¹⁴⁵ Although by this time geneticists had determined that human inheritance was much more complicated, the idea that feeble-mindedness was a simple Mendelian recessive,

¹⁴¹ "Sterilization Law Praised."

¹⁴² Edith A. Greaves, "The Institution as a Socializing Force," Staff Papers (Lapeer, MI: Michigan Home and Training School, March 10, 1932), 16, MHTS Staff Papers, HathiTrust.

¹⁴³ Alexandra Minna Stern, "Sterilized in the Name of Public Health," *American Journal of Public Health* 95, no. 7 (July 2005): 1131, <https://doi.org/10.2105/AJPH.2004.041608>; Schoen, *Choice & Coercion*; Reilly, *The Surgical Solution*, 94–95.

¹⁴⁴ Wendy Kline, *Building a Better Race: Gender, Sexuality, and Eugenics from the Turn of the Century to the Baby Boom* (Berkeley, CA: University of California Press, 2005), 4; Ladd-Taylor, *Fixing the Poor*.

¹⁴⁵ "Doctor Attacks Sterilization Bill," *Detroit Free Press*, February 24, 1929.

and thus followed “Mendel’s laws” of inheritance, still held sway among psychiatrists leading institutions.¹⁴⁶

Scholars of psychiatry and eugenics have suggested a variety of explanations for why institutions performed more sterilizations in the 1930s than during any other decade. Some have suggested that it was due to the routinization of the procedure by that time after twenty years of intellectual and surgical advancements.¹⁴⁷ Others have noted a shift in the rationalizations for the procedure, in which economic reasons relating to a growing welfare state during the Great Depression took precedence over explicitly eugenic arguments.¹⁴⁸ A similar transformation of justifications places emphasis on the belief that individuals in mental institutions, while perhaps not transmitting hereditary disease to their offspring, would still make poor parents, with a particular focus on potential mothers over fathers.¹⁴⁹ Others have argued how the supreme court case *Buck v. Bell* sanctioned its use across the country, resulting in several states crafting eugenic legislation and implementing it in local institutions.¹⁵⁰ Undoubtedly, all of these factors are relevant in explaining why sterilizations increased at a time when geneticists repudiated and transformed eugenic ideas to emphasize a greater role for the environment and positive eugenics.¹⁵¹

To help illuminate the situation in Michigan, another factor that should be considered was the time lag between the transfer of ideas and policies elsewhere and their acceptance at institutions within the state. Superintendents in northeastern institutions, which remain the most recognized in the historiography of psychiatry and eugenics, were the first to adopt eugenic ideas and the first to

¹⁴⁶ Charles Davenport argued that “two mentally defective parents will produce only mentally defective offspring” was “the first law of inheritance of mental ability.” Davenport, *Heredity in Relation to Eugenics*, 67.

¹⁴⁷ Trent, *Inventing the Feeble Mind*, 184–224.

¹⁴⁸ Ladd-Taylor, *Fixing the Poor*.

¹⁴⁹ Ladd-Taylor, *Fixing the Poor*, 7–8; Reilly, *The Surgical Solution*, 94–95.

¹⁵⁰ Reilly, *The Surgical Solution*.

¹⁵¹ Daniel J. Kevles, *In the Name of Eugenics: Genetics and the Uses of Human Heredity*, 2nd ed. (Cambridge, MA: Harvard University Press, 1995).

repudiate them.¹⁵² However, that does not mean that this situation occurred across the country simultaneously. As noted earlier, the shift in Michigan institutions towards custodial care occurred twenty years after it was developed in mental hospitals in the northeast. While superintendents such as Walter Fernald, in Massachusetts, first accepted eugenic and hereditarian explanations of mental disease in 1910, superintendents of Michigan institutions were more gradual in their acceptance of such ideas. Although Charles Bernstein, superintendent of the mental institution in Rome, New York, developed a workable parole program in the mid-1910s, it would be another decade before Michigan institutions attempted to implement such programs at any considerable scale. Finally, whereas states in the northeastern part of the United States failed to sterilize patients for a variety of reasons, including the repudiation of eugenics by the 1920s, eugenic ideas still influenced Michigan superintendents in the 1930s, as Yoder's statement makes clear. As Steven Noll has argued, a similar, although much longer, time lag occurred among superintendents of mental institutions in the south.¹⁵³

Hansen and King suggest that sterilizations continued despite geneticists repudiating eugenics due to their entrenchment in the practices of mental institutions. In a context where every day experiences were "organized around rigid hierarchies of power," sterilization "became routine and unremarkable."¹⁵⁴ Thus, notwithstanding the proliferation of evidence in the 1930s revealing the falsity of eugenicists' claims on the hereditary nature of mental deficiency and the rapidity with which sterilization would reduce the number of mentally disabled, superintendents tena-

¹⁵² Those focused on the history of psychiatry tend to emphasize the institutions in Massachusetts, New York, Pennsylvania, and, occasionally, Minnesota, but the superintendents of the institutions emphasized should be considered as those on the forefront of psychiatric research, as compared to institutions elsewhere. Those focused on eugenics typically emphasize the role of the Eugenics Record Office in Cold Spring Harbor, New York and the Vineland Training School in New Jersey. Grob, *Mental Illness and American Society, 1875-1940*; Trent, *Inventing the Feeble Mind*; Tyor and Bell, *Caring for the Retarded in America*; Haller, *Eugenics*.

¹⁵³ Steven Noll, *Feeble-Minded in Our Midst: Institutions for the Mentally Retarded in the South, 1900-1940* (Chapel Hill: University of North Carolina Press, 1995).

¹⁵⁴ Hansen and King, *Sterilized by the State*, 234.

ciously maintained the practice of sterilizing institutionalized patients for another three decades.¹⁵⁵ Although they gradually removed eugenic explanations for sterilizing patients, superintendents in the 1930s combined eugenic and economic rationales to justify increasing numbers of operations just as the intellectual rationalization for the procedures was on the decline.

Economic reasonings during the Great Depression certainly played a part in the continued practice of sterilizing mental patients in order to release them on parole, as evidenced by the statements from the staff from the MHTS in 1932. However, this minimizes the pervasive belief that many still retained that, unless these patients were sterilized, they would continue to propagate feeble-minded or defective children. After all, if decisions were simply based on the economics within the institution and the outside world, state hospitals would have paroled patients without sterilizing them. But physicians within these institutions, as well as those outside mental hospitals, still thought that unless patients were rendered incapable of reproducing more children, the menace of feeble-mindedness would continue for the next generation. As Fred Woodworth, the Michigan welfare director, said in 1936, probate courts would often commit individuals “regarded as a social menace to a State hospital for just long enough to permit sterilization,” on account of the fact that they would no longer be able to “procreate and continue [their] defects.”¹⁵⁶ Eugenics, then, remained a core tenet of the sterilization program in the 1930s.

At the same time, there was also a growing number of “non-eugenic” sterilizations at places such as the University of Michigan Hospital in Ann Arbor. From what best can be gathered, surgeons determined the operation was necessary while a patient was already in the operating room. Under the direction of Dr. Harley Haynes, 316 eugenic sterilizations had been performed

¹⁵⁵ Feyerabend discusses the “principles” of proliferation and tenacity, and their relationship to science, in Paul K. Feyerabend, “Consolations for the Specialist,” in *Criticism and the Growth of Knowledge*, ed. Imre Lakatos and Alan Musgrave (Cambridge, MA: Cambridge University Press, 1970), 204–10.

¹⁵⁶ “Sterilization Law Praised.”

from 1925 to 1935.¹⁵⁷ Then, Haynes reported that in 1939, the hospital executed an additional 136 sterilizations, along with 103 the following year, the vast majority being women listed under the category of “others,” presumably because of “chronic illness.” Because these operations were the result of presumed medical conditions, they did not require the hospital to undergo the typical legal safeguards put in place for eugenic sterilizations. Thus, in the span of four years, the number of “other” sterilization operations increased five-fold.¹⁵⁸ In many ways, it appears as a precursor to “Mississippi appendectomies” performed on women of color throughout the South in the 1950s and 1960s.¹⁵⁹

Thus, to psychiatrists in Michigan, eugenics emerged in the twentieth century as a continuation of ideas of hereditary mental disease and illness from the nineteenth century. The adoption of eugenics resulted from a variety of causes, with Mendelian genetics not necessarily being one of them. It was in part the outcome of a desire to explain seemingly increasing numbers of the insane and mentally deficient in the population, the growing pessimism of curative prospects and the consequent rise in emphasizing preventive measures, and the need to reduce overcrowding and expenses in institutions. All these reasons developed before Mendelism emerged in the field of psychiatry, and it seems likely that they would have continued the path towards segregation and sterilization without Mendelian frameworks justifying them. Only in the mid-1910s did superintendents of mental institutions begin to adopt the concepts and methods of eugenicists into their own work and practice, including Mendelian notions of mental traits. That said, by the 1920s several psychiatrists realized that not all mental diseases were the product of single-gene inher-

¹⁵⁷ Paul Popenoe to Florence G. Babcock, December 31, 1936, Association for Voluntary Sterilization Records, Box Doc 6, Folder 52, Social Welfare History Archives, University of Minnesota.

¹⁵⁸ Hodges, “Dealing with Degeneracy,” 182–84.

¹⁵⁹ Rosalind Early, “The Sweat and Blood of Fannie Lou Hamer,” *Humanities*, Winter 2021, <https://www.neh.gov/article/sweat-and-blood-fannie-lou-hamer>.

itance. Even as eugenics faced scientific attacks in the 1930s, sterilizations at mental institutions continued, largely due to social and economic justifications. Sterilizations continued, at reduced—or perhaps even hidden—numbers, into the 1960s and 1970s, well after revelations of Nazi atrocities rendered eugenics politically untenable.

Chapter 2 Eugenics as Preventive Public Medicine

Eugenicists in Michigan, like those throughout the United States, shared certain fears regarding the social changes occurring in the first two decades of the twentieth century. Census reports tracing a decline in the birthrate among native-born Americans, coupled with demographic shifts in immigration patterns, fueled speculations over “race suicide,” especially after President Theodore Roosevelt’s enunciation of this issue. Coined by the University of Wisconsin economist Edward Alsworth Ross in 1901, race suicide referred to the supposed displacement of Anglo-Saxon Americans by other races due to the greater reproduction rates of immigrant and lower-class groups compared.¹ Moreover, the recognition of Mendelian genetics, the supposedly hereditary nature of feeble-mindedness, and its assumed connection to social issues like crime and prostitution led many to seek biological solutions to social problems. This represented a continuation and extension of late-nineteenth century ideas stemming from the work of Darwin and Herbert Spencer, what the historian of science Kenneth Ludmerer has termed “biological sociology,” in which society was framed as an evolving organism progressing linearly towards perfection.² However, in contrast to Spencerian social Darwinism that emphasized a laissez faire approach to social and economic issues akin to natural selection, these new developments coincided with the rise of Progressivism, which, in its many manifestations, ultimately sought to purify the individual and the nation through administrative organization and reform.³ These changes, all

¹ Edward Alsworth Ross, “The Causes of Race Superiority,” *Annals of the American Academy of Political and Social Science* 18 (1901): 67–89; Theodore Roosevelt, “Citizenship in a Republic” (The Sorbonne, Paris, April 23, 1910), <https://www.theodorerooseveltcenter.org/Learn-About-TR/TR-Encyclopedia/Culture-and-Society/Man-in-the-Arena.aspx>.

² Kenneth M. Ludmerer, *Genetics and American Society: A Historical Appraisal* (Baltimore: Johns Hopkins University Press, 1972), 19–22, 157–58.

³ Jackson Lears, *Rebirth of a Nation: The Making of Modern America, 1877-1920* (New York: Harper Collins, 2009), 200; Stromquist refers to it as the “promised restoration of the common good as a social ideal.” Shelton Stromquist,

taking place largely in the period from 1890-1920, provided a milieu that resulted in many Americans accepting the idea that, in order to improve society, certain groups of people should be prevented from having children, while others should likewise be encouraged to have more.

Michigan eugenicists also shared with their contemporaries the belief that there were solutions that could provide desired social changes. Regarding negative eugenics—that is, the prevention of certain peoples from propagating children—eugenicists around the country viewed marriage restrictions, segregation of undesirables, sterilization of the unfit, and immigration restriction as the only available options. These solutions were all possible through state or federal legislation; thus, eugenicists primarily focused their efforts on passing negative eugenics laws. Its corollary, positive eugenics, was largely limited to educational efforts to encourage people of high genetic standing to produce more children. As Ludmerer has noted, eugenicists assumed “that eugenic measures would be employed universally once the public was informed of the ‘facts’ of heredity.”⁴

Despite these similarities, the current of eugenic thought in Michigan diverged from that elsewhere in one especially significant way. The historiography of eugenics in the United States largely reveals a “hardening” of hereditarian positions from eugenicists around the country beginning in the 1910s and only showing diminishing influence—replaced by a position that gives the environment a greater role in explaining the development of various traits—in the late 1920s or early 1930s.⁵ The hereditarian position in the second decade of the twentieth century was largely

Reinventing “the People”: The Progressive Movement and the Problem of Class (Urbana: University of Illinois Press, 2005), 3–4.

⁴ Ludmerer, *Genetics and American Society*, 19.

⁵ Kevles argues that the hereditarian position of “mainline” eugenics was replaced by a more environmentalist and less racist “reform” eugenics. Kevles, *In the Name of Eugenics*, 164; Haller, *Eugenics*, 123; Cravens argues that the work of anthropologists challenged both genetic and eugenic notions of race during this period, largely through the efforts of Franz Boas. Cravens, *The Triumph of Evolution*, x; Elazar Barkan, *The Retreat of Scientific Racism: Changing Concepts of Race in Britain and the United States between the World Wars* (New York: Cambridge

a response to the gradual acceptance of Mendelian explanations of heredity over previous neo-Lamarckian ideas of the inheritance of acquired characteristics. In these histories, environmental reforms play a minor role, if any. Many eugenicists in Michigan, however, argued throughout this period that both heredity and environment were vital and complementary forces for any effective program of race betterment. This can be explained, in part, by the backgrounds and occupations of eugenic advocates in Michigan compared to other states.

The two leading eugenicists in the state, Drs. John Harvey Kellogg, and Victor Clarence Vaughan, were physicians, rather than geneticists. Kellogg's program of biologic or natural living, developed and refined at the Battle Creek Sanitarium (or the San) that he ran, reflected a neo-Lamarckian understanding of heredity and eugenic progress that he maintained for over fifty years. Vaughan, on the other hand, was a physician for twenty years before he turned to bacteriology and became what would now be referred to as an epidemiologist. His work on infectious diseases and their effects on individuals, especially typhoid fever, enabled him to consider the ways disease can influence the progress or decline of a nation or 'race.' Importantly, neither received formal training in genetics. While Vaughan at least grasped the basics of Mendelian inheritance, Kellogg's neo-Lamarckian beliefs, especially by the mid-1910s, reveals his willful ignorance in the field. One historian has described Kellogg's comprehension of heredity as "simple-minded" and rooted in "scientific folk heredity."⁶ Kellogg, in particular, found the implications of neo-Lamarckian inheritance to match with his views on therapeutic medicine and never challenged these ideas as new theories emerged. Whereas most intellectual histories of eugenics focus on the geneticists who participated in the movement or the anthropologists that eventually rejected it, for valid

University Press, 1992), 272; For a discussion on the "hardening" of hereditarianism, see Meloni, *Political Biology*, 1–2.

⁶ Nathaniel C. Comfort, *The Science of Human Perfection: How Genes Became the Heart of American Medicine* (New Haven: Yale University Press, 2014), 34–35.

reasons, other intellectuals were also involved in the elucidation and dissemination of eugenic ideas.⁷ Physicians and public health reformers were a key component of the eugenics movement, despite maintaining a concept of heredity that differed from the search for Mendelian traits. In their quest to identify the etiology of hereditary and congenital diseases (a significant component of eugenics) physicians were cognizant of the complex and multifactorial nature of disease transmission.⁸ Highlighting how they understood and promoted eugenic science and policy helps to demonstrate the complexities, and sometimes contradictions, within the eugenics movement.

Aside from their intellectual backgrounds, Vaughan and Kellogg's work in public health, particularly as members of the Michigan State Board of Health throughout much of the 1910s, influenced how other scientists in the state considered questions of eugenics. By connecting eugenics to public health, Michigan eugenicists instigated a program of "race betterment," in which eugenics was but one component of a broader scheme aimed at improving the overall health of the citizenry. Thus, rather than completely focusing on hereditary ills and regulation of reproduction—as was the focus of eugenicists on the country's coastlines—eugenicists in Michigan implemented a program that resembled an eclectic mixture of the "reform eugenics" of 1930s America and eugenic efforts in Central and South America, France, and Italy.⁹ Meanwhile, Kel-

⁷ Ludmerer, for instance, consciously chooses to examine eugenics from the geneticists' perspective. Ludmerer, *Genetics and American Society*; Several other scholars that examine eugenics do so through the "nature-nurture" debate, and its relationship with race, that emerges in the 1930s as the Boas school of anthropology gains greater acceptance. In these works, the interplay between geneticists and anthropologists are analyzed. Kevles, *In the Name of Eugenics*; Carl N. Degler, *In Search of Human Nature: The Decline and Revival of Darwinism in American Social Thought* (New York: Oxford University Press, 1991); Cravens, *The Triumph of Evolution*; Barkan, *The Retreat of Scientific Racism*.

⁸ Jean-Paul Gaudillière and Ilana Löwy, "The Hereditary Transmission of Human Pathologies between 1900 and 1940: The Good Reasons Not to Become 'Mendelian,'" in *Heredity Explored: Between Public Domain and Experimental Science, 1850-1930*, ed. Staffan Müller-Wille and Christina Brandt, *Transformations: Studies in the History of Science and Technology* (Cambridge, Massachusetts: The MIT Press, 2016), 311–36.

⁹ Nancy Stepan termed eugenics in these regions "Latin eugenics," which was characterized by "merging eugenics with preventive sanitation or expanding preventive sanitation to include the sanitization of human heredity." In this framework, eugenics often was situated within programs to improve prenatal and neonatal conditions, as well as implementing social hygiene measures to improve environmental conditions. However, unlike eugenics in the United States, sterilization and other coercive reproductive interventions were rarely legalized. Stepan, *The Hour of Eugenics*,

logg's varied public education efforts, including his editorship of *Good Health* magazine, lectures given at the Battle Creek Sanitarium, and the Race Betterment Conferences he created, placed eugenics as only one part of a broader program of racial improvement. These efforts reached hundreds of thousands of Americans addressing social issues from the perspectives of both environmental and genetic reform.

John Harvey Kellogg

It is a peculiar feature of the historiography on eugenics that Dr. John Harvey Kellogg is rarely discussed alongside figures such as Charles Davenport or even Madison Grant, for he was one of the more influential eugenicists and public health advocates in the country in the early twentieth century.¹⁰ This may be due, in part, to his religious background, which counters the narrative of eugenicists attempting to preserve the social status of white, Anglo-Saxon Protestants in the midst of massive immigration and urbanization upending the traditional social order. A Seventh-day Adventist, Kellogg studied to become a physician and surgeon while adhering to a certain set of ideas about the role that diet and environment played in an individual's health, what he eventually designated a program of "biologic living." These codes largely revolved around a return to a more simplistic or "primitive" life. For example, Kellogg's principles included the need to breathe clean or well-ventilated air, wear loose clothing, exercise, and sleep regularly. However, Kellogg believed the most important component of biologic living was its diet. Arguing that it was the diet of both monkeys and, consequently, the first modern humans, Kellogg consistently

85–86, 102–3; A more recent comparative analysis of eugenics in these areas, conducted in the same method as Stepan, can be found in Turda and Gillette, *Latin Eugenics in Comparative Perspective*.

¹⁰ For instance, Kevles' influential study does not include Kellogg in the index, while mentioning the Race Betterment Foundation that he created once. Haller's landmark study mentions Kellogg once and the Race Betterment Foundation twice. This sort of lip-service to Kellogg and his foundation continues throughout much of the more recent work on eugenics. The Race Betterment Congresses are often mentioned and the works of presenters are included in the historiography, but very little is said of the man who kickstarted these events. Kevles, *In the Name of Eugenics*; Haller, *Eugenics*.

discussed the benefits of eliminating meat, tobacco, tea, coffee, most spices, and alcohol from one's eating regimen.¹¹ As the head of the Battle Creek Sanitarium, he implemented these concepts and demonstrated their utility to thousands of patients, including President William Howard Taft, fellow eugenicist Irving Fisher, and Thomas Edison. Kellogg also gave over 5,000 public lectures and speeches that reached well over 100,000 individuals.¹² While most of these emphasized his principles of biologic living, his speeches also included race degeneration and eugenics following his expulsion from the Seventh-day Adventist church in 1907.

Prior to his removal from the church, however, John Harvey Kellogg already started to espouse eugenic ideas in his writings. In arguably his most popular book, *Plain Facts for Old and Young*, he repeatedly stressed that there should be social or legislative checks on the reproduction of the unfit. In his second edition, published in 1879, he combined neo-Lamarckian ideas with Darwin's theory of pangenesis to explain heredity and justify eugenic policies. After summarizing the findings of Richard Dugdale's study of the Juke family, as mentioned in Chapter 1, Kellogg claimed that legislators must "consider whether it would be an unprofitable experiment to make some attempt to prevent the multiplication of criminals." He stated further that the increasing numbers of physical and mental "unfortunates who were 'born so'" were likely the "results of the violation of some sexual law on the part of their progenitors." Moreover, his ideas on how to combat racial degeneracy were clearly well-formulated at this time when he stated that "persevering, conscientious efforts to comply with every requirement of health, purity, morality, and the

¹¹ John Harvey Kellogg, "Tendencies toward Race Degeneracy" (Presentation, Connecticut State Conference of Charities and Correction, New Haven, CT, April 25, 1911), 24.

¹² Richard W. Schwarz, *John Harvey Kellogg, M.D.: Pioneering Health Reformer* (Hagerstown, MD: Review & Herald Publishing, 2006), 83.

laws of nature, will accomplish wonders in securing healthy children with good dispositions, brilliant intellects, and beautiful bodies.”¹³

The doctor also adhered to George Beard’s theory of neurasthenia, which Beard formulated and popularized when Kellogg was his assistant after graduating from Bellevue Medical College. However, he disagreed with his mentor as to the causes of neurasthenia, attributing them primarily to “overcivilization” rather than “overwork.”¹⁴ Comparing the lack of vices and “diseases of civilization” of North American Indians to white Americans, Kellogg concluded that “there must be something in the refinements and perversions of civilized life which is unfavorable to chastity,” and, therefore, contributed to degeneracy.¹⁵ Following his principles of biologic living, he alleged many of the causes to be in the diets, clothing, and sedentary lifestyles of Americans and Europeans. Moreover, he believed that “the excitements of city life” hastened the onset of puberty, which he thought resulted in “premature decay.”¹⁶ Kellogg also was at least aware of Morel’s theory of degenerative heredity, discussed in the previous chapter. He argued that if the children of parents who contracted tuberculosis or syphilis survived infancy, they would transmit the disease to their children. While few American psychiatrists considered plausible the Morelian idea of family extinction, Kellogg claimed that by the third generation, such a family line would become extinct.¹⁷

Nonetheless, by the late-nineteenth century, Kellogg adhered to several eugenic principles. Well before the advent of Mendelian genetics—which he largely rejected anyways—and progres-

¹³ John Harvey Kellogg, *Plain Facts for Old and Young*, ed. Taylor Anderson, Reprinted 2nd ed. (CreateSpace Independent Publishing Platform, 2018), 36–37.

¹⁴ John Harvey Kellogg, *Neurasthenia or Nervous Exhaustion*, 2nd ed. (Battle Creek, MI: Good Health Publishing Co., 1916), 14–17.

¹⁵ Kellogg, *Plain Facts for Old and Young*, 64–65.

¹⁶ At least in the late-nineteenth century, Kellogg also believed that there were national and racial differences in the ages at which children underwent puberty. Following the humoral theory of bodily constitution, he claimed that Jewish and Black children went through puberty at earlier ages, as well as individuals with “nervous or nervo-bilious temperament” compared to those with “a lymphatic temperament or phlegmatic nature.” Kellogg, *Plain Facts for Old and Young*, 24–25.

¹⁷ Kellogg, *Plain Facts for Old and Young*, 55.

sive notions to apply bureaucratic, technocratic, and scientific solutions to social issues, Kellogg wanted to limit the reproduction of people with mental and physical disabilities. In this, his acceptance of eugenics runs parallel with the superintendents of mental institutions from the previous chapter. While Mendel's insights proved vital for geneticists to take eugenic proposals seriously, for medical professionals prior to the 1900 rediscovery of his work, it was not a necessary prerequisite for the belief that society should regulate the reproduction of its population. Kellogg argued that individuals with syphilis, epilepsy, nervous disorders, and insanity "have no right to marry," because their marriage would violate the child's "right to be born well." Because of his neo-Lamarckian views, he drew connections between the spread of communicable diseases and preventing the transmission of hereditary diseases. Just as he believed that people suffering from infectious diseases had no "right to communicate the same to another," those with insanity, epilepsy, or even criminal tendencies should be prohibited from marrying and having children.¹⁸

By the early twentieth century, Kellogg abandoned certain theories that initially contributed to his eugenic views. For example, he eventually removed pangenesis from his public writings and speeches, likely due to Galton's disapproval of the theory in an experiment that examined the hereditary differences in rabbits of different colors after transferring their blood between each other.¹⁹ He refined his ideas on neurasthenia as well, attributing more cases to women than men on account of their "feeble constitutions" and "weak nervous systems," which resulted from "too frequent child-bearing" and improper diets.²⁰ The doctor also eventually combined his individual understanding of Morelian degeneration with "race degeneracy," which adhered closely to the

¹⁸ Kellogg, *Plain Facts for Old and Young*, 55–58.

¹⁹ The experiment convinced Galton that the path to proving the hereditary nature of human traits was through statistical methods. Chris Renwick, "The Task of Sisyphus? Biological and Social Temporality in Maurizio Meloni's Political Biology," *History of the Human Sciences* 31, no. 1 (February 1, 2018): 104, <https://doi.org/10.1177/0952695117729119a>.

²⁰ John Harvey Kellogg, "Neurasthenia" (Lecture, Battle Creek Sanitarium, October 20, 1902), Box 4, Folder 6, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan.

theory of “race suicide” that progressive economists and demographers began to formulate in the 1890s. In this framework, the lack of increasing longevity among humans despite medical advances was a sign of degeneracy; meanwhile, the rising numbers of unfit individuals—whether they be the insane, feebleminded, etc.—relative to fit individuals was also evidence of race deterioration. To Kellogg, these developments contributed to his belief in what one biographer termed “biological apocalypticism,” akin to the divine apocalypticism of the Seventh-day Adventists.²¹ Much like Protestant progressives, who absorbed the religious moral values of the previous generation and applied them via secular means, Kellogg directed the moral lessons of the Seventh-day Adventists to questions of social decline through the prism of biology and medicine.²² This shaped his conceptualization of “race betterment,” which, in contrast to many eugenicists, included both environmental and hereditary reforms to improve society. Nevertheless, while he altered his ideas over time, John Harvey Kellogg continued to frame his designs of eugenics around neo-Lamarckian ideas of inheritance, his principles of biologic living, and their connection to public health.

Dr. Kellogg’s ideas of racial betterment were in many ways comparable to those of other scientists adhering to eugenics in the 1900s and 1910s. Like many of the early eugenicists, particularly those focused on social reform, he maintained a neo-Lamarckian understanding of heredity and its application to eugenic ideas.²³ His concern about the degeneration of the race echoed grow-

²¹ Brian C. Wilson, *Dr. John Harvey Kellogg and the Religion of Biologic Living* (Bloomington, IN: Indiana University Press, 2014), 151.

²² Robert Morse Crunden, *Ministers of Reform: The Progressives’ Achievement in American Civilization, 1889 - 1920* (New York, NY: Basic Books, 1982), ix.

²³ Lamarckian ideas, which resonated with progressive ideas of social uplift, were accepted in the United States well after they were rejected elsewhere, aside from France. Daniel E. Bender, “Perils of Degeneration: Reform, the Savage Immigrant, and the Survival of the Unfit,” *Journal of Social History* 42, no. 1 (September 17, 2008): 5–29, <https://doi.org/10.1353/jsh.0.0064>.

ing sentiments in both theological and reform circles by the turn of the twentieth century.²⁴ Kellogg agreed with E. A. Ross's race suicide thesis and, like Charles Davenport and the wealthy conservationist and eugenicist Madison Grant, advocated for a conservation of human resources similar to the conservation efforts towards natural resources occurring during this time.²⁵ The preventive nature of eugenic applications likely appealed to Kellogg as it did to psychiatrists and superintendents of mental institutions who supported eugenic solutions to curb "the menace of the feeble-minded."²⁶ His plan for an Eugenics Registry and the formation of a national Department of Health to aid in race betterment reflected the pervasive belief common in the Progressive era that solutions to social issues required expansive organizational and bureaucratic infrastructures.²⁷ Lastly, Kellogg and many of the early eugenicists who witnessed firsthand how public health interventions severely reduced the number of deaths from infectious disease, had trouble reconciling the altruistic nature of these public health measures with Darwinian conceptions of survival of the fittest.²⁸ He agreed with Irving Fisher that, although bacteriology and epidemiology helped to raise the average lifespan of Americans, the number of people achieving old age failed to see a similar increase.²⁹ While he supported public health advances reducing infant mortality, Kellogg believed

²⁴ Durst argues that the concept of degeneration "served as a key conceptual nexus" between Protestants and social reformers discussing hereditarian causes of social issues in this period. Durst, *Eugenics and Protestant Social Reform*, 2-4.

²⁵ John Harvey Kellogg, "Relation of Public Health Work to Race Degeneracy" (Lecture, Colorado Springs, September 10, 1913), 9, Box 6, Folder 9, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan; Spiro's biography of Grant details the connections between his conservation efforts and eugenic beliefs. Jonathan Peter Spiro, *Defending the Master Race: Conservation, Eugenics, and the Legacy of Madison Grant* (Burlington, VT: University of Vermont Press, 2009).

²⁶ Schwarz describes Dr. Kellogg's biologic living as "preventive medicine at its best." Schwarz, *John Harvey Kellogg, M.D.*, 40; The quote refers both to the title of one of Henry Herbert Goddard's works and its subsequent use in Mark Haller's work on the history of eugenics. Henry H. Goddard, "The Menace of the Feeble Minded," 1911, <http://bir.brandeis.edu/handle/10192/27409>; Haller, *Eugenics*, 122.

²⁷ Robert H. Wiebe, *The Search for Order: 1877-1920*, American History (New York: Hill and Wang, 1967).

²⁸ Kellogg argued that, while acute diseases were being eliminated, increases in deaths due to chronic diseases provided evidence that the race was degenerating. Kellogg, "Tendencies toward Race Degeneracy," 16.

²⁹ See a joint lecture they gave at the Battle Creek Sanitarium for the similarity in their views. Irving Fisher and John Harvey Kellogg, "Health Perils in the United States" (Lecture, Battle Creek Sanitarium, July 29, 1907), Box 4, Folder 22, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan; Kellogg argued that the number of people who achieved old age revealed the "vitality" of the race. John Harvey Kellogg, "What Disease Is Doing for

that eugenics needed to be incorporated into such measures to address continuing social maladies. Many eugenicists, Kellogg included, argued that new interventions were required to ameliorate the race from a host of social and medical ills attributed to this new class of genetically inferior people.

What separated Dr. John Harvey Kellogg from other eugenicists in the 1910s was his commitment to the principles of biologic living. Indeed, this ultimately formed the core of Kellogg's neo-Lamarckism, for they represented a holistic view of individual and racial betterment. While noting that missing appendages or limbs—to apply August Weismann's supposed refutation of neo-Lamarckian inheritance—were not transmitted to progeny, Kellogg nevertheless contended that when “every cell of his body has lost something of the original vitality and vigor which it possessed, that is hereditary.”³⁰ He claimed that this occurred when people failed to get enough exercise or sleep, did not sit or stand in correct postures, or wore clothing that was too restrictive.³¹ Kellogg's greatest concern, as noted previously, was with the diets of Americans. He argued that meat putrefied in the intestines and colons of individuals and released harmful toxins into the body, resulting in autointoxication.³² Thus, poisons such as alcohol and meat, over time,

Us” (Lecture, Battle Creek Sanitarium, March 2, 1911), 2, Item 575.7. Lectures, Speeches, and Related Materials, Box 5, March 1911, Folder 14, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan; John Harvey Kellogg, “Habits in Relation to Longevity,” in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 316; Nathaniel Comfort suggests that Kellogg indoctrinated Fisher to eugenics, when the latter visited the San in 1905 in search of treatment for tuberculosis. Comfort, *The Science of Human Perfection*, 29.

³⁰ John Harvey Kellogg, “Race Degeneracy” (Lecture, Battle Creek Sanitarium, April 16, 1911), 27, Box 5, Folder 15, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan; Weismann cut the tails off of mice over dozens of generations, failing to record any change in tail length or structure in subsequent offspring. This, among other experiments, led Weismann to postulate a sharp break between somatic and germ (or reproductive) cells in organisms. Degler, *In Search of Human Nature*, 22.

³¹ John Harvey Kellogg, “Race Degeneracy” (Lecture, Battle Creek Sanitarium, January 26, 1911), Item 575.7. Lectures, Speeches, and Related Materials, Box 5, January 1911, Folder 12, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan.

³² Autointoxication referred to “poisons generated within the body.” John Harvey Kellogg, “Question Box Lecture” (Lecture, Battle Creek Sanitarium, October 27, 1913), 10, Box 6, Folder 9, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan.

degenerated the various organs and tissues in the individual, causing health complications and resulting in subpar physical and mental constitutions that later generations would inherit.³³ The historian of science Nathaniel Comfort suggests that Kellogg's biologic living principles, such as his enthusiasm for vegetarianism and hydrotherapy, partly explains his absence in the historiography of eugenics, for eugenicists distanced themselves from him as hard hereditarianism gained greater acceptance.³⁴

To the doctor, developing and maintaining healthy habits were just as necessary as proper mating to improve the race. He never wavered in his belief that hereditary and environmental reforms were both necessary for eugenic solutions. As eugenicists such as Charles Davenport and Eugenics Record Office secretary Harry Laughlin gradually took firmer positions regarding the inheritance of traits and its relevance to eugenics, and thus limiting its social applications to the realm of Mendelian genetics, Kellogg argued that euthenics, which he understood as “the science of individual hygiene” and eugenics, or “race hygiene,” were complementary factors necessary to combat race degeneracy.³⁵

Euthenics was first coined in 1905 by Ellen H. Swallow Richards, the first female professor at MIT and a leader in the home economics movement.³⁶ As noted in the foreword of her book on the subject, eugenics dealt with “race improvement through heredity,” while euthenics dealt with “race improvement through environment.”³⁷ Many of the environmental improvements pursued within euthenics were those Kellogg wished as well, namely, improved diets, clean air, proper or

³³ John Harvey Kellogg, “The New Human Race” (Lecture, Battle Creek Sanitarium, October 3, 1912), 17, Box 6, Folder 6, Item 4, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan.

³⁴ Comfort, *The Science of Human Perfection*, 61–62.

³⁵ John Harvey Kellogg, “Practical Eugenics” (Talk, Chicago Eugenics Club, May 20, 1921), 14, Box 7, Folder 1, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan.

³⁶ John K. Grandy, “Euthenics,” in *Encyclopedia of Anthropology* (Thousand Oaks: SAGE Publications, Inc., 2006), 873, <https://doi.org/10.4135/9781412952453>.

³⁷ Ellen H. Richards, *Euthenics: The Science of Controllable Environment* (Boston, MA: Whitcomb & Barrows, 1910), 1.

“hygienic” clothing, better posture, and more exercise.³⁸ Similar to many intellectuals of the Progressive era, including eugenicists, Richards based euthenics on the idea that evolutionary theories demonstrated the need to subordinate the rights of the individual to the collective, often framed as “the race.”³⁹ That said, euthenics differed from eugenics in tracing the cause of mental or moral deficiency and how best to address it. Euthenics was centered on the notion that mental incompetence was often the result of physical defects, which could be discovered by means of school health examinations. Moreover, Richards believed that education could teach individuals proper health habits. Therefore, schools and homes could immediately apply euthenic reforms to deal with the present generation, whereas eugenic reforms would aid in the amelioration of conditions in future generations.⁴⁰ John Harvey Kellogg thus combined the immediacy of environmental reforms in euthenics with the longer-lasting reforms of eugenics in his program of race betterment.

While Kellogg shared with contemporary eugenicists concerns over racial degeneration, his neo-Lamarckism provided a sense of optimism about the prospect of racial rejuvenation. This optimism explains Kellogg’s insistence on focusing on “race betterment” rather than eugenics. For although he lamented the continued propagation of the unfit, he consistently emphasized “cultivating health” as the proper prophylaxis for the “tidal wave of degeneracy” facing the nation, a position more common in this period in places such as France and Italy.⁴¹ Although sharing with

³⁸ Richards, *Euthenics: The Science of Controllable Environment*, 25–26.

³⁹ Richards, *Euthenics: The Science of Controllable Environment*, 59.

⁴⁰ Richards, *Euthenics: The Science of Controllable Environment*, 1–2.

⁴¹ Kellogg, “Race Degeneracy,” April 16, 1911, 27; The “eugenics as social prophylaxis” thesis is much more prevalent in the historiography of eugenics outside the United States than within, largely because it helps explain why other nations responded to similar eugenic concerns with solutions that did not rely solely or mostly on genetic theories. In France, where similar fears of degeneration existed due to increases in crime and madness, as well as a continued belief in neo-Lamarckian inheritance, doctors medicalized social issues as a “social prophylaxis” that “reduced all questions of responsibility to biological ones.” Robert A. Nye, *Crime, Madness, & Politics in Modern France: The Medical Concept of National Decline* (Princeton, N.J.: Princeton University Press, 1984), 263; Richard Cleminson, *Catholicism, Race and Empire: Eugenics in Portugal, 1900-1950*, CEU Press Studies in the History of Medicine (Budapest: Central European University Press, 2014), 251; David G. Horn, *Social Bodies: Science, Reproduction, and Italian Modernity*, Princeton Studies in Culture/Power/History (Princeton, N.J.: Princeton University Press, 1994), 22–23; For the continued acceptance of neo-Lamarckian ideas of inheritance in France, see

American eugenicists a fear for race suicide, Kellogg nevertheless argued at the First Race Betterment Conference in 1914 that science supplied enough knowledge “of eugenics and eugenics to create a new race within a century” so as long as the proper principles of both were applied to society.⁴² His speech the following year, at the second Race Betterment Conference in connection with the Panama-Pacific Exposition in San Francisco, reiterated this theme. Kellogg called for the establishment of a eugenics registry to create an “aristocracy of health,” a phrase that made national headlines.⁴³ He maintained the position that proper biologic living, according to the principles he developed at the San, and a commitment to eugenic ideas, could save civilization as late as 1940, well after population geneticists used the Hardy-Weinberg theorem to convincingly claim that eugenic measures would take centuries to be effective.⁴⁴

Similarly, one can explain Kellogg’s eclectic understanding of eugenics according to the sources of information he used in describing race degeneracy. While well read in statistical accounts of the state of society, he rarely cited the work of Mendelians. In public speeches, Kellogg, similar to turn of the century economists and British eugenicists, often cited census data

Ernst Mayr and William B. Provine, *The Evolutionary Synthesis: Perspectives on the Unification of Biology* (Cambridge: Harvard University Press, 1998), 309–28; Laurent Loison, Jean Gayon, and Richard M. Burian, “The Contributions - and Collapse - of Lamarckian Heredity in Pasteurian Molecular Biology: 1. Lysogeny, 1900-1960,” *Journal of the History of Biology* 50, no. 1 (February 2017): 5–52, <http://dx.doi.org/10.1007/s10739-015-9434-3>.

⁴² John Harvey Kellogg, “Needed—A New Human Race,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 446; Kellogg was a colleague of E.A. Ross, and noted that race suicide, “which ex-President Roosevelt has spoken so frequently and so emphatically” about, “is an actuality.” Kellogg, “Tendencies toward Race Degeneracy,” 9–10.

⁴³ “Eugenics as Basis of New Aristocracy,” *New York Times*, August 8, 1915; “New Aristocracy Due to Eugenics, Is His Prophecy: Dr. Kellogg, of Battle Creek, Sees Future Race of Supermen,” *Detroit Free Press*, August 8, 1915.

⁴⁴ John Harvey Kellogg, “The Mission of Good Health Is to Help Save Civilization through Race Betterment and Biologic Living” (January 23, 1940), Box 7, Folder 13, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan; While geneticists were aware of the problem heterozygous carriers of genes for feeble-mindedness posed, British geneticist Reginald Punnett was one of the first to really damper eugenicists’ optimism for quick improvements through sterilization measures. Using the Hardy-Weinberg formula, he demonstrated that over 10% of the population carried the gene for feeble-mindedness, which would take 8,000 years to effectively eliminate from the gene pool. Reginald C. Punnett, “Eliminating Feeble-mindedness,” *Journal of Heredity* 8, no. 10 (October 1917): 464–65; Paul, *Controlling Human Heredity*, 68–69.

as proof of his argument.⁴⁵ Whereas geneticists already started to talk of “genes,” “determiners,” or “unit characters” by the early-1910s, Kellogg still referred to the “importance of blood” in hereditary traits as late as 1915.⁴⁶ Moreover, he largely agreed with British psychiatrist Dr. Alfred Tredgold, who argued that the British race was declining as evidenced by declined longevity and “race vigor.”⁴⁷ As Richard Schwarz has noted, aside from his neo-Lamarckian beliefs stemming from his conceptualization of biologic living, Kellogg was primarily a Galtonian eugenicist—albeit without the statistical sophistication of the biometricians—rather than a Mendelian.⁴⁸ Indeed, as late as 1921, he referred to Galton’s work from *Hereditary Genius* as explaining “some of the laws of inheritance,” rather than Mendel or any of his contemporary Mendelians.⁴⁹ However, Kellogg did not adhere to the principles of correlation and regression Galton or Karl Pearson developed.⁵⁰ Rather, Kellogg noticed a path for racial redemption in Galton’s positive eugenics, in contrast to the predictions of racial extinction from his Mendelian colleagues.⁵¹

Another significant difference between Galton and Kellogg, despite their mutual rejection of Mendelian genetics, lay in their different beliefs in the prospects of eugenics in improving the race. As noted earlier, Kellogg was optimistic about the results his program of race betterment

⁴⁵ John Harvey Kellogg, “Race Deterioration” (Lecture, Battle Creek Sanitarium, July 27, 1911), Box 5, Folder 17, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan; Thomas C. Leonard, *Illiberal Reformers: Race, Eugenics, and American Economics in the Progressive Era* (Princeton: Princeton University Press, 2016); Richard A. Soloway, *Demography and Degeneration: Eugenics and the Declining Birthrate in Twentieth-Century Britain*, 3rd ed. (Chapel Hill: Univ. of North Carolina Press, 2001).

⁴⁶ John Harvey Kellogg, “Questions on Eugenics,” in *Official Proceedings of the Second National Conference on Race Betterment* (Second National Conference on Race Betterment, San Francisco, CA: Race Betterment Foundation, 1915), 88; The Danish botanist Wilhelm Johannsen coined the term “gene” in 1909. Keller, *The Century of the Gene*, 1.

⁴⁷ John Harvey Kellogg, “The Eugenics Registry,” in *Official Proceedings of the Second National Conference on Race Betterment* (Second National Conference on Race Betterment, San Francisco, CA: Race Betterment Foundation, 1915), 78; Kellogg, “Relation of Public Health Work to Race Degeneracy,” 3.

⁴⁸ Schwarz, *John Harvey Kellogg, M.D.*, 208.

⁴⁹ Kellogg, “Practical Eugenics,” 6.

⁵⁰ For a brief introduction to biometry, see William B. Provine, *The Origins of Theoretical Population Genetics*, 2nd ed., *The Chicago History of Science and Medicine* (Chicago: University of Chicago Press, 2001), 21–31.

⁵¹ Kellogg, “The Mission of Good Health Is to Help Save Civilization through Race Betterment and Biologic Living,” 2–3.

would achieve. To him, not only was the science of heredity at a point where society would immediately benefit from it, but its quick and wide application would lead to substantial results within a few generations. In contrast, Galton, according to Chris Renwick, believed that “eugenics was at best a ‘Sisyphean task.’” Mendel’s findings suggested to him that eugenics would not lead to rapid enough results, so he turned to biometry to address this concern.⁵²

Beyond his personal ideas about eugenics and the nature of hereditary transmission, Dr. Kellogg’s reach with the general public also separated him from other eugenicists in the state. In short, he was by far the state’s most influential communicator of scientific ideas, including eugenics. Aside from his work at the San, Kellogg was the editor of *Good Health* magazine since 1873, which helped him spread his ideas of eugenics and biologic living to a much wider audience. Lastly, much of his proceeds from book sales and cereal manufacturing went to the formation and maintenance of the American Medical Missionary and Benevolent Association, which was eventually transformed into the Race Betterment Foundation.⁵³ This organization’s purpose was to raise the public’s awareness to “the dangers which threatens the race” through research on “the causes of race deterioration and initiating activities for the purpose of promoting radical reforms in habits of living.”⁵⁴ Their greatest success in these efforts were through three Race Betterment Conferences, held in 1914, 1915, and 1928, that each contained a mix of presentations on eugenics, social hygiene, and public health. discussed in greater detail in the next chapter.

Victor Clarence Vaughan

The other prominent physician in Michigan that supported eugenic measures aside from Dr. John Harvey Kellogg was Dr. Victor Clarence Vaughan. Although Horace Davenport labeled

⁵² Renwick, “The Task of Sisyphus?,” 105.

⁵³ Comfort, *The Science of Human Perfection*, 56.

⁵⁴ “The Race Betterment Foundation” (July 28, 1940), 2, Box 10, Folder 13, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan.

him a limited scientist but admirable statesman of medicine, Vaughan was nationally recognized for both his scientific work and his capacity as an administrator.⁵⁵ A professor of physiological chemistry, hygiene, and bacteriology at the University of Michigan from 1876 to 1921, Vaughan became dean of the Medical School in 1891 and president of the American Medical Association in 1914. He was a member of the Michigan State Board of Health from 1883-1919, working primarily on problems of sanitation and communicable disease. Vaughan was also part of the commission to prevent typhoid fever at the Columbian Exposition in 1893, a remarkable success.⁵⁶ By the time he was appointed to the Typhoid Commission in 1898 for the Spanish-American War, he was a national leader in bacteriology, and his work was instrumental in establishing public health measures to limit and control the spread of infectious diseases around the country. Indeed, his work on infectious diseases influenced his specific ideas regarding eugenics, the roles of heredity and environment in race betterment, and the legislative measures he proposed and supported.

While Vaughan had not yet explicitly endorsed eugenics as a form of applied science, by the beginning of the twentieth century he accepted many of its tenets. In 1902, in an address to the American Academy of Medicine, Vaughan argued that the “possibility of deterioration” was a necessary corollary to racial progress, in contrast to the neo-Lamarckians assumption that evolution was always progressive. Combined with recent studies on heredity, likely referring to Weismann’s work, Vaughan suggested that “the relation between the somatic and the reproductive cells” should become “a rule of conduct and a basis of morality.” Vaughan’s experiences with war caused him to believe that mankind could potentially devolve. He wrote in his autobiography that his childhood experiences during the Civil War led him to conclude that war brought “at least a partial return to the barbaric and savage state” in the men fighting, while his participation in the

⁵⁵ Davenport, *Victor Vaughan*, 125.

⁵⁶ Davenport, *Victor Vaughan*, 35–36.

Spanish-American War reaffirmed these beliefs.⁵⁷ His work on eliminating typhoid fever in the Spanish-American War suggested to him that infectious diseases would “destroy the best of the nation,” rather than weed out the unfit, as many social Darwinists and eugenicists claimed.⁵⁸ Statistics demonstrating that the majority of individuals who contracted and died from typhoid fever were previously healthy buttressed his argument.⁵⁹

Thus, for Vaughan, the presence or absence of disease was a significant factor in understanding the rise or fall of civilizations—at a time when such biological interpretations of history were becoming increasingly common—as well as his basis for eugenics.⁶⁰ He made this point before his colleagues in his presidential address to the American Medical Association in 1914. After detailing the role disease played in the fall of Greece and Rome, as well as the intellectual stagnation of the Middle Ages, Vaughan argued that the presence or absence of disease was correlative to the general intelligence of a population, so much so that he claimed that “disease breeds ignorance, immorality and strife,” and that, if a society could go a millennia without experiencing much disease, “the world would be regenerated and the superman be born.”⁶¹ Viewing preventive medicine as “the most potent factor in the progress of civilization,” Vaughan suggested establishing local health districts to effectively examine every individual in the country to better track both infectious and inherited diseases. He cited with approval the “Amberson bill” that he primarily authored, which called for developing public health infrastructure whose services

⁵⁷ Victor C. Vaughan, *A Doctor's Memories* (Indianapolis: The Bobbs-Merrill Company, 1926), 47–48.

⁵⁸ Vaughan, *A Doctor's Memories*, 396.

⁵⁹ Victor C. Vaughan, “The Service of Medicine to Civilization” (President’s Address, Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June 1914), 11–12.

⁶⁰ For instance, see Frederick Adams Woods, *Mental and Moral Heredity in Royalty: A Statistical Study in History and Psychology* (Boston: Henry Holt and Company, 1906).

⁶¹ For instance, G. Stanley Hall’s Child Study movement sought to incorporate neo-Lamarekian inheritance with recapitulation theory to produce “super-men” to combat the evils of civilization at the turn of the century. Gail Bederman, *Manliness & Civilization: A Cultural History of Gender and Race in the United States, 1880-1917* (Chicago: University of Chicago Press, 1995), 94–109; Vaughan, “The Service of Medicine to Civilization,” 15–16.

included collecting “statistics concerning insanity, feeble-mindedness, tuberculosis and other infectious diseases.”⁶²

The same year the Michigan legislature debated the Amberson bill, at the annual meeting for the American Association for the Study of the Feeble-Minded at the Michigan Home and Training School in Lapeer, Vaughan argued that “acute infectious diseases kill off the strong and vigorous and the intermingling of races leads to the deterioration of the two.” Regarding racial mixtures, he believed that “the bad of each side becomes dominant” in the offspring and cited this as a plausible reason for Rome’s decline. While approving the current marriage laws in the state, Vaughan considered it unfortunate that the “Glasner bill,” which would have required physical and mental examinations of both the man and woman before marriage, failed in the recent legislature. He also advocated for the instruction of sex hygiene in schools to promote more eugenic matings.⁶³

For Victor Vaughan, like Kellogg, eugenics was one of many areas of reform in the public health system designed to improve the health of American citizens. His plan to provide annual health examinations coordinated by district health supervisors represents his belief, common among progressives of that time, in applying centralized administrations to address social problems. While offering annual checkups is not an inherently bad thing, in the context of his eugenic beliefs, Vaughan’s ideas carried more malevolent consequences. They would have allowed for the discovery of signs of degeneracy as soon as they could be detected, thus making segregation of the unfit more effective. Indeed, Vaughan’s public health program revealed his emphasis on negative eugenics as the more effective means of improving the race.⁶⁴ Vaughan admitted this in his

⁶² Vaughan, “The Service of Medicine to Civilization,” 18–27.

⁶³ Victor C. Vaughan, “Race Betterment,” *Journal of Psycho-Asthenics* 18, no. 3 (March 1914): 128–38.

⁶⁴ Davenport, *Victor Vaughan*, 45–46.

autobiography, writing that while eugenicists like Kellogg stressed “the desirability of an increase in the fit,” he believed “that the more important factor in race betterment is the elimination of the unfit. Kill out the weeds and the corn will grow.”⁶⁵

All of Vaughan’s ideas on eugenics and public health can be seen in his publicized lecture entitled “Eugenics from the Point of View of the Physician,” given at both the University of Michigan and the University of Wisconsin. After briefly introducing Galtonian, Mendelian, and folk understandings of inheritance, Vaughan provided much of the main themes eugenicists like Davenport were espousing at the time. He informed students that “the prevalence of feeble-mindedness in this country is becoming alarming,” and that epilepsy, feeble-mindedness, and insanity are inherited according to “the Mendelian law.”⁶⁶ After telling the stories of the Jukes and Kallikaks, as well as the work of Miss Adele McKinnie from the previous chapter on the financial costs of certain degenerate families to the taxpayers of Michigan, Vaughan examined eugenic solutions. Noting that “negative eugenics can succeed only by the help of legal enactments,” he called for laws to restrict marriage, segregate, and possibly sterilize the unfit.⁶⁷ In order for this to be successful, he argued, a broad system of health exams should be introduced to identify the feeble-minded and insane.

Eugenics Among Public Health Physicians

⁶⁵ Vaughan, *A Doctor’s Memories*, 245.

⁶⁶ While we would currently think of Mendel’s laws as referring to the concepts of independent segregation and assortment of the genes during meiosis and fertilization, in the early twentieth century, just what was being discussed was more ambiguous. In Vaughan’s statement, it seems more likely that he was referring to the Mendelian ratios of heterozygous and homozygous matings. Otto Glaser, professor of zoology at the University of Michigan at the time Vaughan was discussing this, mentions Mendel’s “laws” in a similar fashion. Victor C. Vaughan, “Eugenics from the Point of View of the Physician,” in *Eugenics: Twelve University Lectures* (New York: Dodd, Mead and Company, 1914), 43–51; Tim T. Morris et al., “Population Phenomena Inflation Genetic Associations of Complex Social Traits,” *Science Advances* 6, no. 16 (April 1, 2020): 2, <https://doi.org/10.1126/sciadv.aay0328>; Otto Glaser, “The Unit Rule Once More,” *Good Health*, December 1916, 645.

⁶⁷ Vaughan, “Eugenics from the Point of View of the Physician,” 57.

Drs. Vaughan and Kellogg were the two key actors of the eugenics movement in the state of Michigan in the second decade of the twentieth century. While the superintendents of asylums and institutions were less vocal publicly about eugenic measures, Vaughan and Kellogg openly supported them and worked with the state legislature to pass a variety of bills with eugenic purposes. They cooperated together as part of the Michigan State Board of Health in the 1910s, when they pushed the state legislature to pass a variety of public health and eugenic measures, with Kellogg stating that Vaughan's efforts resulted in the public appreciating the Board's work.⁶⁸ Furthermore, Vaughan participated in the first Race Betterment Conference that Kellogg's Race Betterment Foundation held in Battle Creek in 1914, giving a lecture on the importance of yearly medical examinations so that the genetically defective could be more easily identified.⁶⁹ Kellogg later argued that yearly medical exams were a vital and necessary component of his vision to create an "aristocracy of health."⁷⁰ Thus, despite maintaining distinct ideas about inheritance, eugenics, and the necessary response to race degeneration, Vaughan and Kellogg also collaborated together to spread eugenic information to the public and enact a program of race betterment.

Together with Dr. Robert Dixon, as part of the Michigan State Board of Health they connected eugenics to a broader push for better public health in the state. The health board was where their ideas of eugenics converged, despite their theoretical differences in the way allegedly genetic defects were transmitted. This can be seen in their shared views towards "racial poisons."

⁶⁸ Schwarz notes that the 1913 legislative session "passed more public health legislation than it had enacted during any previous session" of the last 25 years. Schwarz, *John Harvey Kellogg, M.D.*, 213–15; John Harvey Kellogg, "Untitled Address" (Address at the Third Annual Conference of Health Officers and Public Health Nurses, Lansing, MI, December 14, 1923), 4, Box 7, Folder 2, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan.

⁶⁹ Victor C. Vaughan, "The Importance of Frequent and Thorough Medical Examinations of the Well," in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 90–96.

⁷⁰ John Harvey Kellogg, *The Aristocracy of Health Based on Biologic Living* (Battle Creek, MI: Race Betterment Foundation, 1935).

Kellogg and Vaughan's mutual concerns over venereal disease, alcoholism, and tuberculosis were in many ways a microcosm of a transitional point in the study of eugenics and genetics during the 1910s. While most geneticists, especially in the United States, adopted Mendelian genetics by 1915, its diffusion among professionals outside of the field and laymen necessitated more time.

Thomas Hunt Morgan's *Drosophila* group at Columbia University produced significant advances in genetics research—by applying their chromosomal theory of inheritance, the study of genetic linkage, and the role of mutation in evolutionary change—which influenced the profession to separate itself from the applied sciences of eugenics and agricultural breeding and commit itself to a Mendelian research program.⁷¹ However, social workers and reformers that accepted biological notions of degeneracy and deviancy remained committed to a neo-Lamarckian framework, until gradually losing out to Mendelian eugenics.⁷² As Mendelism increasingly replaced neo-Lamarckian theories of genetic inheritance, the period between 1910 and 1920 reflects a point in the United States where both groups converged on certain biological processes potentially effecting the germ plasm. For instance, Charles Davenport's 1915 work on human heredity, which Kenneth Ludmerer has suggested was the most comprehensive textbook on human genetics at the time, claimed that “germ cells receive nutritive and other particles from the blood and they may receive also poisons from it.”⁷³ Thus, it was in this transitional period of the Progressive era in which public health interventions could utilize eugenic arguments from both Mendelian and Lamarckian perspectives to limit the spread of venereal disease, to demand prohibition, and to quarantine tuberculosis patients.

⁷¹ Thomas Hunt Morgan et al., *The Mechanism of Mendelian Heredity*, Rev. ed. (New York: Henry Holt and Company, 1922); Jan Sapp, *Beyond the Gene: Cytoplasmic Inheritance and the Struggle for Authority in Genetics* (New York: Oxford University Press, 1987), 45–48.

⁷² Bender, “Perils of Degeneration,” 14.

⁷³ Ludmerer, *Genetics and American Society*, 50–51; Davenport, *Heredity in Relation to Eugenics*, 16.

Ruth Schwartz Cowan has argued that “eugenicists and physicians had very little in common” in the first three decades of the 20th century.⁷⁴ Although it is true that medical genetics was not taught to many aspiring doctors during this period, this does not mean they ignored the role of inheritance on the etiology of disease. Physicians in the early twentieth century understood heredity in more complex terms than the simple “vertical transmission” of traits from parents to offspring. Rather, to them the transfer of pathologies involved three components: (1) the passing down of particular genes, metaphorically referred to as the “seed”; (2) environmental conditions that affected the “soil” in which the seed grows; and (3) the elements that influence embryonic development in utero.⁷⁵ While physicians knew diseases such as tuberculosis were transmitted via airborne pathogens, they also subscribed to a belief that individuals had a certain predisposition or diathesis to contracting them that worked as a genetic characteristic. In this framework, to reduce the spread of epidemics, public health reforms required efforts to curb their spread and to enhance the population’s genetic constitution.

Eugenicists, as Martin Pernick has shown, collaborated with and attempted to claim jurisdiction over public health by suggesting that the development of stronger hereditary resistance to tuberculosis or syphilis was the best way to prevent their spread.⁷⁶ Kellogg, for instance, argued that “alcohol, tobacco and a dissolute life” were the three “things above all others that lower the vitality of the individual and which prepare the way for tuberculosis.”⁷⁷ He also reasoned that tobacco use could cause insanity and that alcohol use resulted in degeneracy, both of which would

⁷⁴ Ruth Schwartz Cowan, *Heredity and Hope: The Case for Genetic Screening* (Cambridge, MA: Harvard University Press, 2008), 66.

⁷⁵ Gaudillière and Löwy, “The Hereditary Transmission of Human Pathologies between 1900 and 1940,” 328; Comfort, *The Science of Human Perfection*, 23.

⁷⁶ Martin S. Pernick, “Eugenics and Public Health in American History,” *American Journal of Public Health* 87, no. 11 (November 1997): 1768.

⁷⁷ John Harvey Kellogg, “Question Box Lecture: Lecture 35” (Lecture, Battle Creek Sanitarium, July 31, 1911), 1–11, Box 5, Folder 17, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan.

be passed down to offspring.⁷⁸ Other eugenicists suggested that increasing numbers of the mentally defective were due to the spread of venereal diseases. Victor Vaughan, speaking at the Lapeer Good Health Week, claimed that “feeble-mindedness is indirectly the result of sexual diseases,” and that “as long as these diseases are permitted to increase . . . feeble-mindedness will be on the increase.”⁷⁹ D. E. McClure, who took over Dixon’s position as secretary of the Michigan State Board of Health in 1915, declared that alcoholism and the spread of venereal diseases led to increased crime rates. He wrote in *Public Health*, the State Board of Health’s magazine, that “we must win over alcoholic and venereal heredity before we sensibly decrease disease and resultant crime.”⁸⁰ Thus, although they may have understood the hereditary nature of characteristics differently, they collectively emphasized the connections between such racial poisons and their transference into offspring as a public health measure. The idea that infections could be biologically inherited, a relatively common belief of nineteenth-century reformers, retained support in the early decades of the twentieth century.⁸¹

The Michigan State Board of Health, with Vaughan as its president and Kellogg as a member, advocated for eugenic measures beyond those relating to potentially toxic substances or bacteria infecting the human germ plasm. They were the key governmental organization in the state throughout the 1910s disseminating information on eugenics and advocating for eugenic laws discussed in the state legislature. Robert Dixon applauded public health endeavors “to give the child a favorable heritage,” telling readers that the State Board of Health was “busy planning, and even legislating, in order to protect society against the propagation of the physically and mentally

⁷⁸ John Harvey Kellogg, “Tobacco” (Lecture, Battle Creek Sanitarium, March 7, 1912), 12, Box 6, Folder 3, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan; Kellogg, “The New Human Race,” 17.

⁷⁹ “Lapeer Good Health Week,” *Public Health*, August 1915, 376.

⁸⁰ D.E. McClure, “A Story of Heredity,” *Public Health*, March 1915, 145.

⁸¹ Pernick, “Eugenics and Public Health in American History,” 1769.

unfit.”⁸² One of these efforts was in obtaining more information on the inheritance of deleterious traits. Due to “the great number of feeble-minded persons that were found to exist in those states where eugenic experts had been employed,” in a July 14, 1911 meeting the State Board of Health unanimously approved to employ a field worker from the Eugenics Record Office in Cold Spring Harbor, New York to conduct “a similar study in this State.”⁸³ They hired Miss Adele McKinnie in October to perform family studies of patients at the Michigan Home and Training School (MHTS) in Lapeer.⁸⁴ After she completed this work, the Board of Health urged the Board of Auditors to publish her reports in full and worked to retain her to help in the “Eugenics Survey” that endeavored to ascertain the total number of mentally defective and ill throughout Michigan.⁸⁵

McKinnie’s field work in Lapeer involved gathering twenty-six family histories from patients at the MHTS. Like other family studies at this time, such as the more popular works on the “Jukes” and the “Kallikaks” discussed in the last chapter, it attempted to analyze the hereditary nature of feeble-mindedness, criminality, and other maladaptive social behaviors as well as detail the total costs charged to the public to care for these families.⁸⁶ In a preliminary report printed as a special issue in *Public Health*, McKinnie informed readers that taxpayers paid \$86,000 to care for members of these families in the various state institutions, including 38 patients at the MHTS. Moreover, she claimed that there were an additional “113 feeble minded at large in the state, who

⁸² Dixon, “Protection and Social Service, the Fundamental of Community Life,” 11.

⁸³ Robert L. Dixon, “Fortieth Annual Report of the Secretary of the State Board of Health of the State of Michigan for the Fiscal Year Ending June 30, 1912” (Lansing, MI: Michigan State Board of Health, 1914), 11; Davenport trained 258 field workers at the Eugenics Record Office to conduct field studies and create pedigree charts. 85% of field workers were women and after they graduated, nearly 25% were employed at state institutions to conduct eugenic research. Bix, “Experiences and Voices of Eugenics Field-Workers.”

⁸⁴ Dixon, “Fortieth Annual Report of the Secretary of the State Board of Health of the State of Michigan for the Fiscal Year Ending June 30, 1912,” 18.

⁸⁵ Robert L. Dixon, “Forty-First Annual Report of the Secretary of the State Board of Health of the State of Michigan for the Fiscal Year Ending June 30, 1913” (Lansing, MI: Michigan State Board of Health, 1914), 10 For the results of the survey, see the previous chapter.

⁸⁶ Henry Goddard’s study of the Kallikaks, for instance, went through 12 editions by 1940 and almost became a Broadway play. Paul, *Controlling Human Heredity*, 50.

should be segregated.” In that same report, she expressed fear over the fact that MHTS released 22 out of 67 girls sent there from the Adrian Industrial School for Girls, suggesting that they were “*probably all feeble minded, a number, if not all, married and propagating their defect.*” To Robert Dixon, then-secretary of the State Board of Health, McKinnie’s work revealed that the growing incidence of feeble-mindedness is a subject “of utmost importance” and an important problem “from the social, civic and economic standpoints.”⁸⁷

At the same 1911 meeting that resulted in McKinnie’s employment, the State Board of Health appointed a committee to offer instructions to schoolteachers on conducting physical examinations of students.⁸⁸ This was part of a broader effort to provide systematic medical inspections of public-school children throughout the country, which was already in operation in over 100 cities by 1908.⁸⁹ Emblematic of Progressive era reforms, it implemented a scientific and bureaucratic infrastructure to attack social issues. While these checkups undoubtedly supplied needed medical care to children with poor eyesight, oral hygiene, and a variety of other ailments, it also led to the medicalization of children and to their potential eugenic inspection. Victor Vaughan, in a 1919 lecture at the Michigan State Normal School (now Eastern Michigan University) in Ypsilanti, stated that “mental as well as physical tests should be applied” to all schoolchildren as part of their medical exams, so that those determined to be defective “should be assigned to special schools.”⁹⁰ Dr. L. Estelle Appleton, an instructor of psychology in Grand Rapids, argued that “Mendel’s laws of heredity” and “the great eugenic movement” revealed that “the conservation of infant life and health and right development depend upon exact knowledge and scientific treat-

⁸⁷ McKinnie, “Preliminary Report of an Eugenic Survey of Michigan,” 157–95 Emphasis in original.

⁸⁸ Dixon, “Fortieth Annual Report of the Secretary of the State Board of Health of the State of Michigan for the Fiscal Year Ending June 30, 1912,” 11.

⁸⁹ JoAnne Brown, *The Definition of a Profession: The Authority of Metaphor in the History of Intelligence Testing, 1890-1930* (Princeton: Princeton University Press, 2001), 52.

⁹⁰ Victor C. Vaughan, *Sex Attraction: A Lecture given at the Michigan State Normal School, July 1919* (St. Louis, MO: C.V. Mosby Company, 1920), 28–29.

ment,” which should begin in kindergarten classrooms.⁹¹ John Harvey Kellogg, meanwhile, emphasized the importance of teachers in recognizing the differences “between incurable and curable cases” of mental defect, so that irredeemable children are “separated from normal children” at state institutions and prevented from transmitting their deficiencies to the next generation.⁹²

Eugenicists also borrowed the vocabulary of public health to advocate for solutions to the problems of feeble-mindedness and mental illness. JoAnne Brown has highlighted what she has termed the “strong medical metaphor” of psychiatrists leading state institutions. They viewed traits such as feeble-mindedness “as a contagion” and “tended to bias their diagnoses toward ‘quarantine’ or institutionalization.”⁹³ Eugenicists working in public health easily connected the analogies between segregation and quarantine. As Martin Pernick has shown, eugenicists’ calls for the segregation of defectives “directly echoed the centuries-old effort to stop the spread of infections through quarantine.”⁹⁴

Even for traits whose hereditary nature had not been proven, eugenicists supported their elimination through public health rhetoric. Victor Vaughan, for instance, admitted that science had not determined whether criminality was an inherited or environmental trait. Nevertheless, he contended that “its breeding places should be located and disinfected.”⁹⁵ Robert Dixon argued that eugenicists should extend the public health work of recognizing “disease, isolation or quarantine, public notification, and disinfection” from those already living to “antecede even that period of a child’s existence” and attempt “to give the child a favorable heritage.”⁹⁶ John Burkart, who took over for D. E. McClure as secretary of the Board of Health, wrote in a 1915 editorial that the best

⁹¹ L. Estelle Appleton, “What Does the Kindergarten Lack in Power to Develop Right Mother Spirit?,” *Public Health*, April 1914, 187–90.

⁹² John Harvey Kellogg, “The Backward Child,” *Public Health*, December 1911, 130–33.

⁹³ Brown, *The Definition of a Profession*, 80–83.

⁹⁴ Pernick, “Eugenics and Public Health in American History,” 1769.

⁹⁵ Victor C. Vaughan, “Eugenics or Race Betterment,” *Public Health*, March 1913, 13.

⁹⁶ Robert L. Dixon, “An Enlarged Public Health Service,” *Public Health*, June 1913, 43–45.

way to “decrease disease, crime and preventable taxation” was through a concerted program of “better health sentiment and disease control.”⁹⁷ Eugenics, to these public health workers, was an extension of their efforts to improve the health of the state.

Aldred Scott Warthin

It was not just eugenicists employed in governmental positions who made connections between human genetics and public health. Another individual during this period who was interested in the possible inheritance of diseases such as tuberculosis or syphilis was Dr. Aldred Scott Warthin, professor of pathology at the University of Michigan. Warthin graduated with a Bachelor of Arts from Indiana University in 1888 under the professor of natural history and eugenicist David Starr Jordan while also earning his teacher’s diploma at the Cincinnati Conservatory of Music.⁹⁸ He obtained his MD from the University of Michigan in 1891, where he became George Dock’s assistant, and in 1903 Victor Vaughan promoted him to professor of pathology.⁹⁹ Throughout his career as a pathologist, Warthin remained interested in the possible connections between heredity and disease. Although it is unclear how much of an influence Jordan’s teachings had on Warthin—Jordan was a natural historian, not a pathologist—it seems likely that Warthin gradually accepted eugenics as he continued to investigate the inheritance of diseases and was exposed to eugenic ideas from colleagues in Ann Arbor.¹⁰⁰ The historical literature on Warthin suggests that his post-

⁹⁷ John L. Burkart, “Editorial,” *Public Health*, March 1915, 146.

⁹⁸ Susan Avery, “Aldred Scott Warthin Papers,” Bentley Historical Library Finding Aid, September 1993, <https://quod.lib.umich.edu/cgi/f/findaid/findaid-idx?cc=bhlead;c=bhlead;idno=umich-bhl-86199;didno=umich-bhl-86199;rgn=main;view=text>.

⁹⁹ Horace W. Davenport, *Fifty Years of Medicine at the University of Michigan, 1891-1941* (The University of Michigan Medical School, 1986), 188–89.

¹⁰⁰ Thurtle notes that David Starr Jordan was critical of the experimentalist approach of geneticists in the early 20th century, while Carlson argues that Oscar McCulloch’s work on the Tribe of Ishmael and his connection with Jordan in Indianapolis led Jordan to accept eugenics before 1900. Phillip Thurtle, *The Emergence of Genetic Rationality: Space, Time, and Information in American Biological Science, 1870-1920* (Seattle, WA: University of Washington Press, 2008), 124–26; Elof Axel Carlson, “The Hoosier Connection: Compulsory Sterilization as Moral Hygiene,” in *Century of Eugenics in America: From the Indiana Experiment to the Human Genome Era*, ed. Paul A. Lombardo, Angela Logan, and Maxwell J. Mehlman (Bloomington, IN: Indiana University Press, 2008), 11–17.

doctorate studies in Europe likely contributed to his investigation of the hereditary nature of diseases.¹⁰¹

At the same time, his research on heredity and disease guided Warthin to embrace neo-Lamarckian inheritance, rather than Mendelism. In his work on the transmission of tuberculosis and syphilis from parents to offspring, Warthin believed he observed the transmission of acquired characters—in this case, disease, or a susceptibility to it—from one generation to the next. As late as 1930, one year before his death and four years after Paul Kammerer’s suicide supposedly made neo-Lamarckian genetics disreputable, Warthin argued that “the pathologist, moreover, sees abundant evidence of the transmission of acquired pathologic characters.”¹⁰² While he never explicitly endorsed neo-Lamarckianism in his scientific papers, the inheritance of acquired characters guided his research on how infectious diseases resisted therapeutic efforts.

Like many of his contemporaries, Warthin was concerned with the etiology of tuberculosis and finding the means of preventing its spread, eventually leading a statewide public health campaign against the spread of the “white plague.”¹⁰³ Although by the early twentieth century physicians recognized that intra-uterine transmission of TB from a pregnant mother to her child was

¹⁰¹ Pieters suggests it was postgraduate training in Vienna, Freiburg, and Dresden where heredity was one component of a constitutional diathesis. Toine Pieters, “Aldred Scott Warthin’s Family ‘G’: The American Plot Against Cancer and Heredity (1895–1940),” in *History of Human Genetics: Aspects of Its Development and Global Perspectives*, ed. Heike I. Petermann, Peter S. Harper, and Susanne Doetz (New York: Springer International Publishing, 2017), 91–92, https://doi.org/10.1007/978-3-319-51783-4_6; Wright attributes it to Warthin learning about constitutional pathology from German pathologists. James R. Wright, “Aldred Scott Warthin: Ann Arbor’s Erudite, Outspoken, and Academically Transformative Early 20th Century Pathologist,” *Archives of Pathology & Laboratory Medicine*, January 27, 2021, 7, <https://doi.org/10.5858/arpa.2020-0474-HP>.

¹⁰² Aldred Scott Warthin, *The Creed of a Biologist: A Biologic Philosophy of Life* (New York: Paul B. Hoeber, Inc., 1930), 17; The idea that Kammerer’s suicide in 1926 led to the complete repudiation of Lamarckian genetics in the United States is consistent through much of the historiography. For a representative view, see Meloni, *Political Biology*, 29; John Harvey Kellogg was aware of and agreed with Kammerer’s work. Hodges argues that Kammerer’s suicide led to Kellogg repudiating Lamarckianism. Hodges, “Dealing with Degeneracy,” 107, 115–16.

¹⁰³ Vineeth G. Nair and H. V. Krishnaprasad, “Aldred Scott Warthin: Pathologist and Teacher Par Excellence,” *Archives of Medicine and Health Sciences* 5, no. 1 (January 1, 2017): 123, https://doi.org/10.4103/amhs.amhs_135_16.

possible, the prevailing medical opinion held that this was quite rare.¹⁰⁴ In 1904, Warthin published with his colleague David Murray Cowie a paper arguing that congenital TB was much more common than previously supposed. While they failed to suggest how frequently intra-uterine transmission transpired, they called for greater and more careful histological examinations of placentas to get a more accurate estimate.¹⁰⁵ Warthin continued his research on congenital TB, including inspecting serial sections of placentas, and in 1907 he claimed that pregnant women who acquired the disease were just as likely to pass it onto their child as they were to develop symptoms on their own. Moreover, he contended that the primary lesion caused by tubercle bacilli “is in all cases a *necrosis* of cells at the point of bacillary development,” rather than the result of cell-proliferation, the prevailing theory at that time.¹⁰⁶ The placenta, Warthin declared, provided no special protection against TB.

Warthin’s work on TB, however, was greatly overshadowed by his contributions in syphilitic research, where he was considered a leading authority. Peyton Rous, a pathologist who eventually won a Nobel Prize for his work on the transmission of cancer and a former colleague of Warthin’s, asserted in an obituary that it was through Warthin’s work on syphilis “that he rendered chief service as investigator.”¹⁰⁷ He quickly became a supporter of the spirochete theory of syphilis, which said that the disease was best demonstrated by the presence of the spirochete *Treponema*

¹⁰⁴ Victor C. Vaughan, “The Anti-Tuberculosis Crusade,” *The Journal of the Michigan State Medical Society* 7, no. 4 (April 1908): 188.

¹⁰⁵ Aldred Scott Warthin and David Murray Cowie, “A Contribution to the Casuistry of Placental and Congenital Tuberculosis,” *The Journal of Infectious Diseases* 1, no. 1 (January 1904): 140–69.

¹⁰⁶ Aldred Scott Warthin, “Tuberculosis of the Placenta: A Histological Study with Especial Reference to the Nature of the Earliest Lesions Produced by the Tubercle Bacillus,” *The Journal of Infectious Diseases* 4, no. 3 (1907): 367.

¹⁰⁷ Rous discovered in 1911 that viruses played a role in the transmission of certain types of cancer after he transferred a malignant tumor from a domestic chicken into another fowl. Although initially his discovery was ignored, he was awarded the Nobel Prize in 1954. He also taught at the University of Michigan until 1909, when he took a position at the Rockefeller Institute for Medical Research. Peyton Rous, “Aldred Scott Warthin,” *Science* 74, no. 1910 (August 7, 1931): 143.

pallidum rather than histological lesions. Following their discovery in 1905, Warthin investigated syphilis microscopically in order to better analyze latent forms of the disease.¹⁰⁸

Many of Warthin's contributions in the study of syphilis came from developing better techniques to identify syphilis at the microscopic level. Along with Allen Starry, he created the Warthin-Starry method of detecting spirochetes in 1920 and refined it in 1921. This replaced the Levaditi method, after Warthin's disappointment in the frequency of false negatives that method produced on known syphilitic patients.¹⁰⁹ By cutting and mounting tissue sections onto cover-glasses with an albumin mixture, then placing them in a silver-agar solution, the spirochetes were easily observable in contrast to the silver. It allowed pathologists to see the spirochaete pallida more clearly in tissues, reduced the procedure time to under one hour, and used materials already available in most pathological laboratories.¹¹⁰ Eight years later, Warthin again refined the procedure, replacing the agar mixture with starch, which made the spirochetes more obvious against the silver and provided a more stable gelatin base that could be stored longer.¹¹¹

Warthin recognized the eugenic implications of his findings on the congenital forms of both syphilis and tuberculosis. In his report of a case study involving a patient from the State Psychopathic Hospital at the University of Michigan who had an asymptomatic and latent form of tubercle bacilli that was transferred into the placenta of her child, Warthin argued that "the sociologic and eugenic aspects of the transmission of tuberculosis from parent to child become greatly increased in importance."¹¹² His work on the presence of spirochetes in asymptomatic or clinically

¹⁰⁸ Aldred Scott Warthin, "The New Pathology of Syphilis" (The Harvey Lectures, New York, December 8, 1917), 70.

¹⁰⁹ Aldred Scott Warthin, "Lesions of Latent Syphilis," *British Medical Journal* 2, no. 3579 (August 10, 1929): 236.

¹¹⁰ Aldred Scott Warthin and Allen C. Starry, "Second Improved Method for the Demonstration of Spirochaeta Pallida in the Tissues: Warthin and Starry's Silver-Agar Cover-Glass Method," *Journal of the American Medical Association* 76, no. 4 (January 22, 1921): 234, <https://doi.org/10.1001/jama.1921.02630040020007>.

¹¹¹ Aldred Scott Warthin, "A Silver-Starch-Gelatine Method for the Demonstration of Spirochetes in Single Tissue Sections," *British Journal of Venereal Diseases* 5, no. 4 (October 1929): 255–66.

¹¹² Warthin, "Tuberculosis of the Placenta," 1951.

“cured” syphilitic patients convinced Warthin that it placed “latent syphilis upon a plane of importance nearly, if not equalling [sic], that of tuberculosis, as a factor opposed to the health and progress of the race.”¹¹³

Despite Warthin’s deep interest in the hereditary transmission of tuberculosis, syphilis, and cancer, discussed in Chapter 5, he rarely mentioned heredity in a Mendelian sense. Indeed, Warthin’s belief in neo-Lamarckian inheritance guided much of his research. He, along with his University of Michigan colleague Carl Vernon Weller, were proponents of the Swiss alienist Auguste Forel’s blastophthoria theory, which argued that certain “poisons,” such as alcohol, lead, or syphilis, could degenerate the germ plasm of an individual exposed.¹¹⁴ In many respects it represents a compromise between August Weismann’s work refuting neo-Lamarckian inheritance while nevertheless leaving some room for environmental reforms directing human evolution.¹¹⁵ According to Forel, alcohol was the most common blastophthoric influence which could injure the hereditary “mneme”—the nucleus and its components that contained hereditary information—in such a manner that alcoholic parents could have feebleminded, insane, or epileptic progeny.¹¹⁶ Warthin believed that people who voluntarily exposed themselves to infection or intoxication were committing a “biologic sin” because their effects “show themselves in the progeny for successive generations.”¹¹⁷ James Wright suggests that Warthin’s concern over the blastophthoric effect of syphilis may have led him to develop and refine the Warthin-Starry staining method.¹¹⁸ Whether or not that is true, his work on the transmission of diseases, both directly or through an increased

¹¹³ Aldred Scott Warthin, “The Persistence of Active Lesions and Spirochetes in the Tissues of Clinically Inactive or ‘Cured’ Syphilis,” *The American Journal of the Medical Sciences* 152, no. 4 (October 1916): 520.

¹¹⁴ Carl Vernon Weller, “Degenerative Changes in the Male Germinal Epithelium in Acute Alcoholism and Their Possible Relationship to Blastophthoria,” *The American Journal of Pathology* 6, no. 1 (January 1930): 1-18.11.

¹¹⁵ Auguste Forel, *The Sexual Question: A Scientific, Psychological, Hygienic and Sociological Study for the Cultured Classes*, trans. C.F. Marshall, 2nd ed. (New York: Rebman Company, 1908), 34.

¹¹⁶ Forel, *The Sexual Question*, 36–37.

¹¹⁷ Warthin, *The Creed of a Biologist*, 57–58.

¹¹⁸ Wright, “Aldred Scott Warthin,” 8.

predisposition, likely shaped and confirmed Warthin's neo-Lamarckian beliefs as well as his ideas on eugenics. Observing the presence of tuberculosis or spirochetes in placentas would have convinced him that there was more to heredity than the transmission of composite or mosaic unit-characters segregated and recombined along the chromosomes, as the Mendelians claimed. There were no tuberculosis or syphilis genes; the environment, in other words, had to play some role in the inheritance of these pathologies. To Warthin, as was the case with other physicians, "heredity" was a polysemic term.¹¹⁹

Towards the end of his life, Warthin (who had obtained a PhD in philosophy after earning his MD) wrote on the philosophical implications of what biological and medical research had thus far uncovered. Similar to Galton's attempt to introduce eugenics "into the national conscience, like a new religion," Warthin believed that biological science provided the foundation for a new philosophy of life, based upon the species, rather than the individual.¹²⁰ In contrast to his fellow neo-Lamarckian Kellogg, who hoped to extend the human lifespan towards those mentioned in the Bible, Warthin called such statements "unscientific and absurd."¹²¹ He argued that "*senescence is a normal involutory process*," and the individual body's ultimate destruction allows for new life, in the form of offspring, to take its place.¹²² Moreover, he predicted that, following the medical advances combatting what he referred to as "pathologic extrinsic death" that let the unfit to survive as well as the fit, mankind would likely evolve to have a shortened lifespan in the future. The only way to counter it, he saw, was through eugenic measures against "pathologic intrinsic death," such

¹¹⁹ Gaudillière and Löwy, "The Hereditary Transmission of Human Pathologies between 1900 and 1940," 311.

¹²⁰ Galton, "Eugenics: Its Definition, Scope, and Aims."

¹²¹ Aldred Scott Warthin, *Old Age, the Major Involution: The Physiology & Pathology of the Aging Process*, Second Printing (New York: Paul B. Hoeber, Inc., 1930), 164.

¹²² Warthin, *Old Age, the Major Involution*, 76–77 Emphasis in original.

as the inheritance of early arteriosclerosis or, based on his own research, the susceptibility to cancer.¹²³

The natural process of aging, resulting in the death of the individual, was one part of Warthin's philosophy. The two other components were August Weismann's notion of the immortality of the germ plasm and the evolutionary progression of life, which regarded humans as "the culmination of this evolutionary process, by virtue of the greater complexity of development of his central nervous system."¹²⁴ It should be noted that Warthin's comprehension of the germ plasm was not the same as Weismann's. Weismann argued that the germ plasm or reproductive cells contained a component in their nucleus that never changed during ontogeny (and therefore environmental forces could never alter it) as the somatic cells of the organism differentiated.¹²⁵ Warthin's writings, in contrast, suggest that he understood the germ plasm in a way much like current conceptualizations of the human genome. He claimed that disease was "transmissible through the germ plasm," that certain "abnormalities exert a lethal action upon the germ plasm," and that there was a "persistent tendency of germ plasm to restore itself and to throw off abnormal qualities."¹²⁶ Warthin believed that the immortality of the germ plasm and the evolutionary progression of life demonstrated that "the function of the individual life is but the reproduction and evolution of the species." In order to advance human evolution, within a neo-Lamarckian framework of inheritance, Warthin argued that each individual must "develop" him or herself as much as they can, in order that their progeny have the best traits passed on to them.¹²⁷ Unfortunately, he lamented, modern medicine was interfering with the law of natural selection and

¹²³ Warthin, *Old Age, the Major Involution*, 152–54.

¹²⁴ Warthin, *The Creed of a Biologist*, 10.

¹²⁵ August Weismann, *The Germ-Plasm: A Theory of Heredity*, trans. Harriet Rönnfeldt and W. N. Parker, The Contemporary Science Series (New York: Scribner's, 1898), 184.

¹²⁶ Warthin's reference to the ability of the germ plasm to restore itself is interesting because he made these claims decades before the discovery of DNA, let alone DNA repair mechanisms. Warthin, *The Creed of a Biologist*, 35–36.

¹²⁷ Warthin, *The Creed of a Biologist*, 15–16.

producing “bad results.”¹²⁸ The solution, to Warthin, was the application of eugenics, which he considered “a rational, logical philosophy of life” that can replace “ancient out-lived criteria for choosing a sex-partner” with a “new criteria based upon the newer knowledge of heredity.”¹²⁹ For dysgenic individuals, Warthin maintained that marriage restriction and sterilization were easier regulations to implement than to teach people to use birth control. To counterbalance the dysgenic effects of medical advances, Warthin, like other medical experts in Michigan during the early twentieth century, turned to eugenics.

Thus, it was principally individuals in the medical profession that adopted, adapted, and espoused eugenic ideals throughout Michigan in the first few decades of the twentieth century. In contrast to geneticists elsewhere in the United States, who largely accepted Mendelian explanations of inheritance and emphasized them as the basis of their eugenic programs, these physicians and pathologists viewed heredity in a more complex and nuanced way. Environmental influences, whether they were degenerative characteristics passed down in a neo-Lamarckian manner through blastophthoria, congenital diseases transmitted from mother to child in utero, or the interaction between communicable disease and constitutional diathesis, remained a key component of their knowledge of inheritance. Responding to fears of racial deterioration due to advances in medicine itself, they shifted towards eugenics to provide solutions to the issues of crime, vice, prostitution, and mental deficiency. Understanding natural selection as largely inoperative in an era of advanced medicine, they proposed the artificial selection of humans. Society, they argued, must ensure that the best stocks bred, and the worst did not.

Despite their different and occasionally contradictory views towards heredity, these progressive reformers coalesced around public health as the nexus through which they could share

¹²⁸ Warthin, *The Creed of a Biologist*, 50.

¹²⁹ Warthin, *The Creed of a Biologist*, 41–42.

ideas and solutions to the problems they faced. The possible hereditary nature of diseases such as tuberculosis and syphilis allowed for these medically inclined eugenicists to converge on eugenic solutions within a shared language. Progressivism offered the political and cultural impetus to propose bureaucratic and infrastructural solutions to social issues that required individual sacrifice for the good of the collective, while eugenics and eugenics provided the intellectual basis of a shared program for race betterment. All that was needed, they believed, was an enlightened citizenry that would voluntarily accept eugenic programs for the good of the race.

Chapter 3 Educating the Public on Race Betterment

In order to accurately explain just how influential and popular eugenic ideas were in the United States in the first few decades of the twentieth century, it is important to examine the ways eugenicists expounded and disseminated their ideas to the lay public. Several scholars have argued that the sterilization legislation of the 33 states that had it on their books at one time or another were largely due to the efforts of a few influential individuals, rather than from broad public support.¹ In the states that implemented such laws before the 1920s, this is true; for instance, few would deny the role Dr. Harry Sharp played in the passage of Indiana's sterilization law in 1907. However, by the late 1920s and 1930s, eugenicists had integrated eugenics into popular culture.² Support for eugenics was never unanimous, but the typical American had by this time been exposed to it. Thus, it is important to consider how eugenics became accepted among a sizable portion of the population. To understand this, it is instructive to investigate the public outreach efforts of the eugenicists themselves.

By the 1910s, eugenicists understood that for their program of biological betterment to succeed they needed greater public support. Such a large proportion of eugenicists believed that positive eugenics—that is, the increased propagation of fit individuals—could only be obtained through public education that it became something of a truism in the literature on the subject. However, eugenicists also recognized that they required public acceptance for negative eugenics, even though the primary avenue for implementing such programs was through coercive legislation.

¹ Interestingly, these accounts often assign different individuals as the “key” actor or actors involved. Ludmerer simply states it was certain individuals with influence with state legislators, Hansen and King argue that it was certain influential superintendents of mental institutions, and Gerald Grob, in the foreword to Philip Reilly's book, claims it was led primarily by Harry Hamilton Laughlin. Ludmerer, *Genetics and American Society*, 94; Hansen and King, *Sterilized by the State*, 72–73; Reilly, *The Surgical Solution*, x.

² See, for instance, the collection of essays in Susan Currell and Christina Cogdell, eds., *Popular Eugenics: National Efficiency and American Mass Culture in the 1930s* (Athens, Ohio: Ohio University Press, 2006).

After the first wave of sterilization laws was enacted between 1907 and 1913, with minimal “results” in the number of people sterilized, eugenicists claimed that passage of such laws without the public’s support to back them rendered such legislation “a dead letter.”³ In a similar vein, bills to restrict marriage licenses only to those deemed of sound mind and body by a licensed physician experienced disappointing results. Consequently, eugenicists argued that “laws do not make ideals, but ideals make laws enforceable.”⁴ They therefore strategized to shift public ideals through educational efforts emphasizing the social benefits of racial hygiene and betterment. While organizations such as the Eugenics Research Association and the American Eugenics Society delivered a more structured approach to eugenics public education in the 1920s, many of their strategies were a continuation of educational efforts from the 1910s.

In Michigan, eugenicists publicized eugenic data, ideas, and reforms through a variety of mediums. As mentioned in the previous chapter, Dr. John Harvey Kellogg was the most influential educator of eugenics in the state. He gave weekly lectures at the Battle Creek Sanitarium, edited *Good Health* magazine, and converted his American Medical Missionary Board to the Race Betterment Foundation in 1906, which organized several events to educate the public on eugenics. The largest of these efforts were the three Race Betterment Conferences in 1914, 1915, and 1928. The first and third of these conferences were held in Battle Creek, while the second was held in San Francisco as part of the Panama-Pacific International Exposition. The Race Betterment Conferences provide a lens to view the progress and evolution of eugenic thought in Michigan and throughout the United States from 1914 to 1928. They also reveal the social concerns that intellectuals wished to address through eugenic measures. Understanding their work as a means of applying biological knowledge to social questions, eugenicists often connected it to current issues.

³ *Eugenics Commission Report*, 46.

⁴ John L. Burkart, “Editorial,” *Public Health*, March 1914, 132–33.

In the middle of the second decade of the twentieth century, this included debates on woman's suffrage, prohibition, and eliminating prostitution.

The First Race Betterment Conference

The first Race Betterment Conference is notable, in contrast to other eugenics conferences in the early twentieth century, for its inclusion of environmental reforms and for giving equal space to the “nurture” side of the nature-nurture debate. Scholars of eugenics outside of the United States have demonstrated that eugenic ideas were broad enough to encompass the “hard” hereditarians whose focus was primarily on eliminating negative traits in the population under Mendelian or biometrical frameworks as well as “soft” eugenicists who, subscribing primarily to neo-Lamarckian doctrines of heredity and evolution, either emphasized or incorporated social hygiene and prophylaxis into their programs of genetic uplift.⁵ Of course, grouping people into hard and soft hereditarianism minimizes the diversity of theories that proliferated during this time. Mendelians and biometricians in the early-twentieth century could hardly be described as unified in their understanding of how genetic traits were inherited.⁶ However, they were both hard hereditarians in the sense that they did not consider the environment or the use or disuse of organs in an organism's lifespan to directly affect the hereditary constitution of its offspring.⁷ As Henry Goddard put it in his study of the Kallikak family, “no amount of education or good environment can change a feeble-minded individual into a normal one, any more than it can change a red-haired stock into a black-haired stock.”⁸

⁵ Cleminson, *Catholicism, Race and Empire*, 250–51; Bucur, *Eugenics and Modernization in Interwar Romania*, 3–4; Stepan, *The Hour of Eugenics*, 102–3; Meloni, *Political Biology*, 29.

⁶ Provine, *The Origins of Theoretical Population Genetics*, 56–89.

⁷ Meloni, *Political Biology*, 1.

⁸ Goddard, *The Kallikak Family*, 53.

The soft hereditarians, meanwhile, are generally grouped together as neo-Lamarckians, which further belies their diversity of theories. As two contemporaries stated in 1909, “whatever theory emphasizes the influence of the environment and the direct adaptation of individuals to their environment, whatever theory gives to actual factors the precedence over predetermination can be designated as Lamarckian.”⁹ Whether it was the idea that organisms adapted to climate pressures, organs or stature changed in size according to how often they were used, or substances such as alcohol or tobacco damaged the germ plasm and resulted in hereditary defects transmitted to offspring, these neo-Lamarckians above all else rejected “the idea that the fertilized ovum contains all the characters of the future individual.”¹⁰ For this group, the environment played an important role in determining the direction of human evolution.

Furthermore, even though the scientific community gradually rejected neo-Lamarckism in the 1910s and 1920s and convinced many eugenicists to turn towards hard hereditarianism, among the public eugenic and euthenic reforms remained popular endeavors, as discussed in the last chapter. Martin Pernick has demonstrated that heredity in the early twentieth century often meant, in its broadest sense, what one received from their parents.¹¹ Heredity was thus understood as the moral responsibility to produce good children, which was not exclusively expressed through the genetic transmission of traits.¹² Wilhelm Johannsen, in his article on the distinction between genotypes and phenotypes, lambasted biologists—biometricians, neo-Lamarckians, and eugenicists alike—for continuing to accept the “transmission conception of heredity.” According to Johannsen, “the *transmission* of properties, from parents to their children, or from more or less

⁹ Yves Delage and Marie Goldsmith, *The Theories of Evolution*, trans. Andre Tridon (New York: B.W. Huebsch, 1912), 244–45.

¹⁰ Delage and Goldsmith, *The Theories of Evolution*, 245; Ernst Mayr, *The Growth of Biological Thought: Diversity, Evolution, and Inheritance* (Cambridge: Belknap Press, 1982), 526.

¹¹ Pernick, “Eugenics and Public Health in American History,” 1769.

¹² Martin S. Pernick, *The Black Stork: Eugenics and the Death of “Defective” Babies in American Medicine and Motion Pictures since 1915* (New York: Oxford University Press, 1996), 53.

remote ancestors to their descendants, has been regarded as the essential point in the discussion of heredity, in biology, as in jurisprudence.”¹³ Within such an inclusive framework, public understandings of heredity and eugenics included good genes, good parenting, and good health.

While scholarly works on eugenics have revealed the ambiguity and fluidity of ideas on inheritance and their potential social applications in different contexts, they have also been limited to interpreting how various nations utilized eugenics in specific ways. In these interpretations, certain nations or regions typically follow a single genetic theory or biopolitical program. At the first Race Betterment Conference, however, there was a unique interplay of both hard and soft hereditarianism advocating for eugenic measures. This can be explained, in part, due to the transitional period within genetic science at this time and the variety of professionals that participated. Speakers at the conference included mainline eugenicists like Charles Davenport and Harry Laughlin alongside muckraker journalist Jacob Riis, the Yale University economist Irving Fisher, workers of the New York University Settlement Society, and the co-creators of the Camp Fire Girls. Each had different understandings of inheritance, yet under the broader program of “race betterment,” each believed they were contributing to the advancement of society through the application of biological principles.

In his welcome address, the mayor of Battle Creek, John W. Bailey, said that it was the “object of this Conference to work together, exchange ideas in order that there may be some definite understanding as to what is best for the great mass of the people of this world.”¹⁴ With Mendelian genetics not definitively proven, at least according to some eugenicists, the environment could still play a significant role in answering questions of how society should attempt to

¹³ Wilhelm Johannsen, “The Genotype Conception of Heredity,” *The American Naturalist* 45, no. 531 (March 1, 1911): 129–31, <https://doi.org/10.1086/279202>.

¹⁴ Hon. John W. Bailey, “Address of Welcome,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 3.

improve the race. In one of Kellogg's talks, he claimed that while "it may be impossible to say" whether heredity or environment is more important, "the results of recent researches" suggested "that the influence of environment may be much greater than some have supposed."¹⁵ University of Wisconsin geneticist Leon Cole conceded that environmental effects "are not in the crude sense heritable," but insisted that environmental reforms are necessary to determine who is evolutionarily fit and thus eugenically superior. It is only when everyone is given the opportunity to advance, according to Cole, that we can be sure that those with seemingly superior intelligence or business skills rise above the rest because of their genes.¹⁶ Jacob Riis stated that "we have heard friends here talk about heredity. The word has rung in my ears until I am sick of it." The only heredity he was concerned with was that "we are children of God, and there is nothing in all the whole big world we cannot do in His service with it."¹⁷ The Olivet College professor of sociology Herbert Adolphus Miller also criticized eugenics, arguing that "even if a perfect eugenic system were in vogue, practically every social problem which we are now trying to solve would still remain." The answers to social issues, he maintained, lay in the burgeoning field of social psychology.¹⁸ Rather than attempting to present to the public a consensus view of eugenics and its relation to race betterment, the first Race Betterment Conference highlighted the diversity of opinions on how best to ameliorate the dominant issues of the day.

¹⁵ Kellogg, "Needed—A New Human Race," 444.

¹⁶ Leon J. Cole, "The Relation of Philanthropy and Medicine to Race Betterment," in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 504–5.

¹⁷ Jacob A. Riis, "The Bad Boy," in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 243.

¹⁸ Miller's criticism of eugenics also made it to the newspaper. Herbert Adolphus Miller, "The Psychological Limit of Eugenics," in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 464–65; "Pet Projects of Eugenists Are Assailed: Battle Creek Speakers Attack Ideas Proposed to Better Race," *Detroit Free Press*, January 13, 1914.

The prominent role of environmental or hygienic reforms is evident in the public exhibits and other educational efforts connected to the 1914 conference. Dr. Anna Louise Strong of the National Child Welfare Exhibition Committee supervised the exhibits, which contained contributions from organizations like the American Association for the Study and Prevention of Infant Mortality and the Michigan State Tuberculosis Society. The subjects of the exhibits included the development of a national department of health, infant mortality and the care of babies, milk records, and public recreation. Local schools required students to take notes on the exhibits and write about what they learned afterwards, resulting in over 3,000 children attending. The only public educational exhibit that explicitly discussed eugenics was a moving picture entitled “Eugenics and Venereal Diseases.”¹⁹

Many individuals at the first conference discussed prohibition as a means of bettering the race, with several members of temperance organizations like the Women’s Christian Temperance Union participating. At the time of the conference, the question of whether alcoholism was an inherited trait remained unsettled. As discusses in the previous chapter, many individuals supported the blastophthoria theory of alcohol poisoning the germ plasm. Thus, participants often spoke in vague generalities of the inheritance of alcoholism, without specifying whether it was a Mendelian or neo-Lamarckian characteristic. Henry Smith Williams, leading a panel on the effects of alcohol, argued that alcoholism was the result of a “bad brain which the person who is injured by it has had the misfortune to inherit,” and that the only remedy for alcoholics was segregation “for a sufficient period.”²⁰ Daniel Poling, an employee at the San, suggested the government

¹⁹ Anna Louise Strong, “Exhibits,” in *Proceedings of the First National Conference on Race Betterment* (Battle Creek, MI: Race Betterment Foundation, 1914), 600–603.

²⁰ Henry Smith Williams, “Alcohol—What Shall We Do about It?,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 196–97.

should take a more active role in prohibition as “a basis upon which we can work to eugenics.”²¹ Mrs. J. L. Higgins, a temperance worker in Battle Creek, believed that race betterment programs strove “to turn out a race of citizens” that would ultimately eliminate alcoholics entirely.²²

Those that discussed the specifics of alcohol and heredity supported the theory of blastophthoria, or the “injury of the germ plasm.”²³ Daniel Lichty, speaking at the Race Betterment Conference, argued that blastophthoria “produced by alcohol on the cell wall and substance is now microscopically as well as physiologically and pathologically demonstrated.” He further claimed that tobacco and syphilis had similar effects as alcohol on the individual and their offspring.²⁴ Arthur Hunter of the New York Life Insurance Company stated that alcohol played “an important part in bringing about degeneration of nerves, muscles, and epithelial cells.”²⁵ Others, however, were more cautious in their statements of what science had legitimately proven. H. W. Austin, of the United States Public Health Service, noted that although “such diseases as chronic alcoholism, syphilis, excessive venery or gonorrhea” are often seen “as the original or primary cause of the degenerate or mentally defective,” it remained difficult to firmly establish or trace the inheritance of such diseases.²⁶ While those at the conference may have agreed that alcohol consumption must be suppressed, their points of contention were on how best that could be accomplished and what eugenic effects may result from it.

²¹ Williams, “Alcohol—What Shall We Do about It?,” 199.

²² Williams, “Alcohol—What Shall We Do about It?,” 206.

²³ A.A. Brill, “On Blastophthoria,” *Journal of Nervous & Mental Disease* 36, no. 12 (December 1909): 758.

²⁴ Daniel Lichty, “Tobacco: A Race Poison,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 228.

²⁵ Arthur Hunter, “The Effect of Alcohol on Longevity,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 182.

²⁶ H. W. Austin, “What the United State Public Health Service Is Doing for Race Betterment,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 386–87.

Similarly, at a time when women were fighting to earn the franchise, discussions also turned to questions about how women would benefit from the applied science of eugenics. Much like the conversations around alcohol, conference participants generally agreed that applied eugenics would benefit women, yet there was little consensus as to what those benefits would be or how best to achieve them. To some eugenicists, the key to race betterment was enhancing and protecting motherhood. While scholars have noted that eugenicists focused on “the importance of motherhood and family to the future of the race” in response to attacks on sterilizations and hereditarianism in the 1930s, these ideas first emerged in the 1910s following public opposition to the initial wave of sterilization legislation and marriage restriction laws, as well as the increasing social and political influence of maternalist feminists.²⁷

For instance, Dr. Richard Root Smith from Grand Rapids claimed in a lecture that modern women were degenerating because “child-bearing and child-rearing are essential to the happiness of the majority of women and necessary to the development of character.”²⁸ Much like how agricultural colleges prepared farmers and business colleges prepared businessmen, Dr. Carolyn Geisel, from Shorter College in Rome, Georgia, called for women’s colleges to prepare their students for their “holy place in life, the place of motherhood, which is the very tap-root of all race betterment.”²⁹ Roswell Hill Johnson lambasted the “inappreciation of wifedom and motherhood by misguided feminists,” believing that “the introduction of courses dealing with the home and the child would give college women increased interest in and eagerness for that noblest profession of

²⁷ Kline, *Building a Better Race*, 4.

²⁸ Richard Root Smith, “Deterioration of the Civilized Woman,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 174.

²⁹ Carolyn Geisel, “The Race Betterment Movement in Women’s Colleges,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 344.

home-making and motherhood.”³⁰ Edward Phelps suggested that such training should take place much earlier, in the public schools, so that “two or three or four fundamentals of motherhood” are taught to ensure “proper motherhood for our two and one-half million babies a year” for those whose mothers never reached college.³¹ Both Geisel and the president of Albion College Samuel Dickie believed that it was up to women to raise the standards of parenthood by being more selective of the men they take as husbands.³² As maternalist reformers utilized their status as mothers to enact changes in social welfare programs and increase the political power of women, eugenicists invoked the importance of motherhood to racial improvement.³³

Eugenics, according to historian Martin Pernick, “promoted an ambivalent romantic modernism, which sought to use scientific methods to achieve traditional goals.”³⁴ Thus, their goals aligned with those of maternalist feminists in that they both desired to elevate and protect the status of motherhood and the protection of children by government oversight if necessary. They also pursued similar reforms, at least in the second decade of the twentieth century. During a time when maternalists and child welfare reformers introduced innocent children “into the ranks of the deserving poor” of the American social welfare system, eugenics became more and more popu-

³⁰ Roswell Hill Johnson, “Marriage Selection,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 519–20.

³¹ Robbins Gilman, “Better Babies,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 279.

³² Carolyn Geisel, “A Woman’s Problem,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 318–23; Samuel Dickie, “The Single Standard,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 294–95.

³³ Seth Koven and Sonya Michel, “Womanly Duties: Maternalist Politics and the Origins of Welfare States in France, Germany, Great Britain, and the United States, 1880-1920,” *The American Historical Review* 95, no. 4 (1990): 1076–1108, <https://doi.org/10.2307/2163479>; Marian van der Klein et al., *Maternalism Reconsidered: Motherhood, Welfare and Social Policy in the Twentieth Century* (New York: Berghahn Books, Incorporated, 2012), 4; Molly Ladd-Taylor notes that “eugenics arose in tandem with the Progressive Era child-saving and moral reform movements.” Ladd-Taylor, *Fixing the Poor*, 3.

³⁴ Martin S. Pernick, “Taking Better Baby Contests Seriously,” *American Journal of Public Health* 92, no. 5 (May 2002): 708.

lar.³⁵ While maternalists emphasized the status of women as mothers to inject themselves into politics, eugenicists stressed women's role as mothers to iterate their equal contribution to the genetic fitness or unfitness of the next generation as well as providing a proper home life to ensure the best development for their children as possible.

One area where many of the conference participants agreed was the urgent need to teach parents both eugenics and eugenics, so that racial betterment may start with the family. By educating parents on hygienic improvements in the home, they hoped to reduce infant mortality and empower individuals to live life without debilitating diseases or ailments. Eugenics instruction was complementary to this, so that individuals would voluntarily choose eugenic partners and, consequently, more genetically fit children. One way eugenicists inculcated eugenic ideals into parents was through better baby contests, including one that took place during the first Race Betterment Conference. According to historian Alexandra Minna Stern, better baby contests brought together ideas of public health, eugenics, and race betterment by combining progressive maternalists' advocacy of scientific motherhood with the livestock competitions of animal breeders.³⁶ "Heredity, infection control, nutrition, and sanitation" coalesced in these competitions emphasizing the common goal of eugenicists and public health advocates for "improving the health of future generations."³⁷ Dr. Lydia DeVilbiss, the director of the Better Babies Bureau with *Women's Home Companion* magazine, which established better baby contests across the country, organized the contest in Battle Creek, which examined nearly 600 children under five years old. With professionals performing physical and mental examinations of the children and identifying potential defects, DeVilbiss believed that parental pride would lead them "to the necessity of

³⁵ Ladd-Taylor, *Fixing the Poor*, 13.

³⁶ Alexandra Minna Stern, "Making Better Babies: Public Health and Race Betterment in Indiana, 1920-1935," *American Journal of Public Health*; *Washington* 92, no. 5 (May 2002): 742-52.

³⁷ Pernick, "Taking Better Baby Contests Seriously," 707.

knowledge that they may remedy these defects. The parent is now ready for a course of education for better parenthood.”³⁸

The head social worker of the New York University Settlement Society Robbins Gilman agreed, claiming that the contests were effective in urging “people to talking about, to thinking about, and reading about better babies.”³⁹ Walter F. Martin, an employee at the San, helped to coordinate the baby contests with *Women’s Home Companion*. He noted that, by mailing examination score cards to the parents and “simple rules and suggestions for the child’s betterment,” the participating parents would have all the information they need to better the physical and mental health of their children. Similar to other better baby contests, it appears that the examination scores were artificially raised not to offend parents.⁴⁰

Similarly, students and faculty of the Battle Creek Normal School of Physical Education, later renamed Battle Creek College, conducted a “physical and mental perfection contest” on over 3,500 children in Battle Creek. The purpose of this contest was to impart knowledge of health and hygiene on teachers, parents, and children. Through a battery of physical and mental examinations, eventually resulting in eleven winners, the contest strove to demonstrate “the reality of race degeneracy” and “the possibilities of race betterment,” alongside lessons in brushing teeth, bathing regularly, eating simple foods, getting regular sleep, and outdoor exercise.⁴¹ The local press wrote

³⁸ Dr. Lydia A. DeVilbiss, “Education for Parenthood,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 268–70.

³⁹ Gilman, “Better Babies,” 273.

⁴⁰ Martin mentions the “high class of babies” at the contest and the need to reexamine babies that scored over 95% on the first examination. Stern mentions how defects received infinitesimally small deductions at baby contests in Indiana. Walter F. Martin, “Better Babies Contest,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 622; Stern, “Making Better Babies,” 750.

⁴¹ The type of mental test is not given, while the physical tests were primarily obtaining anthropometric data. William W. Hastings, “Physical and Mental Perfection Contests,” in *Proceedings of the First National Conference on Race Betterment* (Battle Creek, MI: Race Betterment Foundation, 1914), 608–15.

that the contest revealed “what the desirable race of men and women . . . must possess.”⁴² In contrast to the lessons on heredity that were implicit and explicit in better baby contests, the physical and mental perfection contest emphasized the ways improved hygiene enhanced health and development.

Other methods of educating parents on better motherhood, including eugenics, proliferated. Luther H. Gulick, Jr. and his wife Charlotte, the creators of the Camp Fire Girls, discussed how education of girls should “fit them to be good wives and mothers.” Consequently, they claimed that the purpose of Camp Fire Girls was to prepare young girls for “the making of the spirit of the home dominant throughout the entire community.”⁴³ That said, a significant number of participants at the conference emphasized the need to educate both men and women—or, rather, boys and girls—to ensure racial improvement in future generations. Most who advocated for such education strove to reduce the proliferation of venereal diseases and wanted to introduce eugenics by teaching students about heredity in plants in animals before eventually discussing inheritance in humans.

Winfield Scott Hall, professor of physiology at Northwestern Medical School, believed that education was the only means of accomplishing the goals of racial betterment. He called for parents to educate their children on things like where babies come from and “the sacredness of motherhood” before they reach high school. From such a foundation formed in their youth, teachers could then begin instruction on eugenics, including lessons on how venereal diseases are

⁴² “Physical and Mental Contest Held by the National Conference on Race Betterment,” *Battle Creek Idea*, January 1914, 4.

⁴³ Luther H. Gulick and Mrs. Luther H. Gulick, “The Social Program,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 422–30.

obtained and the importance of “hereditary venereal taint.”⁴⁴ Similarly, F. O. Clements of the National Cash Register Company presented various lecture material on venereal diseases in his talk that he designed with Dr. Frederic Loomis of the University of Michigan. Intended for both teenagers and their parents, it was formed as a “scientific, well-founded talk, in simple language, divested of all medical terms” so that anyone could understand it. It included a discussion on suppressing prostitution, which “leaves in its wake sterility, insanity, paralysis,” and “physical rot and mental decay” due to its role in spreading venereal disease.⁴⁵ The Rev. Walter Taylor Sumner believed that “personal purity” regarding sex should be taught in gender segregated courses at high school.⁴⁶ Graham Taylor, on behalf of the Chicago Vice Commission, noted that the commission recommended “safe, sane training in sex hygiene,” while detailing a program that taught parents and over 20,000 Chicago high school students.⁴⁷ Thus, many eugenicists attempted to raise the status of parenthood and positive family relations through the elimination of prostitution and the suppression of venereal disease.

In contrast, eugenicists from the Eugenics Record Office reaffirmed their conclusions on the genetic nature of a variety of traits and the potential social benefits of a sterilization program. Charles Davenport confirmed that, based on data the ERO gathered, feeble-mindedness, epilepsy, and criminality were inherited traits. He also called for more state surveys of “degenerate communities” that furnish “a large proportion of the paupers, beggars, the thieves, burglars and prostitutes

⁴⁴ Winfield Scott Hall, “The Relation of Education in Sex to Race Betterment,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 324–34.

⁴⁵ F. O. Clements, “Venereal Disease,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 304–11.

⁴⁶ Walter Taylor Sumner, “The Health Certificate: A Safeguard against Vicious Selection in Marriage,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 510.

⁴⁷ Graham Taylor, “Public Repression of the Social Evil,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 288.

who flock into our cities.”⁴⁸ Harry Laughlin, already revealing his enthusiasm for extreme procedures, argued that compulsory sterilization measures were a necessary complement to segregation policies. In demonstrating the potential eugenic efficiency of sterilization, he suggested that the “most worthless one-tenth of our present population” be sterilized for the next two generations, which would have resulted in the sterilization of fifteen million individuals.⁴⁹

Despite Laughlin’s advocacy for sterilization, most participants at the first Race Betterment Conference emphasized segregation (institutionalizing and separating according to sex) as the most plausible and beneficial policy to constrain the reproduction of the unfit. Leon Cole called the sterilization laws already in place “ill-considered and premature” and claimed that it was “generally conceded that permanent segregation, at least during the period of reproductive capacity,” was the “most feasible, if not the most effective of restrictive eugenic measures.”⁵⁰ Hastings Hart of the Russell Sage Foundation believed it was society’s “most imperative duty” to segregate feebleminded women that are able to reproduce, given that they were “twice as dangerous to the community as the insane woman.”⁵¹ As stated earlier, Henry Smith Williams called for the segregation of alcoholics as a means of providing them with more rational treatment for their condition.⁵²

Still others at the conference recognized a general need to limit the reproduction of defectives, where segregation and sterilization were twin efforts at accomplishing this task. Irving Fisher

⁴⁸ Charles Benedict Davenport, “The Importance to the State of Eugenic Investigation,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 454.

⁴⁹ Harry Hamilton Laughlin, “Calculations on the Working out of a Proposed Program of Sterilization,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 478–94.

⁵⁰ Cole, “The Relation of Philanthropy and Medicine to Race Betterment,” 506–7.

⁵¹ Hastings H. Hart, “Segregation,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 409.

⁵² Williams, “Alcohol—What Shall We Do about It?,” 197.

argued that “segregation, marriage, and ‘sterilization’ laws” were the first steps in reducing the number of degenerates in the country and attaining “proper health ideals.”⁵³ In his presidential address, the nonagenarian Dr. Stephen Smith noted that although sterilization and segregation were the only methods available currently to “prevent the birth of degenerates,” they were “methods which must necessarily have limited application.”⁵⁴ In 1914, then, eugenicists were anything but unanimous in support of sterilization as an effective eugenic policy.

Local Public Education Efforts

At the time of the first and second Race Betterment Conferences, eugenicists also pushed for broader efforts at educating the public in a variety of ways. They recruited several different institutions and organizations to aid in disseminating information on eugenics. Michigan Representative Henry Glasner, author of a proposed law to require physical and mental examinations of individuals before they were able to marry, asked churches to make February 9, 1913, “Eugenics Day” and to give sermons on “why every child has the right to be well born.” Glasner’s “clean bill of health bill,” as it was popularly known, along with several tenets of eugenics, appealed to women throughout the state.⁵⁵ At the request of Kellogg, four delegates of the Michigan State Federation of Women’s Clubs attended the first Race Betterment Conference, and the Department of Health of the Federation supported the 1913 sterilization bill and distributed materials for lessons on eugenics to local clubs across the state.⁵⁶

⁵³ Irving Fisher, “The Importance of Hygiene for Eugenics,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 476.

⁵⁴ Stephen Smith, “President’s Address,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 15.

⁵⁵ Etta Neukom, “‘Eugenics Day’ for Churches: Michigan Pastors and Women Are Appealed To,” *Detroit Free Press*, January 15, 1913.

⁵⁶ *Michigan State Federation of Women’s Clubs: Manual, 1913-1914* (Muskegon, MI: The Dana Press, 1914), 25, 66.

The University of Michigan's Extension Service, meanwhile, offered free public lectures on a variety of subjects. The goal of these free talks was, according to the university, to "foster a close and sympathetic relationship between the citizens of Michigan and their University and to extend, in a general way, the educational facilities of the state."⁵⁷ Starting in 1912, faculty from the university lectured the public on eugenics. Assistant professor of zoology Aaron Franklin Shull—whose brother George Harrison Shull has been dubbed "the father of hybrid corn" for his work on corn hybridization while at the Station for Experimental Evolution at Cold Spring Harbor prior to his move to Princeton University in 1915—gave illustrated lectures on both heredity and eugenics, and Albert Barrett discussed "The Causes and Prevention of Insanity."⁵⁸ Several faculty members addressed similar topics as well. The botanist Henri Hus informed the public on "The Laws of Inheritance" as used to selectively breed plants, while Otto Glaser, whom we will discuss later, spoke about new findings in genetics. Aldred Warthin lectured the public on sex hygiene and "The Care of the Germ Cells as an Ethical Principle."⁵⁹ Victor Vaughan discussed "The Evolution of the Superman," but he did not limit his speeches on eugenics just to the public; for instance, he presented on the topic at the second annual meeting of the Health Officers of Michigan when it was held at Ann Arbor in February 1913.⁶⁰

The content of these addresses evolved, but throughout the 1910s the Extension Service remained a key component of public education on eugenics across the state. For instance, Vaughan separated into two talks the subjects of eugenics and euthenics.⁶¹ After Glaser was appointed head

⁵⁷ *University of Michigan Extension Lectures, 1915-1916* (Ann Arbor, MI: University Bulletin, 1915), 7.

⁵⁸ "University of Michigan Extension Lectures, 1912-1913," *University Bulletin* 13, no. 24 (1912): 12–18; "George Harrison Shull," in *Encyclopedia Britannica*, July 1998, <https://www.britannica.com/biography/George-Harrison-Shull>.

⁵⁹ "University of Michigan Extension Lectures, 1913-1914," *University Bulletin* 15, no. 11 (1913): 8–20.

⁶⁰ "University of Michigan Extension Lectures, 1912-1913," 18; "Event in Brief," *The Michigan Alumnus*, March 1913, 267.

⁶¹ *University of Michigan Extension Lectures, 1916-1917* (Ann Arbor, MI: University Bulletin, 1916), 31.

of the Eugenics Registry with the Race Betterment Foundation, his lecture series included the registry as “an attempt to cultivate socially adequate inheritance.”⁶² During the war and amid increasing nativist sentiment, professors also provided information on the relationship of eugenics to war and to immigration and Americanization.⁶³

Along with the University of Michigan’s efforts at public education in the second decade of the twentieth century were those of the Michigan State Board of Health. They helped organize local “Good Health Week” conventions in several counties throughout the state in the 1910s, in which medical professionals discussed several topics all aimed at improving the health of the state’s citizens. At the core of this public education effort was preventive medicine and the belief that with a more intelligent public, physicians could contain contagious diseases, deliver better care for babies, and, ultimately, conserve the health of the community more efficiently.⁶⁴ Under a broad program of preventive medicine, eugenic reforms to improve environments for children’s development was combined with eugenics to prevent the multiplication of the unfit.

Victor Vaughan and Aldred Warthin, among other professionals, often gave speeches at these events, which commonly fused eugenics with preventive medicine. For instance, Vaughan spoke to mothers at the Hillsdale County Good Health Week on the importance of a “eugenic home,” which required “clean things” over “costly rugs and furnishings,” while calling on women to go to schools, dairies, and farms to check if the conditions at each of these places were hygienic and free of tuberculous flies.⁶⁵ At the Good Health Week held in Lapeer, he reiterated how one out of every 500 persons in Michigan were feeble-minded and, based on current birth statistics, by 1950

⁶² *University of Michigan Extension Lectures, 1917-1918* (Ann Arbor, MI: University Bulletin, 1917), 38–39.

⁶³ This included lectures from Aaron Shull, sociologist Arthur Evans Wood, and psychologist Guy Whipple. *University of Michigan Extension Lectures, 1918-1919* (Ann Arbor, MI: University Bulletin, 1918), 21–24; *University of Michigan Extension Lectures, 1920-1921* (Ann Arbor, MI: University Bulletin, 1920), 39.

⁶⁴ John L. Burkart, “Hillsdale County Good Health Week,” *Public Health*, April 1914, 4.

⁶⁵ “Program for Hillsdale County Good Health Week,” *Public Health*, April 1914, 17.

their proportion would increase to constitute one of every 250 people in the state. The solution to prevent “the human race from becoming a race of idiots” was, Vaughan explained, an organized “state and county campaign for better health conditions” as well as “better education to the duties of humankind toward their bodies.”⁶⁶ Warthin frequently lectured on “The Crime Against the Boy,” where he suggested that every father should provide “sexual training” of the facts of reproduction and how venereal disease is contracted to their sons beginning as early as two or three years old.⁶⁷ Along with such speeches were better baby contests to collect further data on the current health of babies in the state, as well as to give instruction to mothers on infant care.⁶⁸

The Second Race Betterment Conference

The second Race Betterment Conference took place in 1915, a year after the first, and as part of the Panama-Pacific International Exposition in San Francisco, where almost nineteen million people attended.⁶⁹ Following unfavorable public opinion towards eugenic legislation, eugenicists believed that the public would accept their ideas if they were better educated on the aims and goals of eugenics.⁷⁰ The Exposition, which explicitly emphasized utilitarian service in applying religion and scientific knowledge to human life, was the ideal avenue for such public outreach efforts.⁷¹ As Robert Rydell has stated, eugenicists “saw the exhibition medium as ideally

⁶⁶ “Lapeer Good Health Week,” 376.

⁶⁷ “Good Health Week in Michigan,” *Good Health*, December 1915, 560; “St. Clair County Good Health Week,” *Public Health*, August 1915, 406–7.

⁶⁸ “Good Health Week in Michigan,” 560.

⁶⁹ The figure was obtained from Robert W. Rydell, *All the World’s a Fair: Visions of Empire at American International Expositions, 1876-1916*, Paperback ed (Chicago: University of Chicago Press, 1987), 209.

⁷⁰ For a few examples of eugenicists explaining this belief that education would change public opinion in support of their goals, see D.E. McClure, “How Shall We Abate Disease and Crime through Education?,” *Public Health*, August 1914, 400; Dixon, “Protection and Social Service, the Fundamental of Community Life,” 11; George A. Hastings, “Meeting the Mentally Sick Half Way,” in *Proceedings of the Meeting of the Joint Board of Trustees of the State Hospitals of Michigan Held at Kalamazoo, July 20, 1916*, vol. 2 (Lansing, MI: Wynkoop Hallenbeck Crawford Co. State Printers, 1916), 26–27.

⁷¹ Frank Morton Todd, the official historian of the Panama-Pacific Exposition, stated that at the core of the subjects discussed at the Exposition “ran a consideration of the question, what can men do for men, and how can the sciences help them?” Frank Morton Todd, *The Story of the Exposition: Being the Official History of the International*

suites to popularizing their race-betterment agenda.”⁷² Along with holding a scientific congress, the Race Betterment Foundation provided an exhibit in the Palace of Education that became one of the most popular at the exposition, highlighting the main themes of the race betterment movement.⁷³ Dr. A.J. Reed, of the Battle Creek Sanitarium, was the director of the exhibit. The first poster fairgoers saw explained the aims of the race betterment movement, claiming that:

the science of EUGENICS intelligently and universally applied would in a few centuries practically WIPE OUT Idiocy, Insanity, Imbecility, Epilepsy and a score of other hereditary disorders, and create a race of HUMAN THOROUGHBREDS such as the world has never seen.

Other components of the exhibit included tables showing decreased birthrates in the United States, England, France, Germany, and New Zealand in the past twenty years. There was a poster on several causes of race degeneracy, including unnatural environments such as “city life” with all its “dust, infections, noise, stress, excesses, and other abnormalities;” unnatural habits including the use of alcohol and tobacco; and, under “heredity,” increased numbers of cancer, alcoholism, insanity, criminality, and feeble-mindedness.⁷⁴ Another listed several means of race betterment, such as “simple and natural habits of life,” “eugenic marriages,” the development of the eugenic registry, and “sterilization or isolation of defectives.”⁷⁵ There were also “electric jiggle chairs” inside the booth to entice people to enter, which one person enjoyed so much he used every coupon in his season book to keep getting “vibrated.”⁷⁶

Celebration Held at San Francisco in 1915 to Commemorate the Discovery of the Pacific Ocean and the Construction of the Panama Canal, vol. 5 (New York: G. P. Putnam’s Sons, 1921), 1.

⁷² Robert W. Rydell, *World of Fairs: The Century-of-Progress Expositions* (Chicago, Ill: University of Chicago Press, 1993), 39.

⁷³ Rydell, *All the World’s a Fair*, 224–25.

⁷⁴ Kellogg, “Tendencies toward Race Degeneracy,” 30.

⁷⁵ Several exhibits are presented as a non-paginated appendix at the end of *Official Proceedings of the Second National Conference on Race Betterment* (Battle Creek, MI: Race Betterment Foundation, 1915).

⁷⁶ The anecdote is mentioned in Frank Morton Todd, *The Story of the Exposition: Being the Official History of the International Celebration Held at San Francisco in 1915 to Commemorate the Discovery of the Pacific Ocean and the Construction of the Panama Canal*, vol. 3 (New York: G.P. Putnam’s Sons, 1921), 5.

As A. E. Hamilton of the Eugenics Record Office explained in an issue of *Good Health* magazine, the goals of the Race Betterment Foundation at the exposition were “to present the evidences of racial deterioration, to suggest the many possibilities of regeneration and improvement, and to make available a knowledge of the means that are at hand for Race Betterment in a very real and living sense.”⁷⁷ This included large plaster statues of Atlas, Venus, and Apollo, “to advertise the human race at its best, and get that race interested in its glorious past and possible future.” They presented examples of applied heredity producing demonstrable changes within a few generations to corn, dahlias, and several domestic animals, with the implication that similar enhancements could be made in humans.⁷⁸

Alongside these efforts to educate the public on eugenics was a “morality masque” entitled “Redemption,” which served as an “allegorical outline of the underlying fundamentals of race betterment” and attracted over 5,000 people to the Civic Auditorium in Oakland. Separated into two acts, it portrayed humanity’s struggles with disease and war and how science, including eugenics, would provide a new path forward in the future. In Act I, “Mankind, boastful as conqueror of the forces of Nature,” disregards warnings from the “Unseen Spirit” that “their position will not become secure until they overcome disease, vice and other personal and community ills that make for race deterioration.” Instead, Mankind “persists in his course of pleasure until Neglected Child through lack of attention is sorely stricken by Disease.” Mankind and Womankind “call Art, Science and Religion to aid them too late, and Neglected Child dies.” However, at the

⁷⁷ A. E. Hamilton, “Exhibiting an Idea,” *Good Health*, April 1915.

⁷⁸ Frank Morton Todd, *The Story of the Exposition: Being the Official History of the International Celebration Held at San Francisco in 1915 to Commemorate the Discovery of the Pacific Ocean and the Construction of the Panama Canal*, vol. 4 (New York: G. P. Putnam’s Sons, 1921), 38–39; Much like how eugenicists were interested in controlling and directing human evolution, agricultural breeders were concerned with controlling the evolution of crops and cattle to increase yields, reduce disease, and improve taste. Helen Anne Curry, *Evolution Made to Order: Plant Breeding and Technological Innovation in Twentieth-Century America* (Chicago: University of Chicago Press, 2016).

end of the act, “Hope” gives Mankind and Womankind a second child, named “Fortunate,” and they vow to rear him properly.⁷⁹

In the second act, Fortunate arrives “at physically perfect manhood” through Mankind and Womankind’s proper parenting. As part of the general dismay eugenicists displayed toward the outbreak of World War I in Europe, the Unseen Spirit appears again to warn that “War” is arriving, which “takes the best of the race and leaves disease, crime and destruction in his path.” In their sacrifice to War, Fortunate is killed, and Mankind is left seriously wounded. In response, Womankind, “armed by Faith and aided by Enlightenment and Love, rouses from her age-long passivity” to stop War. In the end, Mankind and Womankind enlist “Science, Faith, Enlightenment and their companions” to “build anew, upon the solid foundation of physical perfection and of mental enlightenment.”⁸⁰

In addition to their explicit efforts to educate the public on eugenics and its relation to race betterment, on August 4-8, the Race Betterment Foundation hosted their second conference at the Exposition. Much like the conference held twenty months earlier in Battle Creek, it tied eugenics to current social and political issues, with the war in Europe a key topic. David Starr Jordan, president of Stanford University, spoke of the dysgenic effects of war, arguing that nations sent their best and most promising young men off to die in battle while the weak and unfit stayed home and reproduced.⁸¹ In his call for prohibition, W. T. Foster, president of Reed College in Portland, Oregon, noted that the war had demonstrated “the need for a better race of human beings, the

⁷⁹ “Morality Masque,” in *Official Proceedings of the Second National Conference on Race Betterment* (Battle Creek, MI: Race Betterment Foundation, 1915), 138–40.

⁸⁰ “Morality Masque,” 139.

⁸¹ David Starr Jordan, “Eugenics and War,” in *Official Proceedings of the Second National Conference on Race Betterment* (Second National Conference on Race Betterment, San Francisco, CA: Race Betterment Foundation, 1915), 12–26.

necessity for stamping out all those agencies of physical and moral deterioration” that society previously was content with.⁸²

Moreover, eugenicists at the Second Race Betterment Conference were clearly defensive regarding their stance on reforming marriage following attacks in the press and elsewhere that they were heartlessly attempting to breed individuals like one does with animals.⁸³ Some of these criticisms were because of the recently upheld statute in Wisconsin that required men to be examined for venereal diseases before receiving a marriage license, where they suggested that “the man who is clean will resent a physical examination,” while “the man who is unclean will evade the issue.”⁸⁴ Even Charles Davenport ridiculed the Wisconsin law, believing it to be premature.⁸⁵ While several participants at the conference a year earlier expressed interest in restricting unfit marriages through legislation, the renowned actuarial statistician Frederick Hoffman, speaking at the 1915 conference, warned that too much emphasis was placed on “eugenic marriages,” “the control of offspring,” and attempting to form a “rational plan of married life.”⁸⁶ But the most damning charge eugenicists felt was that they were trying to replace love with cold-hearted scientific rationality, and many advocates of marriage restriction laws clarified their position on this matter. Although they maintained that the marriage of defectives must be restrained, eugenicists argued that, rather than forcing the best humans to breed, they wanted to inculcate eugenic ideals so that family his-

⁸² W. T. Foster, “Alcohol Prohibition,” in *Official Proceedings of the Second National Conference on Race Betterment* (Second National Conference on Race Betterment, San Francisco, CA: Race Betterment Foundation, 1915), 92.

⁸³ Rex Beach, “At the Human Stock Show,” *Detroit Free Press*, March 1, 1914, E7.

⁸⁴ Paul A. Lombardo, “A Child’s Right to Be Well Born: Venereal Disease and the Eugenic Marriage Laws, 1913–1935,” *Perspectives in Biology and Medicine* 60, no. 2 (Spring 2017): 221–22; “Eugenic Marriage Laws,” *The Washington Post*, January 5, 1914, 6.

⁸⁵ “Doctor Ridicules Laws for Eugenics,” *New York Times*, June 21, 1914, 14.

⁸⁶ Frederick L. Hoffman, “Statistics of Race Betterment,” in *Official Proceedings of the Second National Conference on Race Betterment* (Second National Conference on Race Betterment, San Francisco, CA: Race Betterment Foundation, 1915), 28; For examples of individuals at the first Race Betterment Conference supporting marriage restriction laws, see Maud Glassner, “Health Certificates in Michigan,” in *Proceedings of the First National Conference on Race Betterment* (First National Conference on Race Betterment, Battle Creek, MI: Race Betterment Foundation, 1914), 513–15; Johnson, “Marriage Selection,” 522–23; Sumner, “The Health Certificate: A Safeguard against Vicious Selection in Marriage,” 509–12.

tories, traits, and characteristics were as much a part of evaluating a potential partner as religion, social standing, and shared values. At a Q&A session in the Music Hall, John Harvey Kellogg was asked if eugenicists aimed to “arrange marriages between perfect physical specimens of men and women,” without regard for whether they loved each other. He responded by stating that eugenicists only desired “that pedigree shall be considered along with other things; that when a man considers marriage he should be more anxious to know that the woman has good, splendid clean blood in her veins, than that her father has millions in the bank.”⁸⁷ Samuel Dixon and Irving Fisher also felt it necessary to address their position on marriage reform, further highlighting its importance in 1915.⁸⁸

Like its predecessor, the presentations at the San Francisco conference reveal Kellogg’s influence on discussions of race degeneracy and betterment. He requested that Paul Popenoe—who would soon co-author one of the most popular (and infamous) eugenics textbooks in the country and become one of the most influential eugenicists by the 1930s—compile the photographic exhibit for the race betterment booth, which highlighted much of Kellogg’s own ideas of what constituted evidence of race degeneracy and how to combat it.⁸⁹ Papers introduced at the conference indicated Kellogg’s role in organizing the event. They included a talk on proper care and development of the teeth, the secretary of the American Social Hygiene Association informed the audience of their group’s work, and one of the largest panels was a discussion of the difference between longevity and life expectancy.⁹⁰

⁸⁷ Kellogg, “Questions on Eugenics,” 88–90.

⁸⁸ Samuel G. Dixon, “Race Betterment,” in *Official Proceedings of the Second National Conference on Race Betterment* (Second National Conference on Race Betterment, San Francisco, CA: Race Betterment Foundation, 1915), 9–11; Fisher’s comments were part of a discussion of Paul Popenoe, “Natural Selection in Man,” in *Official Proceedings of the Second National Conference on Race Betterment* (Second National Conference on Race Betterment, San Francisco, CA: Race Betterment Foundation, 1915), 65.

⁸⁹ Stern, *Eugenic Nation*, 37.

⁹⁰ Guy Stillman Millberry, “The Development and Care of the Teeth,” in *Official Proceedings of the Second National Conference on Race Betterment* (Second National Conference on Race Betterment, San Francisco, CA: Race

Kellogg also made the development of the Eugenics Registry one of the main features of the conference. In connection with the Eugenics Record Office—Charles Davenport was appointed to the Eugenics Registry board of directors—the Race Betterment Foundation designed the registry to collect family histories and separate the eugenically fit from the normal and unfit. As Kellogg explained at the conference, he created the registry to record individuals that passed the standards established by the Race Betterment Foundation, to “increase the number of persons who are examples of the highest degree of physical fitness, who possess perfect health ... and show evidence of superior mental abilities.” Rather than the “aristocracy of lunatics, idiots, paupers and criminals” currently in place, the registry, Kellogg hoped, would help create “a real aristocracy of Apollos and Venuses and their fortunate progeny.”⁹¹

While Kellogg’s brand of race betterment that applied both eugenics and eugenics still held popular appeal, it was also clear that by this time geneticists started to accept Mendelian over neo-Lamarckian interpretations of inheritance. As Stern has suggested, the Panama-Pacific International Exposition occurred at a “transitory moment” in genetics and medicine where environmentalist theories of degeneracy and disease were slowly losing out to “germs and genes.”⁹² As discussed in the previous chapter, this was part of a gradual process as Mendelians were “struggling for scientific authority in the field” of heredity with cytologists, embryologists, and animal breeders.⁹³ Thomas Hunt Morgan’s *Drosophila* group was influential in demonstrating the physical basis of Mendelian genetics in the chromosomes and directing future research towards studying

Betterment Foundation, 1915), 119–24; Thomas D. Eliot, “Some Practical Methods in the Social Hygiene Movement in the United States,” in *Official Proceedings of the Second National Conference on Race Betterment* (Second National Conference on Race Betterment, San Francisco, CA: Race Betterment Foundation, 1915), 96–102; A. J. Reed et al., “Discussion: Longevity vs. Life Expectancy,” in *Official Proceedings of the Second National Conference on Race Betterment* (Second National Conference on Race Betterment, San Francisco, CA: Race Betterment Foundation, 1915), 34–44.

⁹¹ Kellogg, “The Eugenics Registry,” 77–79.

⁹² Stern, *Eugenic Nation*, 21.

⁹³ Sapp, *Beyond the Gene*, 42–53.

genetic linkage, or the frequent inheritance of two traits due to their close location on the chromosomes.⁹⁴ As Mendelians established themselves as an academic discipline of genetic research, so too did eugenicists adopt Mendelian genetics.⁹⁵ This was seen at the Race Betterment Conference as well. Paul Popenoe emphasized that, although natural selection—understood as the differential survival of individuals based on their heredity and immediate environment—drove evolutionary progress, society should be careful not to “lay too much stress on that word ‘environment.’”⁹⁶ Even the noted neo-Lamarckian Luther Burbank argued that heredity was “ten thousand times more important and effective” than the environment in driving evolutionary change.⁹⁷ The “mainline” eugenicists of the 1920s began separating themselves from eugenicists like John Harvey Kellogg by removing eugenics interventions from their programs of social reform.

Nevertheless, the rift between advocates of race betterment, which included environmental or hygienic reforms that helped the unfit to live long enough to have children of their own and eugenicists who rejected such efforts, was more imagined than real. By 1916, social reformers in the state agreed with eugenicists that the feeble-minded presented a threat to the social order, and they should severely reduce their propagation. In March of that year, the Associated Charities of Detroit started a “sweeping campaign against the ever-increasing menace of feeble-mindedness in the city and surrounding territory.” They called for greater institutional space to segregate the feeble-minded and to expand measures to detect their presence in the community before they reach sexual maturity.⁹⁸ Women’s clubs throughout the state organized Better Baby Contests in several

⁹⁴ Morgan et al., *The Mechanism of Mendelian Heredity*, 5–6.

⁹⁵ Cooke, “The Limits of Heredity,” 277.

⁹⁶ Popenoe, “Natural Selection in Man,” 56.

⁹⁷ Luther Burbank, “Evolution and Variation with the Fundamental Significance of Sex,” in *Official Proceedings of the Second National Conference on Race Betterment* (Second National Conference on Race Betterment, San Francisco, CA: Race Betterment Foundation, 1915), 50.

⁹⁸ “Open Campaign on Feeble-Minded: Associated Charities Begin Sweeping Fight Against Detroit Menace,” *Detroit Free Press*, March 4, 1916, 5.

counties throughout 1916 and 1917, the former designated “Baby Year.”⁹⁹ They held contests at settlement houses to encourage greater Americanization among immigrant women, as well as guest lectures from John Harvey Kellogg and others on the importance of eugenics and scientific motherhood to improve the care of infants.¹⁰⁰

Otto Glaser and the Eugenics Department of *Good Health* Magazine

Despite the supposed emergence of a chasm between Kellogg’s race betterment program and Mendelian eugenicists, within a year of the second Race Betterment Conference, Kellogg hired the Mendelian biologist Otto Glaser to write monthly articles on eugenics for his *Good Health* magazine. While the doctor often wrote on the subject himself throughout the 1910s, starting in 1916 its content often reflected that of mainline eugenics. Mirroring Dr. Kellogg’s own holistic approach to race betterment, under his editorship *Good Health* magazine contained information on a variety of topics that promoted both individual and racial hygiene to the public. Alongside articles espousing eugenics were those educating readers on proper diet, pasteurized milk, and vaccinations. Ella Eaton Kellogg, John Harvey’s wife, contributed monthly articles on home hygiene and childcare, while physical educators wrote articles for the section on exercise.¹⁰¹ Much like the doctor’s understanding of race betterment, his conceptualization of good health incorporated several ideas, eugenics being only one part of a greater whole.

In the early 1910s, as Kellogg himself publicly advocated eugenics, he authored many of the articles in the magazine on this topic. This included much of the same points he made in public lectures, namely, that there was mounting evidence that humans were degenerating, due primarily

⁹⁹ “The New Style Baby Show,” *Public Health*, March 1916, 176.

¹⁰⁰ “Corresponding Secretary’s Report of Outside Work Done by the Clubs of the Michigan State Federation of Women’s Clubs for the Year Ending October 1 1917,” in *Twenty-Third Annual Convention of the Michigan State Federation of Women’s Clubs* (Detroit, MI: Pohl Printing Co., 1917), 2–23.

¹⁰¹ Leo Tolstoy’s daughter, Tatiana Souheline, said that she read Mrs. Kellogg’s “Mother’s Number” section “very carefully” to help her raise her child. Tatiana Souheline to Doctor John Harvey Kellogg, November 16, 1907, Box 1, Folder 2, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan.

to what he called “unbiologic living” from consuming alcohol, eating poorly, and contracting venereal diseases.¹⁰² However, Kellogg also informed readers of other eugenicists’ works. For instance, in reviewing Henry Goddard’s infamous *The Kallikak Family*, mentioned in the previous chapter, Kellogg wrote that it was “convincing proof . . . that eugenics must go hand in hand with euthenics, and that greater safeguards must be thrown about the rearing of our future citizens.”¹⁰³ He entered entire sections of articles from research linking feeble-mindedness and insanity to crime and alcoholism.¹⁰⁴ Kellogg likewise wanted the readers of *Good Health* informed on the ways Michiganders could apply eugenics by outlining recently enacted legislation in other states.¹⁰⁵

In October 1916, Dr. Kellogg created the Department of Eugenics for *Good Health* magazine and appointed Dr. Otto C. Glaser, professor of biology at the University of Michigan and secretary of the Eugenics Registry of the Race Betterment Foundation, as its first editor.¹⁰⁶ As a biologist, Glaser was much more of a Mendelian than Kellogg and stated in his first article as editor that his goal was “to set forth as clearly and simply as possible the rules of succession in natural inheritance,” noting that these rules were “simple and exact.”¹⁰⁷ Many of his articles in his few years in the position educated the public on the state of genetics research. These included explanations of Mendelian inheritance, the chromosomes as the physical basis of genes, and how certain traits are sex-linked characters.¹⁰⁸

¹⁰² John Harvey Kellogg, “Unbiologic Living,” *Good Health*, January 1918, 22–26.

¹⁰³ John Harvey Kellogg, “Review: The Kallikak Family,” *Good Health*, March 1913, 167; Rafter notes that Goddard’s Kallikak study was “the all-time best-seller among family studies.” Rafter, *White Trash*, 74.

¹⁰⁴ John Harvey Kellogg, “An Eminent Neurologist on Race Degeneracy,” *Good Health*, June 1913, 287–90.

¹⁰⁵ John Harvey Kellogg, “An Extension of Eugenic Practice,” *Good Health*, April 1913, 26–28.

¹⁰⁶ “Entirely New Departments,” *Good Health*, October 1916, 549.

¹⁰⁷ Otto Glaser, “The Art of Eugenics,” *Good Health*, October 1916, 534.

¹⁰⁸ Otto Glaser, “The Unit Rule of Heredity,” *Good Health*, November 1916, 591–93; Otto Glaser, “The Physical Basis of Heredity,” *Good Health*, June 1917, 269–74; Otto Glaser, “Sex-Linked Inheritance,” *Good Health*, August 1917, 383–88.

As editor of the Eugenics Department, Glaser—as well as those who succeeded him—helped to construct a lay understanding of heredity and eugenics through articles designed for a popular audience. Each month’s issue contained a section on “Assets and Liabilities,” with the purpose of showing “the frequency with which individuals exhibit, in combination, traits found, either separately or in similar combinations, in their ancestors.”¹⁰⁹ The magazine also had the “Forum” section, where the editor often reviewed or directly quoted other eugenicists’ work. The twin purposes were to explain genetics in a way that a general audience would comprehend and to pique readers’ interest in heredity, with the goal that individuals would start examining their own family histories.

Glaser also included readers by publishing select letters in the magazine written to the Eugenics Department. Readers expressed interest in topics such as the possible inheritance of diseases, as well as how gifts, peculiarities, or traits like intelligence were inherited, which Glaser answered affirmatively.¹¹⁰ According to other popular writers of eugenics at the time, the public was mostly curious about the inheritance of particular characteristics, along with questions on whether a particular marriage was suitable or not.¹¹¹ One letter Glaser received was from an original member of John Humphrey Noyes’ Oneida Community, a nineteenth-century free-love group from New York that participated in the proto-eugenic practice of stirpiculture.¹¹² Clearly, many readers of *Good Health* were interested in genetics and eugenics at the time Glaser was hired.

¹⁰⁹ Otto Glaser, “Mail Box,” *Good Health*, July 1918, 405.

¹¹⁰ Glaser, “Sex-Linked Inheritance,” 388; Otto Glaser, “Questions and Answers,” *Good Health*, February 1918, 98; Glaser, “Mail Box,” July 1918, 405.

¹¹¹ W. A. Evans, “The Newspaper—The Most Effective Agent for Adult Education,” in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 659.

¹¹² The writer noted that Glaser discussed the Oneida Community as being “the only place in the world where Eugenic theories had been tried out in practice” during one of his lectures at the University of Michigan. Otto Glaser, “Mail Box,” *Good Health*, August 1918, 466; Stirpiculture was the first attempt at a “scientific propagation of the race.” However, it is typically regarded as proto-eugenic, rather than eugenic, because of its religious overtones. Stirpiculture tried to integrate ideas of better breeding into Christianity, eugenics tried creating a secular religion based on those

Aside from educating the readers of *Good Health* on the basics of Mendelian heredity, Glaser also connected genetics and eugenics to contemporary social and political issues. Although nativist ideas were not new, during World War I while Glaser was writing for the magazine, many Americans combined this sentiment with nationalist fervor.¹¹³ Eugenicists such as Charles Davenport were already suggesting restricting immigration to only those individuals with good heredity, but it was during World War I and in the early-1920's when such ideas gained greater acceptance.¹¹⁴ In 1917, for example, Glaser detailed the new law in Argentina attempting to limit the immigration of defectives into the country. While stating that it was a good start to immigration restriction, Glaser argued that for similar legislation in the United States to be truly effective, it must “look a generation ahead” in order to “prevent the addition of undesirables to our population through immigration.” He suggested that the Federal Commission on Immigration should be “augmented by an advisory board of scientists” trained in predicting traits of future generations in order to recommend legislation to “control the sort of human stock which we may safely allow to enter our country with a view to preventing, as much as possible, the pollution of the already existing stock.”¹¹⁵ The following year, Glaser continued to write about immigration. Borrowing elements from progressive economists' theory of race suicide, Glaser reasoned that, despite the growing population of the United States, much of this population growth was the result of the immigration of “the castaways of Southern Europe” as well as the “most complete system of mongrelization which the world has ever seen.”¹¹⁶

same ideas. Victoria C. Woodhull, “Stirpiculture; or, the Scientific Propagation of the Human Race,” in *Selected Writings of Victoria Woodhull: Suffrage, Free Love, and Eugenics*, ed. Cari M. Carpenter (Lincoln: University of Nebraska Press, 2010), 275.

¹¹³ John Higham, *Strangers in the Land: Patterns of American Nativism, 1860-1925*, Second paperback printing (New Brunswick, NJ: Rutgers University Press, 1992), 194–95.

¹¹⁴ Davenport, *Heredity in Relation to Eugenics*, 221–24; Higham, *Strangers in the Land*, 271–86.

¹¹⁵ Otto Glaser, “Argentine Republic Controls Immigration,” *Good Health*, January 1917, 28–29.

¹¹⁶ Edward Alsworth Ross, *The Old World in the New: The Significance of Past and Present Immigration to the American People* (New York: The Century Co., 1914), 22–23; Otto Glaser, “Uncle Sam as a Parent,” *Good Health*,

Beyond immigration, Glaser also wrote about the social implications of feeble-mindedness. Following the work of eugenicists throughout the decade, Glaser stated that the hereditary nature of feeble-mindedness was “one of the established facts of science.” After detailing how feeble-mindedness was inherited as a Mendelian recessive, Glaser then argued that it was also the cause of most of the social ills plaguing the country, from prostitution and alcoholism to the increasing population of penitentiaries and mental institutions.¹¹⁷ Glaser further suggested that feeble-minded individuals were responsible for “a great many” of the 8,000 murders per year in the United States.¹¹⁸

Reynold A. Spaeth

Beginning with the January 1919 issue, Dr. Reynold A. Spaeth, an associate professor of physiological hygiene at Johns Hopkins University, assumed the role as editor of the Eugenics Department for *Good Health* magazine. A scientific rationalist, Spaeth consistently suggested to readers that approaching social and political issues required “divesting ourselves of all personal tastes and of all sentimental, religious or political prejudices and approach the matter unemotionally.”¹¹⁹ To him, this largely meant applying the knowledge of eugenics to problems that emerged following the end of World War I. Spaeth claimed that eugenics was “one of the vital problems of reconstruction” and that the “devastation wrought by the war” highlighted “as never before a

July 1918, 400; For the connection between progressive economists and eugenics, particularly in regards to immigration, see Thomas C. Leonard, “Retrospectives: Eugenics and Economics in the Progressive Era,” *The Journal of Economic Perspectives* 19, no. 4 (Fall 2005): 207–24.

¹¹⁷ Otto Glaser, “Lessons from Feeble-Mindedness,” *Good Health*, May 1917, 218.

¹¹⁸ Otto Glaser, “New Deals,” *Good Health*, March 1917, 108.

¹¹⁹ The quote is from Reynold A. Spaeth, “The Inheritance of Alcoholism,” *Good Health*, May 1919, 274; Other examples include Reynold A. Spaeth, “Mendelism and Democracy,” *Good Health*, September 1919, 532; Reynold A. Spaeth, “Socialism and Evolution,” *Good Health*, June 1919, 347; Reynold A. Spaeth, “Sentiment versus Science,” *Good Health*, November 1919, 652–56; Spaeth’s conceptualization of objectivity parallels that identified by Lorraine Daston and Peter Galison starting in the nineteenth century, when scientists began constructing an image of the objective scientist who produces “knowledge unmarked by prejudice or skill, fantasy or judgment, wishing or striving.” Lorraine Daston and Peter Galison, *Objectivity*, 1. paperback ed (New York: Zone Books, 2010), 17.

fundamental distinction between social groups.”¹²⁰ His articles on how to apply eugenic principles to postwar reconstruction in Europe dealt with the supposedly incredible number of unfit Americans unearthed in draft examinations, and ameliorating the differential birthrate between upper- and lower-class couples that the war exacerbated.

For instance, Spaeth suggested that the situation in France, where the birthrate had been declining since 1800, required French women to marry and have children with French soldiers even if they were “battered remnants of their former selves, sightless, deaf, legless, armless, paralyzed and worse.”¹²¹ He reassured readers that, despite popular fears of children inheriting the wounds fathers suffered during the war, such acquired characteristics were not inherited.¹²² Spaeth also pushed for providing social welfare and care for illegitimate children in Germany and France, where the demographic situation was so bleak that “*all* children must for the present be considered as assets.” However, he did not believe the United States should enact such programs since the war had a much smaller effect on the population.¹²³ In Europe, the quantity of the population was more important than its quality; at home the situation was reversed.

Part of Spaeth’s concern over the quantity of the population in Europe was due, in part, to the emerging views of Madison Grant and Lothrop Stoddard’s nativist and racist brand of eugenics. Both Grant and Stoddard argued that, owing to lax immigration policies and the greater fecundity of people of color, the white race was on the verge of elimination by sheer numbers despite their genetic superiority. They attacked both the melting-pot idea of Americanization and the diminish-

¹²⁰ Reynold A. Spaeth, “The Positive Eugenics Program,” *Good Health*, July 1919, 393.

¹²¹ Reynold A. Spaeth, “Assets or Liabilities?,” *Good Health*, January 1919, 41; On French pronatalism between 1850-1950, see Maria Sophia Quine, *Population Politics in Twentieth-Century Europe: Fascist Dictatorships and Liberal Democracies*, Historical Connections (London: Routledge, 1996), 9–10, 53–85.

¹²² Reynold A. Spaeth, “Are Wounds Inherited?,” *Good Health*, February 1919; Reynold A. Spaeth, “Nature and Nurture,” *Good Health*, March 1919, 163–64.

¹²³ This was in reference to a Missouri law that required each county to appropriate funds to support needy mothers with dependent children, including those that were illegitimate. Emphasis in original. Reynold A. Spaeth, “Eugenic State Legislation,” *Good Health*, March 1919, 162–63.

ing birthrates of white Americans resulting in race suicide.¹²⁴ Their work was not limited to the fringes either. Grant's *The Passing of the Great Race* went through thirteen printings and four editions in the twenty years after it was first published in 1916, and Stoddard's *The Rising Tide of Color against White Supremacy* received positive reviews in the press.¹²⁵ Spaeth agreed with them, stating that although "everywhere the white race dominates in civilization the yellow and black races," it nevertheless had to "hold its own numerically" to "maintain and expand its dominant position among competing races." Spaeth felt the war, which eugenicists believed killed off many of the genetically fit while also limiting their reproductive capacity by sending them off as they entered adulthood, was an act of racial suicide.¹²⁶ He equated civilization and progress with control over nature and claimed that a lack of such control explained the "general backwardness" of India and the short lifespan of its inhabitants.¹²⁷ Spaeth also asserted that "the melting-pot idea cannot be expected to solve our problems so simply" and that postwar immigration would consist primarily of "undesirable elements." The only solution he believed feasible was "a temporary wholesale restriction of immigration." However, unlike Grant and Stoddard, who called for restrictionist policies on racial grounds, Spaeth's reasonings were economic. He maintained that the postwar economic recovery effort in Europe would absorb much of the labor market, leaving only the worst workers to immigrate to the United States.¹²⁸

Although he was not explicitly racist to southern and eastern Europeans, Spaeth shared the prejudices of many early twentieth century Americans towards African Americans. He argued that

¹²⁴ Madison Grant, *The Passing of the Great Race*, 4th ed. (New York: Scribner's, 1922); Lothrop Stoddard, *The Rising Tide of Color against White World-Supremacy* (New York: Blue Ribbon Books, 1920).

¹²⁵ Michael Kohlman, "Madison Grant Publishes *The Passing of the Great Race*," The Eugenics Archives, August 16, 2014, <http://eugenicsarchive.ca/discover/connections/53eea903803401daea000001>; Lee J. Smits, "Stoddard's Document Thought-Compelling," *Detroit Free Press*, July 2, 1922; Grant's book was also reviewed favorably in *Good Health* "The Physical Degeneracy of Modern Man," *Good Health*, January 1920, 25.

¹²⁶ Reynold A. Spaeth, "Can Western Civilization Survive?," *Good Health*, February 1919, 101–3.

¹²⁷ Reynold A. Spaeth, "A Test for Civilization," *Good Health*, January 1919, 40.

¹²⁸ Reynold A. Spaeth, "Wanted: A Sane Immigration Policy," *Good Health*, January 1920, 26–31.

racial tensions between white and African Americans were due to their biological dissimilarities, citing the difference between African and American civilizations. Moreover, Spaeth claimed that miscegenation between the two races resulted in “a loss for the white race” and that all mixed offspring are classified as black because “of the peculiar dominance of the negro characteristics.”¹²⁹ His opinions towards indigenous peoples in North and South America, however, were more complicated. For instance, Spaeth suggested that the only thing that separated “civilized white man and the primitive Indian” was “clothes and soap.” He thought the customs of the Caingang tribe of Brazil compared “very favorably with those of peoples who pride themselves on their high civilization,” especially their eugenic practice of “classifying their children at an early age to their future matrimonial possibilities.”¹³⁰ Yet he also approved of the Director of the London, Ontario Institute of Public Health Hibbert Hill’s analogy that vaccines worked against disease the same way white Americans killed buffalo to decimate American Indians (i.e., they both effectively reduced a “problem” by killing off the food supply), though Hill never made any such claims.¹³¹ Although he discussed race and its eugenic significance, Spaeth was primarily interested in its application to white Americans.

Spaeth’s concern for the quality of the population domestically was partly due to the findings of the army intelligence tests on military draftees. In the immediate aftermath of the war, as these findings were publicized and before they received critical scrutiny, the tests suggested that the average mental age of Americans was only 13 years old.¹³² Like many eugenicists and geneti-

¹²⁹ Reynold A. Spaeth, “Eugenic Aspects of the Negro,” *Good Health*, October 1919, 590–93.

¹³⁰ Reynold A. Spaeth, “Eugenics in the Jungle,” *Good Health*, July 1919, 398–99.

¹³¹ Hill stated that humans should work to kill off germs much like Americans killed off the buffalo, but he made no connection between that and the decimation of Indian populations. Hibbert Winslow Hill, *The New Public Health* (New York: The Macmillan company, 1919), 163–64; Reynold A. Spaeth, “Treat ’Em Rough,” *Good Health*, June 1919, 349.

¹³² Edgar A. Doll, “The Average Mental Age of Adults,” *Journal of Applied Psychology* 3, no. 4 (December 1919): 319–20, <https://doi.org/10.1037/h0070258>; Kellogg, “Practical Eugenics,” 3.

cists at the time, Spaeth believed feeble-mindedness was a Mendelian recessive trait.¹³³ Spaeth quoted Edgar Doll's tables indicating that 25% of army draftees were of inferior intelligence, while stating that the "army contains at least 100,000 men below a mental age of ten." Moreover, he claimed that the individuals' scores on these tests revealed their mental capacity and that education "holds out little hope of improving the mental caliber of the 40 per cent below average intelligence." Spaeth intimated that "Uncle Sam has a chance to step in and do some much-needed weeding of his great garden" by segregating those who scored in the bottom 10% on the intelligence tests.¹³⁴ Along with this apparent mental degeneracy was the Surgeon General's report that alleged that one-third of the draftees, or 2,500,000 individuals, were unfit for military service, which Spaeth considered proof of the physical degeneracy happening in the country.¹³⁵ Compared to the other editors of the Eugenics Department at *Good Health*, Spaeth was the most supportive of main-line eugenic policies.

Like his predecessor Glaser, Spaeth incorporated new findings in genetics and eugenics research into his articles. Over two issues, he detailed several experiments attempting to determine the inheritance of alcoholism in small animals. He suggested that the theory of blastophthoria, discussed in Chapter 2, mixed the causative links between degeneracy and alcoholism. Rather than alcoholism leading to inherited degeneracy, he suggested that alcoholism was indicative of a "defective mental constitution."¹³⁶ Spaeth also criticized the theory of maternal impressions, which claimed that a pregnant woman's emotions or experiences resulted in disabilities, peculiar emo-

¹³³ Reynold A. Spaeth, "Mendelian Inheritance," *Good Health*, April 1919, 225; Degler, *In Search of Human Nature*, 40–41.

¹³⁴ The tables have those with "low average," "inferior," and "very inferior intelligence" constituting 45% of the draftees. Spaeth arrives at the figure of 40% by granting an additional 5% for commissioned soldiers who he presumed would be of superior intelligence. Reynold A. Spaeth, "Army Intelligence Tests," *Good Health*, January 1919, 38.

¹³⁵ Reynold A. Spaeth, "Fifteen Million Unfit," *Good Health*, August 1919, 468.

¹³⁶ Reynold A. Spaeth, "The Inheritance of Alcoholism," *Good Health*, April 1919; Spaeth, "The Inheritance of Alcoholism," May 1919, 277–78.

tions or behaviors, birthmarks, or allergies.¹³⁷ Following what was known at the time about intra-uterine transmission, Spaeth argued that the only thing that affected an embryo was the nourishment it received through blood vessels connected to the fetus. When a reader asked about the birth of “monsters,” he asserted that it was the result of an improper implantation of the ovum in the womb.¹³⁸ Spaeth, too, rejected neo-Lamarckian inheritance as Mendelian genetics continued its ascendancy.¹³⁹

Spaeth’s work as editor of the Eugenics Department ended in March 1920. For the next six months, *Good Health* magazine had Gertrude Davenport—Charles Davenport’s wife, who pursued a graduate degree in zoology at Radcliffe College—Roswell Johnson, and Harvey Earnest Jordan of Virginia University provided articles. Gertrude Davenport, an accomplished zoologist in her own right, publicized Edwin Carlton MacDowell’s experiments on alcohol in mice to argue that alcoholism did have a blastophthoric and hereditary effect. She also quoted her husband’s work on physical and mental defects among military draftees and pushed for eugenic measures to ensure the next generation of children were better prepared for military service.¹⁴⁰ Johnson wrote an article explaining his vision for a comprehensive eugenic program in the United States—which included segregating defectives until they “die out” and increasing marriages and children among the upper class—and an article on the origination of the notoriously racist Galton Society.¹⁴¹ Jordan, meanwhile, wrote two articles on the prevailing knowledge of human genetics and its

¹³⁷ Karen Weingarten, “From Maternal Impressions to Eugenics: Pregnancy and Inheritance in the Nineteenth-Century U.S.,” *Journal of Medical Humanities*, October 24, 2020, <https://doi.org/10.1007/s10912-020-09667-x>.

¹³⁸ Reynold A. Spaeth, “The Bogey of Pre-Natal Influence,” *Good Health*, August 1919, 466–68; Reynold A. Spaeth, “Myths and Monsters—an Attempt to Clear up a Misunderstanding,” *Good Health*, December 1919, 715–17.

¹³⁹ Spaeth, “Mendelism and Democracy.”

¹⁴⁰ Gertrude C. Davenport, “Does Alcohol Affect the Germ Cells?,” *Good Health*, April 1920, 212–14; Gertrude C. Davenport, “Defects Found in Drafted Men,” *Good Health*, May 1920, 283–90.

¹⁴¹ Roswell Hill Johnson, “The Eugenic Program,” *Good Health*, June 1920, 350–55; Roswell Hill Johnson, “The Galton Society for the Study of the Origin and Evolution of Man,” *Good Health*, June 1920, 355; For more on the Galton Society, see Barkan, *The Retreat of Scientific Racism*, 67.

potential social applications. While he admitted that “only relatively few human traits have been clearly demonstrated to follow strictly mendelian laws of inheritance,” he urged restrictions on the reproduction of individuals with supposedly demonstrably inherited traits, like the susceptibility to tuberculosis and feeble-mindedness.¹⁴²

Wilhelmine Key and Marriage Selection

The next editor of *Good Health* magazine’s eugenics department was Dr. Wilhelmine E. Key, who previously conducted a eugenics survey to determine the feeble-minded population in Polk, Pennsylvania.¹⁴³ Key’s investigation in Pennsylvania was part of her field work after graduating from Davenport and Laughlin’s Eugenics Record Office. Kenneth Ludmerer notes that she stood in stark contrast to most other field workers as a person “of sound critical judgment.” As a professor of biology at Lombard College in Illinois, she taught the young Sewall Wright and helped start his career in population genetics.¹⁴⁴ Thus, compared to Kellogg or other authors on the subject, she was well versed in the latest findings in genetics, but could also write on these subjects in a way that the public reader could understand. However, she also considered complex behaviors like conscientiousness and mathematical ability to be inherited traits that ran in families. In one of her early articles for *Good Health*, Key publicized Charles Davenport’s claims that thalassophilia, or a love of the sea, was a sex-linked trait passed on to men through their mothers.¹⁴⁵

¹⁴² Harvey Earnest Jordan, “Eugenics: Its Scientific Foundations and a Few of Its Social Implications,” *Good Health*, July 1920, 408–13; Harvey Earnest Jordan, “Eugenics: Its Scientific Foundations and a Few of Its Social Implications,” *Good Health*, August 1920, 476–80.

¹⁴³ Wilhelmine E. Key, “Feeble-Minded Citizens in Pennsylvania,” Survey (Philadelphia, PA: The Public Charities Association of Pennsylvania, 1915).

¹⁴⁴ Ludmerer obtained this information through correspondence with Sewall Wright. Ludmerer, *Genetics and American Society*, 59 n.43; Dorothy Bix maintains that, contrary to the interpretations put forth by Ludmerer and other historians, the eugenic field workers were rather critical of some of the data-collection methods taught at the Eugenics Record Office. Bix, “Experiences and Voices of Eugenics Field-Workers.”

¹⁴⁵ Wilhelmine E. Key, “Mothers of Eminent Men,” *Good Health*, September 1920, 541.

In contrast to the previous editors of *Good Health*, Key provided readers with less technical explanations of the implications of eugenics. Key particularly stressed the value of genealogical studies in both eugenics research and education. In contrast, Glaser gave no detailed family histories, while Spaeth only did so to suggest that inbreeding may be beneficial if the family line was completely free of defects.¹⁴⁶ For Key, however, family histories were the basis of producing knowledge on human genetics, the foundation for applied eugenics, and a way of increasing the public's interest in their hereditary backgrounds. In 1921, she argued that "the time is ripe for stimulating enthusiastic interest in one's family and for painstaking analysis of the same with a view to tracing the many types of socially worthy persons which have resulted from the crossing of able lines."¹⁴⁷

Following Frederick Adams Woods's Whiggish and biological histories of countries, in which the inherited mental and personality traits of "great men" influenced the history of nations, many of Key's contributions in the magazine included eugenic interpretations of the country's founding fathers through an examination of their family lineage.¹⁴⁸ In her first article as editor, she detailed her evolutionary and eugenic view of history. According to Key, the harsh environment of the early European settlers left only the most fit to survive. From the intermarriages of these survivors arose such prominent families as the Adams and Edwards in New England, or the Lees and Randolphs in Virginia.¹⁴⁹ She explained to readers how figures like Alexander Hamilton, Thomas Jefferson, Benjamin Franklin, and Chief Justice John Marshall were so prominent in American history because of the traits they inherited from their ancestors alongside the unique

¹⁴⁶ See Spaeth's comparison of the Caesar line, which had the neurotic taint, with the Ptolemaic dynasty, which was free of hereditary defects. Reynold A. Spaeth, "The Defective Germ Plasm of the Caesars," *Good Health*, September 1919, 532–34; Reynold A. Spaeth, "Inbreeding in the Ptolemaic Dynasty," *Good Health*, October 1919, 593–95.

¹⁴⁷ Wilhelmine E. Key, "The Eugenic Outlook for 1921," *Good Health*, January 1921, 30.

¹⁴⁸ For example, see Woods, *Mental and Moral Heredity in Royalty*; Frederick Adams Woods, *The Influence of Monarchs* (New York: The MacMillan Company, 1913), 240–79.

¹⁴⁹ Wilhelmine E. Key, "A Biologic View of American History," *Good Health*, September 1920, 538.

environmental conditions of forming a new, democratic country.¹⁵⁰ In this framework, traits such as “rugged sincerity, a huge capacity for work, facility for literary expression,” as well as “keen insight into a complicated political situation and indomitable will in carrying through a line of action” were, according to Key, inherited characteristics that elucidate the influence of Samuel, John, and John Quincy Adams.¹⁵¹ “Virile off-shoots” of these lines then moved out west, and the continual marriages between such able lines resulted in the strengthening of “the dominant tendencies of the pioneer type,” which established certain national ideals, explained American continental expansion, and developed a peculiarly American character and temperament.¹⁵² It also helped to explain why, for example, so many of the nation’s leaders by that time came from Ohio, where “some of the finest and sturdiest offshoots of the old colonial families” were located in an area containing a “wealth of natural resources” that produced such eminent men.¹⁵³

Although family history studies were always a key component of eugenics research, Dr. Wilhelmine Key’s genealogical examinations differed from most of her contemporaries.¹⁵⁴ Whereas Arthur Estabrook’s updated study of the Jukes and Henry Goddard’s research on the Kallikaks focused on degenerate family lines—thus emphasizing the importance of segregation and sterilization of the unfit—Key’s work on the “Rufer” family in Pennsylvania stressed the importance of proper selection in marriage partners. Tracing five separate family branches from a “normal” father and feebleminded mother, Key argued that descendants from three branches who “married up” with better stocks successfully removed hereditary taints such as a lack of “planfulness, perseverance and ability with number,” while the other two branches that married into

¹⁵⁰ Wilhelmine E. Key, “Molders of the Republic: Hamilton and Jefferson,” *Good Health*, June 1921, 255–59; Wilhelmine E. Key, “Molders of the Republic: Benjamin Franklin,” *Good Health*, April 1921, 159–63; Wilhelmine E. Key, “Moulders of the Republic: John Marshall,” *Good Health*, February 1922, 69–70.

¹⁵¹ Wilhelmine E. Key, “Molders of the Republic: The Adams Family,” *Good Health*, April 1922, 165.

¹⁵² Key, “A Biologic View of American History,” 538.

¹⁵³ Wilhelmine E. Key, “The Biological Factors in Political Leadership,” *Good Health*, November 1920, 661–62.

¹⁵⁴ For an overview of the importance of family studies to eugenics, see Rafter, *White Trash*.

“strains showing similar lack” failed to develop these traits and remained socially inadequate.¹⁵⁵ Thus, Key contended that, except for exceptionally degenerate families, blood lines could “move up or down in accordance with the type of marriage made.”¹⁵⁶ Through these and other articles, Key emphasized to readers the importance of keeping accurate and detailed family histories, so that one can discover “the innate qualities of the family” as well as “inculcate proper regard for the future family fortunes” through proper marriage selections.¹⁵⁷

To Key, having proper family histories was necessary for another reason, namely, that recent genealogy and inheritance was vastly more important than what one obtained from ancestors long ago. For instance, she criticized the large number of people who claimed descent from Isabel de Vermandois, the daughter of Hugh the Great who commanded French pilgrims in the First Crusade. Despite the likes of John D. Rockefeller, J. Pierpont Morgan, seven American presidents, and contemporaries such as Charles Eliot and David Starr Jordan alleging an ancestral connection, Key argued that this was only because “half the citizens of this country who lay claim to British ancestry” could in one way or another mark her as an ancestor. Through the splitting and recombination of chromosomes in successive generations, she calculated that the chance that an early twentieth century American had a similar genetic makeup to de Vermandois was less than 1 in 17 billion. Key stated that marriage selection—in terms of removing undesirable traits by marrying people whose families excelled in areas where one’s own family was deficient or emphasizing good phenotypes by marrying families with similar proficiencies—was far more important than a notable ancestry from a distant past.¹⁵⁸ Much like those who criticized dog breeders hyper-select-

¹⁵⁵ Wilhelmine E. Key, “Inheritance of Ability with Numbers,” *Good Health*, July 1921, 303–5; Wilhelmine E. Key, “Blood Has Told in This American Family,” *Good Health*, May 1921, 205–8; Wilhelmine E. Key, “Heritable Factors in Human Fitness and Their Social Control,” *Good Health*, November 1921, 474.

¹⁵⁶ Wilhelmine E. Key, “The Measure of Environmental Influence,” *Good Health*, December 1922, 534.

¹⁵⁷ Wilhelmine E. Key, “The Eugenic Uses of Genealogy,” *Good Health*, February 1923, 72.

¹⁵⁸ Wilhelmine E. Key, “A Famous Ancestress,” *Good Health*, March 1921, 115–17.

ing for specific traits through genetic homogeneity over heterogeneity, she deplored the creation of “deeply inbred” populations that proliferated feeble-mindedness and pauperism and believed proper marriage selection offered a solution.¹⁵⁹ Those who were poor in a particular ability, such as mathematical aptitude, could marry individuals from families who have that skill: she alleged that “the increase in the percentage of medium and high grades in their children is proportionate to the grade of the abler parent.”¹⁶⁰ She firmly believed that increased genetic heterogeneity would increase the number of “good strains” in the population.¹⁶¹ Key continually stressed in *Good Health* the importance of choosing a proper partner, according to current ideas in genetics, to produce compatible and beneficial progeny for the future.

Unlike many eugenicists in the 1920s, who continued to claim that temperamental and behavioral traits were simply the result of either a single Mendelian gene or of potentially polyhybrid inheritance, Key incorporated findings from different fields—in particular, biochemical studies on hormone distribution and regulation—to explain behavioral differences among individuals and groups of people. Her interest in this aspect of heredity may have originated from a speech given by Dr. Lewellys F. Barker of Johns Hopkins University at the Eugenics Research Association meeting in 1922, which she quoted at length in *Good Health*. Key believed that Barker’s explanation provided a way to differentiate between the inheritance and the development of an individual, and to continue to apply Mendelian theory to the study of human traits, without reverting back to neo-Lamarckian doctrines.¹⁶² A month later, she reiterated that biochemistry proved a fruitful field for future analysis of hereditary factors, arguing that it was already “supplementing

¹⁵⁹ Wilhelmine E. Key, “Isolation and Family Defect,” *Good Health*, June 1923, 249–50; William T. Lynch, review of *The Victorian invention of dog breeds: The invention of the modern dog: breed and blood in Victorian Britain*, by Michael Worboys, Julie-Marie Strange, and Neil Pemberton, *Metascience* 29, no. 3 (November 2020): 509–10, <https://doi.org/10.1007/s11016-020-00576-2>.

¹⁶⁰ Key, “Inheritance of Ability with Numbers,” 304.

¹⁶¹ Key, “Molders of the Republic: Benjamin Franklin,” 121.

¹⁶² Wilhelmine E. Key, “Heredity and the Endocrine Glands,” *Good Health*, September 1922, 393–96.

our ideas of the physical basis of heredity and promises to clear up many matters that have long remained a mystery.”¹⁶³ While she pursued potential explanations to human behavior through biochemical processes in the endocrine system, Key refused to be dogmatic about their means to explain *all* human behavior. For instance, she criticized Dr. Louis Berman’s work, which suggested that chemicals within the body determined one’s emotions, reactions, and instincts. Nevertheless, she agreed with him that a more complete understanding of the relationship between hormonal balances within the body and temperament or disposition might prove useful for obtaining eugenic marriages.¹⁶⁴

Mixed with detailed analyses of new arguments such as those in biochemistry were familiar tropes common in contemporary eugenic literature. For instance, Key told readers in 1922 that industrialization, urbanization, and the collapse of the western frontier worked to “deteriorate the quality of the expanding people,” claims that Kellogg and other degenerationists had made almost thirty years before.¹⁶⁵ Following the work of race suicide theorists, Key provided birth and death rates in the United States and Europe, demonstrating that southern and eastern Europeans were repopulating themselves after World War I faster than western and northern Europeans.¹⁶⁶ She quoted Harry Olson, Chief Justice of the Municipal Court of Chicago, at length, who argued that 84% of juvenile boys entering his court suffered from dementia praecox and should be segregated from society as early as possible.¹⁶⁷ Like the editors before her, Key thus incorporated new findings

¹⁶³ Wilhelmine E. Key, “The Chemistry of Human Development,” *Good Health*, October 1922, 440, Box 7, Folder 1, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan.

¹⁶⁴ Wilhelmine E. Key, “The Glands Regulating Personality,” *Good Health*, March 1922, 118–21.

¹⁶⁵ Wilhelmine E. Key, “The Trend of the Race,” *Good Health*, June 1922, 259.

¹⁶⁶ Wilhelmine E. Key, “Fewer Births in the United States,” *Good Health*, July 1922, 300; Wilhelmine E. Key, “Civilian Birth and Death Rates in Europe,” *Good Health*, November 1922, 491–92; Wilhelmine E. Key, “The Falling Birth-Rate for France,” *Good Health*, March 1923, 119.

¹⁶⁷ Wilhelmine E. Key, “Crime and Heredity,” *Good Health*, May 1923, 209.

as they fitted within the eugenic program, while emphasizing several elements that eugenicists like Davenport and Laughlin agreed with.

The Third Race Betterment Conference

Despite Kellogg's peculiar brand of race betterment, which included both eugenic and euthenic reforms to improve the environment of the present generation and the heredity of future generations, he remained an important figure in the eugenics movement well into the 1920s. The third (and final) National Conference on Race Betterment was held at Battle Creek from January 2-6, 1928. Although Kellogg wanted to make the conferences annual events, the American entry into World War I and Kellogg's ailing health during the early-1920s prevented this.¹⁶⁸ Like the previous two, its purpose was "to bring together a group of leading scientists, educators and others for the purpose of discussing ways and means of applying science to human living" with a particular emphasis on "the promotion of life, increased efficiency and well-being and of race improvement."¹⁶⁹

The third conference, like its predecessors, was a curious mix of eugenics and hygiene. Alongside sections on "Heredity and Eugenics" and "Crime and Sterilization" were sections on "Factors in Living Long," "Nutrition," and "The Physics and Therapeutic Uses of Sunlight."¹⁷⁰ Clarence Cook Little organized the conference and speakers included eugenicists such as Charles Davenport, Paul Popenoe, and the physical anthropologist Ales Hrdlicka, health reformers such as Detroit Commissioner of Health (and Victor Vaughan's son) Henry F. Vaughan, Eastman Kodak's medical director Dr. William Sawyer, and Walter Brunet of the American Social Hygiene Associ-

¹⁶⁸ Schwarz, *John Harvey Kellogg, M.D.*, 210.

¹⁶⁹ *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Battle Creek, MI: Race Betterment Foundation, 1928), ii.

¹⁷⁰ For all the sections of the conference, see the table of contents. *Proceedings of the Third Race Betterment Conference, January 2-6, 1928*, iii–xix.

ation. University of Michigan's football coach Fielding Yost even participated, giving a talk on "Man Building." Henry and Clara Bryant Ford attended and organized an "Old American Party" at the Sanitarium Union, which brought in roughly 2,500 people for "old-fashioned dancing."¹⁷¹

The third Race Betterment Conference represents a curiously public display of the transition in ideas that illustrate Daniel Kevles's influential thesis on "mainline" and "reform" eugenics. Mainline eugenicists in the United States in the first three decades of the 20th century adhered to certain "dominant attitudes." These included the idea that the production of superior or inferior traits in the population were the result of single-gene inheritance, the proliferation of the lower classes deteriorated the economic and social conditions of the country, and a woman's duty—especially those from middle- and upper-class backgrounds—was in the home.¹⁷² A "reformed" eugenics, Kevles suggests, emerged in the 1930s as geneticists refuted the idea that characteristics such as intelligence or social behavior were inherited as single genes while anthropological and genetic advances simultaneously discredited claims of genetic superiority according to race or class. These reform eugenicists, while rejecting the previous social and racial biases of their predecessors, nevertheless believed that "genetic knowledge" could still aid in "human improvement."¹⁷³ Elements of the mainline doctrine remained, including nativist theories of the genetic inferiority of immigrants and the implementation of measures to restrict reproduction among the working class. At the same time, there was broad agreement, among both geneticists and reformers, that both heredity and environment were important in the betterment of the race.

¹⁷¹ Emily F. Robbins, "Report of the Executive Secretary," in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 740.

¹⁷² Kevles, *In the Name of Eugenics*, 88–89, 114, 145.

¹⁷³ Kevles, *In the Name of Eugenics*, 164–75.

Amid continuous debate over the implementation of the Johnson-Reed Immigration Act of 1924, delegates of the conference discussed the subject at length.¹⁷⁴ Edward Alsworth Ross, who coined the term “race suicide,” reiterated his theory that immigrants were replacing white Americans. However, whereas previous iterations of the theory credited higher birth rates among various ethnicities to lower standards of living, Ross now attributed this to the fact that immigrants rarely practiced birth control compared to western Europeans. Moreover, he differentiated between “low grade” immigrants, whose children born in the United States maintained large families, and the “high grade” immigrants, whose progeny became more Americanized and had smaller families.¹⁷⁵ Judge Harry Olson stated that the United States delayed immigration restriction for too long and, as a result, “a considerable amount of defective stock” had entered alongside the sturdier types.¹⁷⁶ Although Ales Hrdlicka noted that the assumption that American society was deteriorating because of inferior white races immigrating into the country was “pseudo-science,” he nonetheless warned of the dangers of “the colored stream” entering “into the body of the larger white group.”¹⁷⁷ MetLife statistician Louis Dublin discussed the history of immigration in the US, including how greater numbers of southern and eastern Europeans entered the country after 1880 and how the new immigration bill ended this influx, while insisting that more data was necessary for any con-

¹⁷⁴ The 1924 Johnson-Reed bill stipulated that until 1927, the immigration quota would be based on two percent of the foreign-born population of each country according to the 1890 census. Afterwards, quotas were to be based on “the whole white population of the United States, with due regard to the national origin of that population.” This, however, was postponed until 1929 amid debates around what was meant by “white population.” Roy L. Garis, “The Immigration Act of 1924,” in *Immigration Restriction: A Study of the Opposition to and Regulation of Immigration into the United States* (New York: The MacMillan Company, 1927), 169–202.

¹⁷⁵ Edward Alsworth Ross, “Who Outbreeds Whom?,” in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 81.

¹⁷⁶ Harry Olson, “The Menace of the Half-Man,” in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 139.

¹⁷⁷ Ales Hrdlicka, “Race Deterioration and Destruction with Special Reference to the American People,” in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 85.

clusions of its effect on national life.¹⁷⁸ US Representative Albert Johnson, co-author of the 1924 immigration law, defended the bill as he called for further legislation “for the Betterment of the American Race.”¹⁷⁹

Despite maintaining their nativist stance, eugenicists by this time recognized that human genetics was not as simple as initially supposed. They accepted that there was a distinction between genotype and phenotype—that is, between hereditary factors and external appearance—while admitting that the environment was an important factor in individual, and therefore national, development. Charles Davenport, in his lecture on longevity, acknowledged that both hereditary and environmental factors were crucial for living a long life.¹⁸⁰ The plant geneticist Edward Murray East called heredity and environment “collaborating artists” whose “finished product is the individual.”¹⁸¹ Dr. Oscar Riddle, a staff member of the Carnegie Institution of Washington’s Department of Genetics headed by Davenport, argued that recent findings necessitated a reconceptualization of heredity that incorporated embryonic and perinatal development. Thus, “controlling heredity” became an issue of both genes and their immediate surroundings.¹⁸² By the time of the conference, then, eugenicists had replaced their earlier claims of monogenic unit-characters for explanations entirely more complex and nuanced.

Even with an appreciation of the complexities of human genetics, however, many of the participants of the conference promoted sterilization as an effective eugenic measure to ensure the

¹⁷⁸ Louis I. Dublin, “The Evolution of the American Population,” in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 202–15.

¹⁷⁹ Albert Johnson, “The Menace of the Melting Pot Myth,” in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 201.

¹⁸⁰ Charles Benedict Davenport, “Heredity and Longevity,” in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 19.

¹⁸¹ Edward M. East, “The Genetic Basis of Eugenics,” in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 42.

¹⁸² Oscar Riddle, “The Control of Heredity,” in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 62–71.

unfit did not reproduce. East, despite granting a role for nature and nurture in human development and admitting it would not eliminate the trait in the population, claimed that 70% of all feeble-mindedness was hereditary, and every diagnosed individual should be segregated or sterilized.¹⁸³ Clark Higbee, probate judge of Kent County, Michigan, detailed Michigan's sterilization law and stated that his district had the largest sterilization rate in the country for the previous two years. Higbee believed that if intelligent people understood the laws of biology, they would approve of sterilization legislation.¹⁸⁴ Muskegon's probate judge Ruth Thompson told the audience stories of various individuals who came to the juvenile court due primarily to the faults of delinquent parents. She recalled a situation where she was glad to sterilize a mother deemed feeble-minded, whose seven children had all been sent to the Michigan Home and Training School in Lapeer.¹⁸⁵ H. E. Randall, president of the Michigan State Medical Society, admitted that sterilization was not a panacea but nevertheless contended that it was a "valuable procedure" for dealing with patients with feeble-minded relatives.¹⁸⁶ Paul Popenoe discussed the sterilization program in California, which had already begun its policy of briefly institutionalizing patients at state hospitals for the sole purpose of sterilization.¹⁸⁷ Henry Vaughan, who was never as committed to eugenics as his father, nevertheless suggested that "low grade morons should be desexed before they reach the reproduc-

¹⁸³ East, "The Genetic Basis of Eugenics," 47.

¹⁸⁴ Clark E. Higbee, "Sterilization Approved by Intelligent People of Every State," in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 180-81.

¹⁸⁵ Ruth Thompson, "The Delinquency of Parents," in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 185.

¹⁸⁶ H.E. Randall, "The Sterilization of Feeble Minded in Michigan," in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 178.

¹⁸⁷ Paul Popenoe, "Sterilization in California," in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 168-76.

tive stage.”¹⁸⁸ Even as geneticists criticized the practice, many professionals still accepted sterilization as a legitimate form of improving social conditions.

One of the goals of the conference, according to executive secretary Emily Robbins, was “to introduce the work of the scientist” to laymen and professionals alike.¹⁸⁹ Thus, like its earlier iterations, public education was a crucial component of the conference. Kellogg, ever the public promoter, ensured that twenty national press correspondents reported the events of the conference to newspapers across the country.¹⁹⁰ By this time, Better Baby Contests had evolved into Fitter Family Contests, with the American Eugenics Society (AES) assuming control in 1924 of operations and conducting them mostly at state fairs, including one in Detroit.¹⁹¹ Dr. Florence Brown Sherbon of the AES Committee on Popular Education and co-creator of the Fitter Family Contests organized the event for the conference in order “to promote race betterment in a practical way” and demonstrate “the value of the periodic health examination.”¹⁹²

Approximately 125 individuals from 30 families, all of whom were invited specifically for the purpose of the contest, participated in the roughly 3½ hour examinations. Conducted largely by the medical staff of the Battle Creek Sanitarium and faculty from Battle Creek College, the examinations included a genealogical report, dental exams, blood and urine analysis, and psychometric and psychiatric evaluations. Twenty-nine people received a badge as individual winners,

¹⁸⁸ Henry F. Vaughan, “A Better and Healthier Man,” in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 269.

¹⁸⁹ Emily F. Robbins, “Outline of Program of the Third Race Betterment Conference” (Battle Creek, MI, n.d.), 1, Box 13, Folder 21, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan.

¹⁹⁰ “Daily Bulletin of the Third Race Betterment Conference January 2 to 6, 1928” (Battle Creek, MI, January 3, 1928), Box 13, Folder 21, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan.

¹⁹¹ Florence Brown Sherbon, “Popular Education,” *Eugenics: A Journal of Race Betterment* 1, no. 1 (October 1928): 33.

¹⁹² “Daily Bulletin of the Third Race Betterment Conference January 2 to 6, 1928,” 3–4; For the transition from better baby to fitter family contests, see Steven Selden, “Transforming Better Babies into Fitter Families: Archival Resources and the History of the American Eugenics Movement, 1908-1930,” *Proceedings of the American Philosophical Society* 149, no. 2 (June 2005): 199–225; Laura L. Lovett, “‘Fitter Families for Future Firesides’: Florence Sherbon and Popular Eugenics,” *The Public Historian* 29, no. 3 (2007): 69–85, <https://doi.org/10.1525/tph.2007.29.3.69>.

given to those scoring a B or better in every exam. The three families with the highest average scores received bronze medals with the inscription “Yea, I have a goodly heritage.” Most individuals scored a B in the eugenics section, which Luther West, professor of biology and eugenics at Battle Creek College and co-organizer of the contest, inferred as proving that “a good, though not necessarily exceptional pedigree, is to be correlated with a reasonably successful career.”¹⁹³ Kellogg, in a speech to the award winners, stressed that they “stand a little higher in the scale of being than the average” and therefore “are entitled to special consideration and worthy of special care.”¹⁹⁴

After the contest, West proposed to move the Fitter Families research from the AES to the Race Betterment Foundation in Battle Creek. Seemingly aware of some of the dubious methods of data collection during the contest, they suggested a project to improve “our methods in measuring the fitness of individuals and families in their relation to society,” as well as “to establish a scientific foundation of what we mean by the ‘normal’ individual” in comparison to the “average” and “superior type.”¹⁹⁵ Some biases in the data included the difficulty among judges to award low scores on particular sections to individuals they considered locally prominent. For instance, if they gave a score less than an A in the psychiatry examination, the participants often demanded “a lengthy explanation.”¹⁹⁶ Examiners also failed to give + or – letter grades (e.g., B+ or B-), thus limiting the specificity of the data. West, attempting to demonstrate the normal distribution of scores—and thus traits—among adult male participants, eliminated the psychiatry scores while

¹⁹³ All the information on the contest used in this paragraph is provided in West’s paper at the conference. The quote is from Luther S. West, “The Practical Application of Eugenic Principles,” in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 106.

¹⁹⁴ John Harvey Kellogg, “The Responsibilities of Those Who Are Fit: An Address to the Prize-Winners in the Fitter Families Contest,” in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 118.

¹⁹⁵ West, “The Practical Application of Eugenic Principles,” 115–16.

¹⁹⁶ West, “The Practical Application of Eugenic Principles,” 106.

doubling the + and – grades. However, he failed to subtract a similar number of scores from the letter grades received, thus greatly increasing the total participants' scores.¹⁹⁷

In connection with the goals of the Eugenics Registry, West wished to use the data from Fitter Families Contests to investigate genetically superior families.¹⁹⁸ Sherbon believed that the Race Betterment Foundation “may be the scientific center” for Fitter Families research and could provide to eugenics “what scientific research and study have been to agriculture.”¹⁹⁹ However, aside from a Fitter Families Contest held in December 1928 in Hartland, Michigan as part of a local Health Week program, the Race Betterment Foundation did little else with Fitter Families Contests.²⁰⁰ This may have been, in part, due to a reduction in available funds on account of the Great Depression to continue this work. Furthermore, John Harvey Kellogg gradually spent more time in Miami, Florida, where he opened another sanitarium in 1930.²⁰¹ Finally, the AES was reluctant to lose one of its most popular means of public education, and so maintained control of the contests until 1931.²⁰²

Public Criticisms of Eugenics

Despite all these public education efforts from eugenicists', the public never fully accepted the tenets of eugenics, nor did they overlook critiques of eugenics. Although scientific criticisms of eugenics, especially those emerging from geneticists in the 1920s, often did not reach the public, there was still plenty of work designed for a mass audience that rebuked the idea of controlling

¹⁹⁷ The normally distributed graph is found at West, “The Practical Application of Eugenic Principles,” 105.

¹⁹⁸ Sherbon, “Popular Education,” October 1928, 35.

¹⁹⁹ Florence Brown Sherbon, “A Unique Experience,” in *Proceedings of the Third Race Betterment Conference, January 2-6, 1928* (Third Race Betterment Conference, Battle Creek, MI: Race Betterment Foundation, 1928), 121.

²⁰⁰ At the Hartland Health Week contest, 23 families and 9 single individuals participated. The winners were invited to a banquet for the Race Betterment Foundation on January 3, 1929, during which there was a joint meeting of the Eugenics Research Association and the AES. Florence Brown Sherbon, “Popular Education,” *Eugenics: A Journal of Race Betterment* 2, no. 6 (June 1929): 32.

²⁰¹ By 1938 Battle Creek College, which Kellogg annually contributed to, was no longer solvent. Schwarz, *John Harvey Kellogg, M.D.*, 102–3.

²⁰² Lovett, “Fitter Families for Future Firesides,” 84.

human reproductive efforts. The most famous of these was Sinclair Lewis's incredibly popular *Arrowsmith* (1925), in which the "Eugenic Family" at public health promoter Dr. Almus Pickerbaugh's Health Fair was revealed to be the "Holton gang." The mother and father, the local sheriff explained, were not married, and only one of the five children among the family were actually theirs. At one point, Pickerbaugh caught the father drinking alcohol, and while the family was demonstrating their "perfect vigor," the youngest child of the gang experienced an epileptic fit.²⁰³ Despite the scathing portrayal of Fitter Families, Lewis' protagonist Martin Arrowsmith was more ambivalent about eugenics. While he disapproved of "More Babies Week" due to his advocacy of birth control, he was nonetheless an enthusiastic supporter of the Better Babies Week campaign.²⁰⁴ Sinclair Lewis, however, appears to be unique among critics for his selective critique of eugenics.

Motion pictures often included eugenics as a subject. Martin Pernick has argued that filmmakers in the early twentieth century recognized the "great entertainment potential" in visualizing the contrast between the rational science of eugenics and romantic love, whether in a comedy or romantic drama.²⁰⁵ One such film, *Eugenics Versus Love*, served as a thinly veiled attack on John Harvey Kellogg. In the movie, a breakfast company hosted a contest for a eugenic wedding to help advertise their new cereal "Desiccated Embrosia." They would award the winners of the contest \$5,000 to marry and move to the town of "Battle River." Unfortunately, all the contestants were female, so the company brought Squint Bumpus, a local delivery boy, into the contest for his physical qualifications, except he was already in love with a woman in the town. Because of Bumpus's age, the two had to wait three days to get married so he and his bride-to-be kidnaped and hid the contest's female winner. After hearing that the company was offering another

²⁰³ Sinclair Lewis, *Arrowsmith* (New York: Signet Classics, 2008), 248–50.

²⁰⁴ Lewis, *Arrowsmith*, 224.

²⁰⁵ Pernick, *The Black Stork*, 130.

\$5,000 for information on her whereabouts, they waited the three days, got married, and then told the company her location, received the reward and prevented the eugenic marriage in the process.²⁰⁶ Whether such films endorsed or rejected eugenics, they helped push eugenics into mainstream popular culture by the 1920s.

Eugenicists in the first few decades of the twentieth century wished to utilize public education to advance the twin goals of both positive and negative eugenics. They never wavered in their belief that to increase the birth rate of the genetically fit, middle- and upper-class Americans needed to adopt eugenic ideals. Simultaneously, eugenicists believed that for laws restricting the reproductive rights of individuals to be effective, they needed the public's support. To gain the public's favor on both fronts, they educated them on heredity and eugenics. By means of traveling exhibits, magazine articles, public conferences, and Better Baby and Fitter Families Contests at state fairs and elsewhere, eugenicists attempted to demonstrate the importance of good heredity in the formation of the next generation of Americans. Their success in these efforts helps to explain, in part, the legislative victories eugenicists secured in the 1920s and 1930s. Despite the growing chorus of objections on the intellectual foundations of eugenics from geneticists and anthropologists during this period, sterilizations occurred at a greater rate in the 1930s than any other decade. More states passed sterilization legislation in the late-1920s and 1930s as the public increasingly accepted the ideas of eugenics. The inculcation of eugenic sentiments thus precipitated the legislative victories of the early twentieth century.

²⁰⁶ "Eugenics Versus Love," May 5, 1914, LU 2732, Box 33, Motion Picture Copyright Descriptions Collection, Motion Picture, Broadcasting and Recorded Sound Division, Library of Congress.

Chapter 4 Progressive Jurisprudence and Sterilization Legislation

Eugenicists in the United States repeatedly stated throughout the first half of the twentieth century that their proposals for “negative measures,” that is, those designed to prevent unfit individuals from reproducing, required the enactment of legislation to be effective. In Michigan, as in many other states, eugenicists attempted to pass legislation multiple times to restrict the reproduction of defectives. They also suffered several setbacks. Some came through opposition in the legislature to enact various laws, others through court challenges to the laws that the state passed. By the 1930s, however, they had amendments in place to sterilize the feebleminded and genetically unfit, which prevented over 4,000 individuals from reproducing in the state.

Aside from sterilization legislation, there were other measures that attempted to address the genetic quality of the population. At its most extreme, and as a precursor to the extension of Nazi eugenics to its euthanasia programs, in 1903 Rep. Rodgers of Muskegon proposed as an amendment to an appropriation bill providing over \$350,000 to the Michigan Home for the Feeble-Minded and Epileptic in Lapeer (MHTS) to expand their facilities that all feebleminded persons in the state should be electrocuted.¹ The proposal sparked immediate controversy and was “voted down by a big majority.”² Eugenicists in the United States, however, with the notable exception of Dr. Harry Haiselden, were more invested in passing laws to restrict the marriage of defectives rather than killing them.³ Along with sterilization and marriage legislation, eugenicists became a

¹ S. T. Samock, “Shall We Kill the Feeble-Minded?,” *Health* (New York, United States: American Periodicals Series II, August 1903), 258; For the Nazi transition from eugenics to euthanasia, see Robert Proctor, *Racial Hygiene: Medicine under the Nazis* (Cambridge, Mass: Harvard University Press, 1988).

² E. R. Kranich, “Rodgers Startled Members: Proposed Hopelessly Feeble-Minded Be Put to Death,” *Detroit Free Press*, May 20, 1903.

³ Dr. Harry Haiselden refused treatment to newborns with physical deformities, which also sparked immediate controversy and became the subject of the movie *The Black Stork*, which Haiselden starred in. Pernick, *The Black Stork*.

formidable lobbying group for immigration restriction, which resulted in successive federal amendments to limit immigration from the literacy test requirement passed in 1917 to the Johnson-Reed Immigration Act of 1924. These efforts formed the foundation of eugenicists' legislative strategy.

The 1897 Asexualization Bill

Compared to marriage and immigration restriction where eugenicists were but one part of a larger bloc of advocates for these laws, they were the key actors and instigators of sterilization legislation.⁴ Moreover, progressive states like those in the Midwest and West pursued coercive sterilization legislation the longest and were the most aggressive in applying them.⁵ Michigan confirms this trend: it was the first state to attempt to enact any form of sterilization legislation in the United States, with a bill for the “asexualization of criminals and degenerates” considered in 1897. This legislation called for the examination of all patients at the MHTS in Lapeer for the advisability of performing castration on male patients and ovariectomies (surgical removal of one or both ovaries) on women before they were discharged. It also permitted such operations on habitual criminals—those convicted of three felonies—as well as those convicted of rape.⁶

The constitutionality of the bill was immediately questioned, especially regarding desexing the insane who did not commit any crimes.⁷ Nevertheless, the bill passed the house and only failed in the senate by six votes.⁸ Physician and state representative W. R. Edgar, who introduced the bill, blamed sentimentalists for the failure of the Senate to reach enough votes, yet he also believed

⁴ For the role of eugenicists in marriage and immigration restriction legislation, respectively, see Kevles, *In the Name of Eugenics*, 100; Higham, *Strangers in the Land*, 271–86.

⁵ Mark Largent, *Breeding Contempt: The History of Coerced Sterilization in the United States* (New Brunswick, NJ: Rutgers University Press, 2011), 76–78.

⁶ The text of the bill can be found at W.R. Edgar et al., “Asexualization of Criminals and Degenerates,” *Michigan Law Journal* 6, no. 12 (December 1897): 289–90.

⁷ “Our Supplement,” *The American Lawyer* 5, no. 7 (July 1897): 299.

⁸ Kenneth Owen Slater, “An Historical Analysis of Public Policy for the Care and Treatment of People Who Are Mentally Retarded in Michigan” (Unpublished dissertation, Western Michigan University, 1986), 167.

that a similar law would be enacted in Michigan or elsewhere within a few years.⁹ Following the state senate's vote, the *Michigan Law Journal* gathered opinions from several physicians from Detroit on the asexualization bill. It revealed that there was considerable debate as to both the efficacy and the constitutionality of castrating citizens.

Commenting before the rediscovery of Gregor Mendel's experiments on peas in 1900, physicians who argued that insanity, criminality, or mental deficiency was hereditary—and therefore asexualization was a viable means of preventing their reproduction—utilized lay or folklore understandings of heredity. Similarly, doctors comprehended heredity in a broad and often imprecise way, for the boundary between diseases contracted due to infection and those acquired through inheritance was porous and blurry.¹⁰ Dr. William Donald, for instance, claimed that proverbs such as “like father, like son” and “what is bred in the bone will come out in the flesh” proved that the “principle of heredity” had entered the public consciousness. Dr. David Inglis believed that “just as some men are born color blind others are born morally blind,” which was because they were “born with an organism which condemns them to failure sooner or later.” And Dr. J. J. Mulheron explained the inheritance of criminality with the most popular adage on inheritance of the day, the “rule” that “like produces like.”¹¹ Although such information as the mechanism of inheritance was not yet understood, these physicians, like the alienists discussed in the first chapter, nevertheless felt the available data justified the position that mental or moral imbecility was an inherited trait.

Some of these early advocates for asexualization operations emphasized its potentially therapeutic benefits, believing that castration would cure criminals of their violent behaviors. Donald thought that castration would serve as both a deterrent to criminal behavior for those who

⁹ Edgar et al., “Asexualization of Criminals and Degenerates,” 292.

¹⁰ Gaudillière and Löwy, “The Hereditary Transmission of Human Pathologies between 1900 and 1940,” 311.

¹¹ Edgar et al., “Asexualization of Criminals and Degenerates,” 295–301.

were “not an absolute moral wreck,” while it would soothe the irritability and quiet the anger of those that were desexed, just as it did on various farm animals. Edgar agreed, claiming that addiction to “onanism” (masturbation) was the root cause of much criminal behavior, which castration would help remedy; thus, like “how such treatment works on the lower animals,” it would change the “very nature” of criminals. Others, like Dr. Charles Hitchcock, disagreed with the idea that castration was a curative measure. He argued that society should segregate and educate the feeble-minded and epileptic. However, for rapists and habitual criminals, he viewed asexualization as an effective punitive strategy, which was more in line with public opinion.¹² Thus, with the failed attempt of the first sterilization bill in 1897, many of the debates that would prove pivotal in later efforts to sterilize the genetically unfit, were already in place. Questions over who physicians exactly could or should sterilize, the potential benefits of the operation, and how contemporary knowledge of heredity legitimated the necessity of such regulations were central themes of the debate surrounding sterilization laws and the court cases that determined their constitutionality.

Michigan legislators would not address the subject of sterilization again until 1913. By that time, geneticists considerably revised their understanding of heredity, although a similar transformation of public knowledge on inheritance was prolonged. The rediscovery of Mendel’s experiments provided a framework for understanding the genetic transmission of various characteristics. Eugenics, as a science and social movement, emerged and was already a topic of substantial public debate. Vasectomy, and to a lesser extent salpingectomy (removal of a woman’s fallopian tubes), surfaced as less extreme surgical procedures over castrations and ovariectomies to remove one’s reproductive capabilities. Moreover, eight other states already passed legislation to sterilize individuals based on their genetic inferiority. Thus, when Michigan lawmakers revisited the topic 16

¹² Edgar et al., “Asexualization of Criminals and Degenerates,” 296–307.

years later, it was a less contentious situation. Rather than a part-eugenic, part-punitive punishment directed at both criminals and the feeble-minded, the 1913 bill was aimed at the eugenic elimination of mental deficiency.

Michigan's 1913 Sterilization Legislation

Act No. 34 of the Michigan Public Acts of 1913 was “an act to authorize the sterilization of mentally defective persons maintained wholly or in part by public expense in public institutions” in Michigan. It allowed superintendents or other heads of public institutions in the state to “render incapable of procreation” any patients “adjudged to be and who are mentally defective or insane.” The law stated that the medical professionals and governing boards of state institutions should examine patients to determine their eligibility for sterilization. If the board determined that the individual in question “would produce children with an inherited tendency to insanity, feeble-mindedness, idiocy or imbecility,” and that there was “no probability” that the person would “improve to such an extent as to render procreation by any such person advisable,” the board directed a surgeon to perform either a vasectomy on males or salpingectomy on females, or any other surgical procedure that was “least dangerous to life.” The bill stipulated that the parents or guardian of the individual must be given thirty days’ notice of the procedure, allowing them time to appeal to the probate courts. It also required the board of control for every institution to provide written records of the sterilizations performed to the State Board of Health, including the name, age, sex, nationality, diagnosis, type of operation performed, and “the subsequent mental and physical condition” of the individual after the procedure.¹³

After failing to get a similar bill through the senate in the previous session, Rep. Arthur Odell, a Republican representative from Allegan County, again introduced a bill to the 1913

¹³ The entirety of the act can be found at Martindale, *Public Acts of the Legislature of the State of Michigan Passed at the Regular Session of 1913*, 52–54.

session through the House Committee on State Affairs.¹⁴ In the first draft, Odell attempted to include habitual criminals in the list of people subject to sterilization, but failed to specify which surgical procedures should be used.¹⁵ Woodbridge Ferris, the first Democratic governor elected in twenty years and a firm believer in phrenology, expressed his support of the bill as it made its way through the house, which he considered a positive step to “stop the downward drift” of the race.¹⁶ Although the exact transcription of the debate within the state house is unavailable, the State Affairs Committee appears to have included the section detailing that vasectomy and salpingectomy were the preferred procedures —possibly to quell fears of castrating individuals—before placing it on the general order on January 22, 1913.¹⁷ A few weeks later, following written statements from physicians and the State Board of Health approving the measure, on February 12 the House voted 72-16 in favor of the law.¹⁸

In the senate, however, there was greater discussion. Much of the opposition to the bill was over concerns that it would lead to overzealous abuse of the provisions.¹⁹ To “provide against feared reckless employment of the sterilization process,” they amended the bill to include the examination of patients before they were ordered for sterilization, as well as the clause requiring thirty days’ notice and the right to an appeal.²⁰ They also removed any mention of habitual criminals being subject to the procedure. With the inclusion of these amendments, the senate voted 21-

¹⁴ Dr. Bion Whelan, a physician and state representative from Hillsdale, claimed that the sterilization measure proposed in the 1911 legislative session “was too radical and was defeated.” He would be among the supporters of the 1913 Odell sterilization bill. McKinnie, “Eugenics,” 26–27.

¹⁵ John E. Dunnewind, “Odell Bill Put on General Order,” *Detroit Free Press*, January 23, 1913, 9.

¹⁶ The quote is found at “Gov. Ferris Will Sign Odell Bill,” *Detroit Free Press*, January 22, 1913, 8A; Ferris wrote the introduction to William Windsor’s work on phrenology, stating that his 51 years in public education convinced him “that the fundamentals of phrenology are worth preserving.” William Windsor, *Phrenology, the Science of Character* (Big Rapids, MI: Ferris-Windsor Company, 1921), ix–x.

¹⁷ Dunnewind, “Odell Bill Put on General Order,” 9.

¹⁸ John E. Dunnewind, “Sterilization Bill Passes the House,” *Detroit Free Press*, February 13, 1913, 6.

¹⁹ Walter Hume Sawyer, “Medical Legislation,” *The Journal of the Michigan State Medical Society* 12, no. 6 (June 1913): 336.

²⁰ “Primary Bill Is Shelved in House,” *Detroit Free Press*, March 12, 1913, 3.

9 in favor of the bill on March 19, and Governor Ferris signed it on April 1, 1913.²¹ Thus Michigan's first sterilization law came to fruition.

The 1913 statute, in contrast to its 1897 predecessor, was based chiefly on eugenic concerns rather than punitive or therapeutic reasons. The primary criteria for determining who physicians should sterilize was the suitability of them having children. While several of the sterilization laws passed from 1907-1914 included provisions for operating on certain classes of criminals, particularly those convicted of rape, Michigan's statute was directed only to those in public institutions and adjudged to be mentally defective or insane.²² Simultaneously, however, the legislators who constructed the bill framed the law around a neo-Lamarckian understanding of heredity. This is evidenced in the clause within section two stating that physicians examining patients for possible sterilization must determine if their diagnosed condition was curable to the point that procreation may be "advisable." By only prohibiting those deemed incurable from having children, these legislators codified into law the belief that those cured from mental disease or deficiency would not pass down any defects to their children. While some Mendelian eugenicists criticized this clause as unscientific, their belief that mental deficiency was incurable meant they expended little effort in removing such items in statutes.²³

Michigan, along with several other states, enacted such laws due to certain prevailing beliefs in the first two decades of the twentieth century. One of the primary concerns among

²¹ Laughlin, *Eugenical Sterilization in the United States*, 28.

²² Among the first twelve sterilization laws enacted, Michigan's legislation was the only one that did not include a provision including "habitual criminals" or "inmates of state prisons" as a class specifically subject to sterilization operations. Joel D. Hunter, "Sterilization of Criminals," *The Yale Law Journal* 5, no. 4 (1914): 515, <https://doi.org/10.2307/785017>.

²³ Similar minor criticisms of marriage laws that called for the "cure" of mental deficiency before an individual could get married also existed. Stevenson Smith, Madge W. Wilkinson, and Lovisa C. Wagoner, "A Summary of the Laws of Several States Governing I—Marriage and Divorce of the Feeble-Minded, the Epileptic and the Insane. II—Asexualization. III—Institutional Commitment and Discharge of the Feeble-Minded and the Epileptic," *The Bulletin of the University of Washington* (The Bailey and Babette Gatzert Foundation for Child Welfare, May 1914), 83.

eugenicists was that insanity and other forms of mental deficiency were rapidly growing among the American population. Thus, in the same session where the sterilization bill was passed, Michigan legislators passed the law creating the Eugenics Commission to investigate the matter and funded \$200,000 for the creation of the Wahjamega farm colony for epileptics.²⁴ Moreover, as stated in Chapter 1, psychiatrists and medical superintendents of state institutions were increasingly pessimistic about the possibility of curing such patients and consequently emphasized preventive measures. Nevertheless, although eugenicists introduced sterilization to prevent mental degeneracy, support was anything but unanimous. Many alienists working at mental institutions, for instance, believed segregation would prevent any further increase in the feeble-minded or insane and that sterilization policies would deter many patients from voluntarily entering their facilities.²⁵ Even among eugenicists who eventually supported sterilization policies, many felt that the “first wave” of sterilization laws from 1907 to 1915 were premature in their enactment.

The sterilization bill that Michigan legislators eventually passed was similar in many respects to the one that Woodrow Wilson signed in 1912 as governor of New Jersey. Indeed, the only difference between the two acts was that New Jersey’s included a provision for sterilizing habitual criminals. However, to the dismay of eugenicists in Michigan, the New Jersey Supreme Court determined that their sterilization law was unconstitutional on November 18, 1913, only 7½ months after Michigan authorized their statute.²⁶ Unlike in *State v. Feilen*, the Washington court case where sterilization was affirmed against criminals and not considered cruel and unusual pun-

²⁴ Sawyer, “Medical Legislation,” 336–37.

²⁵ C. W. Mack, “The Psychiatric Aspects of a Sterilization Law,” *The Journal of the Michigan State Medical Society* 12, no. 8 (August 1913): 424; *Proceedings of the Meeting of the Joint Board of Trustees of the State Hospitals of Michigan Held at Ionia, January 15, 1914* (Lansing, MI: Wynkoop Hallenbeck Crawford Co. State Printers, 1914), 20–21.

²⁶ Those commenting on the New Jersey case claimed that, due to the similarity between the two laws, the ruling also rendered Michigan’s statute unconstitutional. George E. Kennedy, “Sterilization of Criminals or Defectives,” *Michigan Law Review* 12, no. 5 (March 1914): 402; “Sterilization Laws Elsewhere,” *Detroit Free Press*, November 22, 1913, 4.

ishment, the New Jersey case contended with separate issues. The primary question was whether the police powers vested in the state allowed for the suppression of the individual right to have children among those who never committed a crime. The state's police powers, broadly understood, referred to the ability of the legislature to repress certain constitutional rights of the individual for the benefit of the public welfare.²⁷ A second but related concern in the New Jersey case was if the genetically unfit constituted a natural class. If they were determined to be classified arbitrarily, they would be protected by the equal protection clause of the fourteenth amendment.

The Equal Protection Clause in New Jersey and Michigan

In *Smith v. Board of Examiners*, the state supreme court ruled that the order to submit Alice Smith to salpingectomy, who had been an inmate of the New Jersey State Village of Epileptics since 1902, violated the equal protection clause of the fourteenth amendment. In writing the opinion of the court, Justice Garrison remarked that the New Jersey law for sterilizing defectives was limited to those already receiving care in state institutions. This amounted to a selective criterion that was “singularly inept for the accomplishment” of the purpose of the act (i.e., to improve society through the sterilization of the unfit), since to accomplish such a purpose would require sterilizing “the vastly greater class who are not protected from procreation by their confinement in state or county institutions.”²⁸ Moreover, while *State v. Feilen* declared that a vasectomy as an operation did not constitute cruel and unusual punishment on account of the minimal pain it inflicted, the New Jersey Supreme Court noted that salpingectomy was a much more complicated and, therefore, dangerous operation.²⁹

²⁷ Christopher G. Tiedeman, *Treatise on the Limitations of Police Power in the United States: Considered from Both a Civil and Criminal Standpoint*, vol. 1 (St. Louis, MO: F.H. Thomas, 1886), 1–3.

²⁸ *Smith v. Board of Examiners of Feeble-Minded, Epileptics, Criminals and Other Defectives*, No. 85 N.J.L. 46 (New Jersey Supreme Court November 18, 1913).

²⁹ *Smith v. Board of Examiners* at 50; Frederick A. Fenning, “Sterilization Laws from a Legal Standpoint,” *Journal of the American Institute of Criminal Law and Criminology* 4, no. 6 (March 1914): 806, <https://doi.org/10.2307/1133158>.

Importantly, Garrison wrote that epileptics, and mental defectives in general, did not in themselves constitute an unreasonable classification of people subject to certain laws; rather, the court restricted its argument to the fact that the sterilization law applied only to those on whom it would be unnecessary to perform the operation in the first place, since their ability to reproduce would already be curtailed by their institutionalization. Thus, a law calling for the sterilization of all mental defectives could be theoretically considered within the police powers of the state, but one limiting itself to those already segregated in public institutions could not. While Garrison contemplated a hypothetical statute to sterilize inmates so that they may be released from institutions “inhumane and immoral,” he also noted that the scope of the case prevented him from saying such a scheme would be unconstitutional.³⁰

Garrison, it should be mentioned, wrote his opinion at a time of change in American jurisprudence. Progressivism was just as influential in the courtroom as it was throughout much of American society. Through the first few decades of the twentieth century, as Morton Horwitz has argued, American “classical legal thought” was gradually giving way to a progressive jurisprudence that emphasized state intervention into social issues and the utilization of social science to inform legal decisions.³¹ Responding to the rapidly changing urban-industrial society of the United States, progressive jurists increasingly rejected laissez-faire conceptions of the relationship between state and society in favor of greater governmental efforts in ameliorating social conditions.³² While much of this was centered on the conflict between labor and capital, judicial deter-

³⁰ *Smith v. Board of Examiners* at 54–55.

³¹ Morton J. Horwitz, *The Transformation of American Law, 1870-1960: The Crisis of Legal Orthodoxy* (New York: Oxford University Press, 1994), 1–7.

³² Michael Willrich, “The Two Percent Solution: Eugenic Jurisprudence and the Socialization of American Law, 1900-1930,” *Law and History Review* 16, no. 1 (1998): 66, <https://doi.org/10.2307/744321>; Howard Gillman, *The Constitution Besieged: The Rise and Demise of Lochner Era Police Powers Jurisprudence* (Durham, NC: Duke University Press, 1993), 14–15.

minations of what constituted valid or invalid class legislation extended to questions of promoting general welfare through sterilization cases.³³

The New Jersey Supreme Court claimed that the state's sterilization law, by restricting itself only to those in public institutions, failed to promote the aim of the statute in improving the general welfare of society. Moreover, it reiterated Charles Boston's argument that if the legislature has legitimate authority to sterilize the criminal or insane classes, then, theoretically, there is no limit to the class of persons it may choose to submit to similar operations.³⁴ Garrison noted that other conditions aside from mental deficiency "may render persons undesirable citizens" subject to sterilization laws; for instance, he stated that it was logically consistent if future legislatures submitted people of color or those with syphilis or tuberculosis to sterilizations, and even suggested that Malthusian concerns of overpopulation might lead to an expansion of the classes of people subject to sterilization.³⁵ The New Jersey court followed more traditional understandings of what Howard Gillman called "police powers jurisprudence," which actively sought to determine such class legislation from that which was truly for the public welfare.³⁶ It would take another decade before judicial concepts of class legislation changed sufficiently to favor eugenic sterilization laws.

Following the decision in *Smith v. Board*, superintendents at Michigan institutions were, according to the Michigan Eugenics Commission report, "loath to perform the operation" on their patients, rendering the law "practically a dead letter."³⁷ For the time being, the commission recommended that either the MHTS be expanded, or a separate institution be built to segregate

³³ Gillman, *The Constitution Besieged*, 10–11, 104.

³⁴ Charles A. Boston, "A Protest against Laws Authorizing the Sterilization of Criminals and Imbeciles," *Journal of the American Institute of Criminal Law and Criminology* 4, no. 3 (1913): 349–51, <https://doi.org/10.2307/1133352>.

³⁵ *Smith v. Board of Examiners* at 52–53.

³⁶ Gillman, *The Constitution Besieged*, 104; Daniel Frost, "Protection against Eugenics: A Comparison of Two Jurisprudences," *Journal of Supreme Court History* 42, no. 3 (2017): 278, <https://doi.org/10.1111/jsch.12154>.

³⁷ *Eugenics Commission Report*, 45–46.

feebleminded women of reproductive age.³⁸ Most superintendents did not adopt sterilization as a complementary strategy to segregation in order to institutionalize as many patients as possible until after World War I following the publication of the Army mental testing experiments.³⁹ Nevertheless, there were a few who wished to implement sterilization as early as 1915, including Dr. Harley Haynes of the MHTS as discussed in Chapter 1. Following the unease surrounding the sterilization law, Haynes, along with then-Attorney-General Grant Fellows, planned to test its constitutionality in 1915.

Haynes selected and the board of control approved Miss Nora Reynolds to be sterilized. An inmate of the MHTS for eight years, Reynolds allegedly “often ran away” from the institution and came back pregnant on two separate occasions.⁴⁰ The state made John Roach Reynolds’ guardian *ad litem*, and he subsequently petitioned the sterilization order. The probate judge of Lapeer County, Daniel Zuhlke, rejected the order and ruled the law unconstitutional for violating the equal protection clause of the fourteenth amendment.⁴¹ Attorney-General Fellows appealed the order to the circuit court, which was then transferred to Alexander Groesbeck following Fellows’ ascendancy to the state supreme court. In his ruling, Circuit Court Judge William B. Williams affirmed the probate court’s decision, noting that the sterilization law’s unconstitutionality was rooted in the decision made in the New Jersey case. The law, according to Williams, was unconstitutional for limiting itself to those in public institutions, while making it a felony to sterilize individuals in

³⁸ *Eugenics Commission Report*, 109; *Proceedings of the Meeting of the Joint Board of Trustees of the State Hospitals of Michigan Held at Eloise, January 21, 1915*, 9.

³⁹ Trent, *Inventing the Feeble Mind*, 192–93; As mentioned in Chapter 1, Laughlin asked Michigan superintendents for their opinions on the sterilization bill in 1918 and 1921. By this time, most conceded that a sterilization policy would have “unquestioned” eugenical value, but the law as written was too cumbersome, provided no protections for physicians or surgeons, and was by that time declared unconstitutional. Laughlin, *Eugenical Sterilization in the United States*, 73–74.

⁴⁰ Fromwiller and Gillis, *Oakdale*, 100.

⁴¹ “State Seeks to Sterilize Idiot,” *Detroit Free Press*, April 30, 1916, 24; “State to Appeal Eugenics Setback: Lapeer Court Rules Against Sterilization Law,” *Detroit Free Press*, August 30, 1917, 8.

private institutions or those not already restrained.⁴² Following another appeal, the case reached the state supreme court and became *Haynes v. Lapeer Circuit Judge*.

On March 28, 1918, the Michigan Supreme Court declared Public Act 34 unconstitutional for violating the fourteenth amendment. Justice Joseph H. Steere wrote the brief opinion of the court, stating that “the validity of the legislation cannot be sustained in its present form because of the narrow and arbitrary classification adopted.”⁴³ Although it was a quick and unanimous decision—with the newly appointed Justice Fellows recusing himself—the court’s opinion also “left the door open to another legislative effort.”⁴⁴ For one, the prosecutors provided only a brief *amicus curiae* that conceded that the sterilization law was unconstitutional, while the only legal question brought up in the proceedings was whether it constituted discriminatory class legislation. Like the decision in *Smith v. Board*, the Michigan Supreme Court ruled that, granting “defective and incompetent persons” as a “natural class” subject to the police power of the state, the law’s restriction of sterilization operations only to those already in public institutions discriminated against those persons by creating “a class out of a class” that the fourteenth amendment prohibited. The court limited itself to the question of whether the statute as constructed fell under class legislation, refusing to “dwell or pass upon any suggested underlying medico-legal questions to which the indicated purpose of the law points,” determining these to be “for legislative rather than judicial consideration.”⁴⁵ Therefore, while rendering the 1913 act unconstitutional, the court remained silent on the question of whether any sterilization legislation was inherently unconstitutional.

Michigan’s Second Sterilization Law

⁴² William B. Williams, “In Re Nora Reynolds, a Mentally Defective Person,” *Law Review of the Law Department of the University of Detroit* 1, no. 5 (June 1917): 48–50.

⁴³ *Haynes v. Lapeer Circuit Judge*, No. 201 Mich. (Michigan Supreme Court March 28, 1918).

⁴⁴ Paul Moreno, “Haynes v Lapeer Circuit Judge: Eugenics in Michigan,” *Michigan Bar Journal*, The Verdict of History: The History of Michigan Jurisprudence Through its Significant Supreme Court Cases, 88, no. 1 (January 2009): 10.

⁴⁵ *Haynes v. Lapeer* at 141–43.

Michigan legislators again attempted to pass a sterilization statute five years later in 1923. As mentioned in the previous chapter, eugenicists provided the public with information on eugenics and the necessity of such legislation to gain greater support. At the same time, Harry Laughlin, secretary of the Eugenics Record Office, collaborated with Judge Harry Olson of the municipal court in Chicago to publish *Eugenical Sterilization in the United States*, a nearly 500-page tome tracing the history of sterilization laws in the United States. Written for legislators, jurists, and eugenicists, it detailed the statutes and court cases on sterilization up to 1922 and pointed to future judicial questions on sterilization policy. According to the history of court cases on sterilization, Laughlin argued that the state could exercise its police power to enact sterilization legislation if it defined the genetically unfit subject to its procedures as a natural class and theoretically applied its measures to all those within that class. However, he did note that the question of whether the genetically defective constituted a natural class would be decided in future legislation.⁴⁶ Laughlin also included his “Model Eugenical Sterilization Law,” which defined the persons subject to sterilization, the procedural process determining whether an individual should be operated upon, and the agencies or organizations responsible for carrying out the provisions of the act. In it, any “potential parent of socially inadequate offspring”—defined as containing within their germplasm the possibility that one-quarter of their children would be socially inadequate or one-half would carry recessive genes for social inadequacy, according to field studies and an examination of family history records—could be subject to sterilization.⁴⁷ According to Laughlin, then, a variety of traits including feeble-mindedness and insanity were simple Mendelian recessives. In Laughlin’s form, sterilization legislation was entirely eugenic and Mendelian, there were no clauses limiting

⁴⁶ Laughlin, *Eugenical Sterilization in the United States*, 147.

⁴⁷ The entirety of the model law can be found at Laughlin, *Eugenical Sterilization in the United States*, 446–51.

procedures to incurable cases, nor was it framed as a punitive punishment to convicted criminals, although they were included within the socially inadequate class.

The impetus for Michigan's second sterilization bill came from a somewhat unexpected source. While woman's clubs were an important, if less recognized, constituency for eugenic practices throughout the early twentieth century, in the early 1920s they were a key lobbying group for eugenic legislation in the state.⁴⁸ Viewing eugenics as a means of protecting the welfare of children, women's clubs in Michigan supported the Odell sterilization bill in 1913, and their advocacy continued throughout the decade.⁴⁹ At the State Federation of Women's Clubs meeting in 1921, their vice president, Mrs. Doran Russell of Grand Rapids, called for marriage restriction and sterilization statutes towards the feeble-minded.⁵⁰ Shortly after, the Dean of the University of Michigan law school Henry Moore Bates asked the youngest member of their faculty, Burke Shartel, to draft a sterilization statute to give to the Detroit women's club to present to the state legislature.⁵¹ Despite having "no personal interest" in the bill, Shartel wrote a sterilization statute that addressed the criticisms of the New Jersey and Michigan justices.⁵² On May 25, 1923, the Michigan legislature passed Public Act No. 285, the second sterilization law in the state.

After a similar bill died in a house committee in 1921, state senator Charles Robert Sligh of Grand Rapids introduced the Public Act No. 285 in the 52nd state legislature in April, 1923.⁵³ While the support from women's clubs provided the initial impetus for the new sterilization law, scientific reports that detailed the link between crime and heredity ultimately contributed to the

⁴⁸ Ladd-Taylor, *Fixing the Poor*, 13.

⁴⁹ *Michigan State Federation of Women's Clubs: Manual, 1913-1914*, 66; Linda Gordon, *Woman's Body, Woman's Right: A Social History of Birth Control in America* (New York: Penguin Books, 1974), 120-32.

⁵⁰ "Eugenic Laws, Woman's Plea," *Detroit Free Press*, November 19, 1921, 12.

⁵¹ Burke Shartel, "Legal Implications of Operations to Produce Sterility," in *Symposium on Medicolegal Problems* (Philadelphia: J. B. Lippincott Company, 1948), 141-42.

⁵² Burke Shartel, "Sterilization of Mental Defectives," *Michigan Law Review* 24, no. 1 (1925): 2 n.4, <https://doi.org/10.2307/1279636>.

⁵³ "23 Measures Are Passed by Senate," *Detroit Free Press*, April 4, 1923, 17.

law passing through the legislature.⁵⁴ The women's clubs presented an exhaustive list of desired legislation at the beginning of the session; however, they were successful in only impacting the ratification of the sterilization bill and a maternity health law.⁵⁵ Following its passage in the senate, there was some debate in the house, but this was limited to the potential dangers associated with the surgery itself, rather than any constitutional objections to the statute.⁵⁶ Some judges, such as Clark Higbee of Kent County, began processing sterilization applications even before the law was to officially start on August 29.⁵⁷

Public Act No. 285 of 1923 was “an act to authorize the sterilization of mentally defective persons.” Notably, in defining “mentally defective persons” for the purpose of the law, it included “idiots, imbeciles, and the feeble-minded, but not insane persons.”⁵⁸ Unlike its predecessor a decade earlier, the new law authorized the sterilization of anyone who was “adjudged defective by a court of competent jurisdiction,” not just inmates of public institutions.⁵⁹ It was also the first and only sterilization bill in the country that explicitly mentioned the use of x-rays alongside vasectomy and salpingectomy as a means of sterilizing patients, which, although not stated, was applied almost exclusively on women over the age of forty due to the likelihood of it resulting in premature menopause.⁶⁰ Section 3 of the bill allowed for any relative, prosecutor, sheriff, director of public institution, or board of control member to apply for the sterilization of a mental defective, while sections 4, 5, and 6 detailed the due process procedures of the hearing to determine if the individual

⁵⁴ “Parole Head Urges Tests for Prisoners,” *Detroit Free Press*, July 22, 1923, 17.

⁵⁵ “Election Bills Enacted,” *Detroit Free Press*, May 6, 1923, 18.

⁵⁶ “State Sterilization of Imbeciles O.K.’d,” *Detroit Free Press*, May 4, 1923, 14.

⁵⁷ “Judge to Enforce Sterilization Law,” *Detroit Free Press*, June 4, 1923, 4.

⁵⁸ Charles J. DeLand, ed., *Public Acts of the Legislature of the State of Michigan Passed at the Regular Session of 1923* (Lansing, MI: Fort Wayne Printing Co., State Printers, 1923), 453.

⁵⁹ DeLand, *Public Acts of the Legislature of the State of Michigan Passed at the Regular Session of 1923*, 454.

⁶⁰ James E. Hughes, “Eugenic Sterilization in the United States: A Comparative Summary of Statutes and Review of Court Decisions,” *Public Health Reports* (Washington D.C.: United States Public Health Service, 1940), 8; Shartel, “Sterilization of Mental Defectives,” 15.

should be sterilized. According to section 7, for the court to order a sterilization operation, the facts in the hearing must prove that “the said defective manifests sexual inclinations,” that the children would “have an inherited tendency to mental defectiveness,” and there was no probability of the person’s condition improving. Another clause in that section recognized the sterilization of defectives if they were unable to support their children financially or if “such children would probably become public charges” due to their mental deficiency. The law also allowed parents or guardians to consent to the procedure if sterilizing the child would improve their mental or physical condition, or if it would be “for the welfare of such defective.”⁶¹ The statute also provided defendants the opportunity to appeal the order.

The act thus codified into law certain contemporary beliefs about the nature of mental deficiency. For instance, in discussing the bill he drafted, Shartel, based on the information Dr. Harley Haynes provided to him, claimed that “practical experience” had demonstrated a need to distinguish between the feeble-minded and insane. Like the psychiatrists mentioned in Chapter 1, he contended that the main difference between the two was “that between a person *who never has a complete mind, and a person who does have one but loses it through the action of disease or accident.*” The feeble-minded person, who never attained full mental capabilities, was incurable, while the insane had at least a theoretical chance of recovering. Despite the incurable nature of feeble-mindedness, however, Shartel included the provision that only those with no probability of improving their condition should be sterilized. He admitted that it “may have been proper to omit” this from the necessary facts included in sterilization petitions but stated that it was a harmless inclusion on account of the incurability of the affliction. Along with this fundamental distinction of their curable nature, Shartel argued that the feeble-minded and insane shared differences in

⁶¹ DeLand, *Public Acts of the Legislature of the State of Michigan Passed at the Regular Session of 1923*, 455.

“uncontrollable sexual impulses,” the inheritability of their conditions, and the efficacy of sterilization in helping them adjust to “life outside of an institution.”⁶² For these reasons, he felt justified in excluding the insane from the list of defectives subject to sterilization.

Likewise, Shartel stated that the inclusion of criminals, epileptics, alcoholics, and morons would have been “bad policy.” While intelligence tests, by this time, demarcated between “gross inadequacy of mind (such as feeble-mindedness)” and those of normal competence, there were no such tests that could reliably delineate morons, criminals, or epileptics. Moreover, questions to the inheritance of these characteristics were much more doubtful than they were for feeble-mindedness. Therefore, Shartel believed that excluding these classes made the law “stronger in both a constitutional and a practical sense.” He suggested that, for a sterilization policy to work for eugenic reasons, it was more prudent to “begin where the need is clearest” and implement a “modest program which will not discredit the whole idea at the start.”⁶³ For him, the clear need was with the feeble-minded.

In eliminating criminals as potential victims to sterilizations, Shartel avoided one of the main constitutional arguments against such legislation: that they were a cruel and unusual punishment. Although, as noted earlier, the Washington Supreme Court in *State v. Feilen* decided that vasectomy did not meet the criteria for cruel and unusual punishment, this question again emerged after the Iowa Supreme Court declared their state’s act unconstitutional in 1914 in *Davis v. Berry*. While the primary consideration was that it violated due process laws—the law imparted the power to determine the judicial question of whether a criminal was twice convicted to an administrative board, rather than a jury—the court also extended its decision to declare that the operation represented a cruel and unusual punishment towards the inmate. In contrast to the earlier decision, which

⁶² Shartel, “Sterilization of Mental Defectives,” 3–13 Emphasis in original.

⁶³ Shartel, “Sterilization of Mental Defectives,” 5–6.

based its determination on the physical pain of the operation, the Iowa court adopted a different reasoning by noting the psychological effects on the person as an additional punishment to their original sentence.⁶⁴ Rather than framing sterilization as a punitive measure, Shartel limited it to its social and eugenic applications.

The feeble-minded and their “procreative tendencies,” according to Shartel, constituted a “serious social menace” to the community. Thus, the sterilization law was primarily a “social welfare measure.”⁶⁵ This idea, prominent among eugenicists since Henry Goddard’s publication on the Kallikaks, gradually filtered through the public through popular education efforts and the concerted efforts of eugenicists to disseminate their findings to the public.⁶⁶ Goddard’s family study, as well as his earlier book *Feeble-Mindedness*, connected feeble-mindedness to a host of social ills, including criminality, sexual immorality, and pauperism.⁶⁷ With the development and proliferation of intelligence testing, bolstered by its application in the Army during World War I, eugenicists’ estimates of the number of mental defectives in the country ballooned to alarming numbers, further emphasizing the necessity of protecting American society from the feeble-minded.⁶⁸ As discussed in Chapter 1, although incurable and still able to transmit their defects, alienists in the 1910s and 1920s increasingly believed that they could train those in their institutions to be self-sufficient and discharged them to communities on parole. Thus, sterilization became part of a complementary policy of state institutions to admit more inmates at less cost.⁶⁹ Partly because of these developments, opinions on sterilization programs as a constitutional use of the state’s police power shifted.

⁶⁴ “Recent Important Decisions,” *Michigan Law Review* 13, no. 2 (December 1914): 160.

⁶⁵ Shartel, “Sterilization of Mental Defectives,” 13–14.

⁶⁶ Leonard, *Illiberal Reformers*, 113.

⁶⁷ Goddard, *Feeble-Mindedness*, 1–20; Goddard, *The Kallikak Family*, 54–68.

⁶⁸ Paul, *Controlling Human Heredity*, 63–65; Tyor and Bell, *Caring for the Retarded in America*, 109–11.

⁶⁹ Trent, *Inventing the Feeble Mind*, 200.

The Constitutionality of Sterilization in the 1920s

The constitutionality of Michigan's sterilization law was again tested, and on June 18, 1925, the state supreme court upheld by a 5-3 decision the new act in *Smith v. Wayne Probate Judge*. The Wayne County probate judge Edward Command adjudged Willie Smith, a 16-year-old patient at the MHTS in Lapeer, as feeble-minded; his parents filed a petition to have him sterilized, with judge Command signing the order.⁷⁰ Chief Justice John S. McDonald wrote the controlling opinion, dismissing the arguments against the constitutionality of the statute. Addressing the question of whether sterilization was a valid exercise of the state's police power, he resorted to the findings of psychiatrists and eugenicists to determine if the operations were an appropriate measure for benefiting the general welfare. McDonald said that "biological science has definitely demonstrated that feeble-mindedness is hereditary," and based on a "conservative estimate there are at least 20,000 recognized feeble-minded persons in the State of Michigan."⁷¹ Because of the prevalence of the feeble-minded and their perceived social menace, McDonald stated:

It is true that the right to beget children is a natural and constitutional right, but it is equally true that no citizen has any rights superior to the common welfare. Acting for the public good, the State, in the exercise of its police powers, may always impose reasonable restrictions upon the natural and constitutional rights of its citizens. Measured by its injurious effect upon society, what right has any citizen or class of citizens to beget children with an inherited tendency to crime, feeble-mindedness, idiocy or imbecility?⁷²

Thus, by the mid-1920s, jurists believed that state laws for sterilizing the genetically unfit for the benefit of society were a valid exercise of its police power. The statute, according to McDonald, was a state policy based on the belief that the increase in defectives in the state represented "the greatest peril of all time."⁷³ The courts should not hold the authority to determine if that were true

⁷⁰ The case is referred to as *Smith v. Wayne Probate Judge* and *Smith v. Command* interchangeably in the literature. Similarly, this paper will do the same.

⁷¹ *Smith v. Wayne Probate Judge*, No. 231 Mich. (Michigan Supreme Court June 18, 1925).

⁷² *Smith v. Command* at 415.

⁷³ *Smith v. Command* at 425.

or not. By this time, American jurisprudence had shifted so progressive calls for the judiciary to ameliorate social conditions affected the determination of appropriate restrictions on individual rights for the common good.⁷⁴ McDonald, reaffirming the progressive ethos, stated that it was “an historic fact that every forward step in the progress of the race is marked by an interference with individual liberties.”⁷⁵ Echoing Oliver Wendell Holmes’ reasoning, he likened the law to that of compulsory vaccination.⁷⁶

McDonald also dismissed the argument that the bill was unconstitutional as class legislation. He contended that the determining facts for a sterilization order—that a defective possessed sexual inclinations, was incurable, and was likely to produce children with mental deficiencies—applied uniformly to all defectives. Defectives, he noted, were a “reasonable classification because it applies to a class of feeble-minded persons who are a menace to public welfare.” To him, those whose children may inherit a tendency to mental deficiency constituted a natural class of persons. McDonald also dismissed the idea that the law was discriminatory for not including the insane. He claimed that the legislature had apparently “good and substantial reasons” for doing so: citing their diminished “sexual impulses” as compared to the feebleminded and the disagreement among scientists over whether the insane transmitted their defects. That said, the court annulled the second division of classification in section 7, which permitted the sterilization of those who were unable to support or care for their children because of their mental disability. By applying the law only to those unable to support their children, rather than all mental defectives, this clause made it operable only on those who were feebleminded and poor, thus comprising discriminatory class legislation.

⁷⁴ Frost, “Protection against Eugenics,” 281.

⁷⁵ *Smith v. Command* at 425.

⁷⁶ Julius Paul, *Three Generations of Imbeciles Are Enough: State Eugenic Sterilization in American Thought and Practice* (Washington D.C.: Walter Reed Army Institute of Research, 1965), 373.

While they declared this part of section 7 unlawful, the court determined that it did not affect the rest of the law's constitutionality.⁷⁷

Although the state Supreme Court validated the sterilization law, they negated the order to sterilize Willie Smith for violating the proper procedures.⁷⁸ The court appointed a guardian after the hearing order, and although the physician stated that Smith fell within the jurisdiction of the law, the physician failed to adequately explain why he believed the state should sterilize him.⁷⁹ Because the probate judge failed to comply with the processes described in the law, Willie Smith was spared the sterilization order.

Justice George Clark, in a separate opinion, noted that he only concurred "with reluctance." He was concerned with whether it was even possible to determine if a child would inherit mental deficiency from a defective parent but believed that the legislature should decide such questions, not the judiciary. Justice Howard Wiest, however, wrote a passionate objection to the law, supported by Justices Bird and Grant Fellows. He stated that, while state police powers could be used "to protect society from the evils of preventable human deterioration," this did not include "the mutilation of the organs or glands" of its citizens.⁸⁰ While arguing that the exclusion of the insane and determining who should be sterilized according to the fitness of their germplasm violated the equal protection clause, most of his objection was that sterilization constituted a cruel and unusual punishment. He called vasectomy "emasculat[i]on" and stated that "salpingectomy is castration of the female, pure and simple."⁸¹ Both operations infringed on the individual's right to bodily integrity.

⁷⁷ *Smith v. Command* at 420–21.

⁷⁸ "Sterilization Act Is Upheld," *Detroit Free Press*, June 19, 1925, 13.

⁷⁹ *Smith v. Command* at 425–26, 448.

⁸⁰ *Smith v. Command* at 428.

⁸¹ *Smith v. Command* at 445–46.

He disagreed with McDonald's opinion that genetics had demonstrated the hereditary nature of feeble-mindedness, saying that Mendelism was "not accepted by all scientists," nor did intelligence testing "command the support of all scientific experts." Citing work from the Eugenics Record Office, Wiest argued that the law could apply to anyone who had a mentally defective person in their family history. He referenced the Stanford psychologist Lewis Terman's work to cast doubt on whether physicians' diagnoses of feeble-mindedness referred to an arrested mental development or their inability to adhere to proper social norms. The statute, he lamented, utilized both the psychological and social definitions of feeble-mindedness, which would result in the sterilization of individuals with no eugenic benefit. In a similar vein, Wiest viewed Harry Laughlin's projection, made at the 1914 Race Betterment Conference, of sterilizing 80-150 people per 100,000 per year as proof of how far-reaching the statute would go.⁸² For all these reasons, Wiest, Bird, and Fellows believed the law to be unconstitutional.

Despite the dissent from the three judges, which Burke Shartel believed impossible "to support, on any modern theory of rights or constitutional limitations," the law's constitutionality remained, and physicians could legally sterilize residents of Michigan.⁸³ Sixteen months later another court case reaffirmed this. Following the resignation of Justice Moore, Justice Ernest Snow and the court voted 4-4 to approve the sterilization order of Agnus Salloum, an 18-year-old patient at the MHTS in Lapeer.⁸⁴ All the remaining justices voted the same, noting that they based their decision on whether the law was constitutional on the same arguments as those made in *Smith v. Command*.⁸⁵

⁸² *Smith v. Command* at 437-48; Laughlin, "Calculations on the Working out of a Proposed Program of Sterilization," 489.

⁸³ Shartel, "Sterilization of Mental Defectives," 17-18.

⁸⁴ Moreno, "Haynes v Lapeer Circuit Judge: Eugenics in Michigan," 12.

⁸⁵ *In re Salloum*, No. 21 Mich. (Michigan Supreme Court October 22, 1926).

The *Smith v. Command* decision came just five months before the Virginia Supreme Court ruled in favor of their state sterilization law in *Buck v. Bell*. Since the results in both cases were similar, some scholars have wondered why *Buck v. Bell* became the test case for the United States Supreme Court, rather than *Smith v. Command*.⁸⁶ Although nothing definitive has been found in the historical records, there are some explanations. For one, since the Michigan Supreme Court vacated the order for the sterilization of Willie Smith, it would make little sense for his defense to continue the appeal. Another reason may lie in the work of the defense attorneys arguing on behalf of the individuals ordered to be sterilized. William Van Dyke, in his defense for Willie Smith, scoured the literature on eugenics and court cases to challenge the validity of the law on scientific and judicial grounds. His brief included contributions from the famous lawyer Louis Marshall and psychiatrist Dr. William White, physicians' opinions against such operations, and contradictory statements from eugenicists on the efficacy of sterilization programs.⁸⁷ He challenged the validity of Michigan's sterilization law on both scientific and constitutional grounds.

In contrast, the defendant for Carrie Buck in Virginia, Irving Whitehead, was, according to the historian Paul Lombardo, a committed eugenicist and advocate for sterilization legislation. Eugenicists designed and framed the Buck case as unimpeachable, with contributions from Harry Laughlin and Arthur Estabrook regarding the feeble-mindedness of Carrie Buck and the necessity for sterilizing her.⁸⁸ Moreover, eugenicists in Virginia selected Carrie Buck to be a "perfect test case" for sterilization laws. The findings of the case alleged Buck to be the daughter of a feeble-minded woman and the mother of a feeble-minded child. Although the University of Detroit sociologist John E. Coogan later revealed the sham of an investigation into the feeble-mindedness

⁸⁶ Paul, *Three Generations of Imbeciles Are Enough*, 385 n.5.

⁸⁷ Paul, *Three Generations of Imbeciles Are Enough*, 385; Paul A. Lombardo, *Three Generations, No Imbeciles: Eugenics, the Supreme Court and Buck v. Bell* (Johns Hopkins University Press: Baltimore, 2010), 180–81.

⁸⁸ Lombardo, *Three Generations, No Imbeciles*, 128.

of all three generations of Bucks, at the time of the court hearings, it verified the transmissibility of mental defect.⁸⁹ In his incredibly brief opinion for the majority, which only cited the vaccination case *Jacobson v. Massachusetts* to demonstrate the state's police power to impose on the bodily integrity of its citizens for social benefits, Justice Oliver Wendell Holmes issued the now-infamous phrase, "three generations of imbeciles are enough," and the Supreme Court constitutionally sanctioned sterilization legislation in 1927.⁹⁰

The Supreme Court's 8-1 ruling in *Buck v. Bell* obviated constitutional questions over whether sterilization statutes represented class legislation and whether they were a valid use of a state's police power. By this time, the police powers jurisprudence of the first two decades of the twentieth century had given way to a more progressive jurisprudence that sanctioned state intervention into social problems. Virginia's sterilization law only applied to inmates of public institutions, which violated the equal protection clause on several occasions in the fifteen years prior to *Buck v. Bell* according to state courts.⁹¹ Holmes dismissed the equal protection argument, stating that when "operations enable those who otherwise must be kept confined to be returned to the world, and thus open the asylum to others, the equality aimed at will be more nearly reached."⁹² In a three-page opinion, Holmes upended nearly two decades of constitutional questions on coercive sterilization.

As a result of *Buck v. Bell*, sterilization laws proliferated throughout the country. From 1927 to 1931, 22 states introduced sterilization statutes, with 17 of them ratified.⁹³ This included

⁸⁹ Carrie Buck and her mother had little schooling, which Coogan argued resulted in their suboptimal intelligence scores. Meanwhile, a Red Cross nurse examined Carrie Buck's daughter when she was one-month old and determined her to be mentally defective, only later to have Lynchburg State Colony records describe her as a "very bright" child. John E. Coogan, "Eugenic Sterilization Holds Jubilee," *The Catholic World*, April 1953, 45–46.

⁹⁰ *Buck v. Bell*, Superintendent, 274 U.S. 200 (United States Supreme Court 1927).

⁹¹ Martin E. Nachsin, "Sterilization of Criminals and Mental Defectives in the United States," *Intramural Law Review of New York University* 11 (1956): 164.

⁹² *Buck v. Bell*, 274 U.S. at 208.

⁹³ Reilly, *The Surgical Solution*, 88.

Michigan, whose legislature in 1929 replaced the 1923 law with Public Act No. 281. The law stated that it was:

to be the policy of the state to prevent the procreation and increase in the number of feeble-minded, insane and epileptic persons, idiots, imbeciles, moral degenerates, and sexual perverts, likely to become a menace to society or wards of the state. The provisions of this act are to be liberally construed to accomplish this purpose.⁹⁴

Thus, it greatly expanded the scope of who could be sterilized. While detailing the same rules to order compulsory sterilization, it also contained a provision that allowed for the sterilization of defectives with the consent of the individual or a relative or guardian if they were incapable.⁹⁵ The procedures and rules that stipulated how the court would determine which individuals they could legally sterilize, the process of appeals, and the appointment of guardians all remained the same.

Oddly enough, one of Michigan's greatest advocates for eugenic sterilization was opposed to the 1929 law. Kent County Probate Judge Clark E. Higbee claimed that the new law was "too inclusive" and a statute that only subjected the feeble-minded to sterilization, like the state's 1923 bill, could be "defended against all criticism."⁹⁶ Similarly, Dr. O. R. Yoder of the Kalamazoo state hospital opposed the inclusion of the insane, while maintaining that sterilizing the feeble-minded was "a good thing" because "feeble-minded persons usually marry feeble-minded and feeble-minded children are produced."⁹⁷ Nevertheless, it passed through the house and senate, and governor Fred Green signed the bill on May 22, 1929.

Probate Judges and the Implementation of Sterilization Policy

As stated in Chapter 1, most sterilizations in Michigan occurred in the decade following the passage of the 1929 act. The MHTS, which performed more sterilizations than any other state

⁹⁴ John S. Haggerty, ed., *Public Acts of the Legislature of the State of Michigan Passed at the Regular Session of 1929* (Lansing, MI: Franklin DeKleine Co., 1929), 689–90.

⁹⁵ Haggerty, *Public Acts of the Legislature of the State of Michigan Passed at the Regular Session of 1929*, 691.

⁹⁶ Jeanne Judson, "State Lawmakers Face Eugenics Problem," *Detroit Free Press*, March 17, 1929, 6.

⁹⁷ "Doctor Attacks Sterilization Bill," 12.

institution, sterilized 676 patients by 1932, most occurring after 1929.⁹⁸ Along with the reasons enumerated previously, another explanation for the rapid implementation of sterilization operations is due to a shift in the attitudes of probate judges throughout the state. In the Michigan judicial system, probate judges had the power to certify sterilization orders, serve witnesses depositions, appoint proper guardians, and commit the mentally defective into institutions. If they denied orders on legal grounds, or if they believed that the science justifying sterilizations was ill-founded, they could dwindle the number of operations down to miniscule numbers, which eventually transpired in the 1950s.⁹⁹ However, through the 1930s, they were key supporters of eugenics.

For instance, in May 1931 Ionia probate judge Montgomery Webster, in an address to a sheriff's association, reiterated some of the main, and by then outdated, points of eugenicists. He argued that charity and philanthropy served to displace natural selection by letting the genetically unfit to survive longer and reproduce, causing race degeneracy. To counterbalance this tendency, sterilization of the unfit was necessary to complement public aid and taxpayer support of institutions.¹⁰⁰ Judge George Sample of Washtenaw County called for the sterilization of the "torch murderers" Fred Smith, Frank Oliver, and David Blackstone, who killed four people, despite the law not allowing for criminals to be sterilized.¹⁰¹ Fred L. Woodworth, the State Welfare Director, claimed in 1936 that "probate judges often commit definitely subnormal persons who are regarded as a social menace to a State hospital for just long enough to permit sterilization."¹⁰² Michigan probate judges were also apparently zealous in ordering extra-institutional operations compared to others in the country. According to a 1934 report from the London Departmental Committee on

⁹⁸ Ripple, "Sterilization vs. Segregation."

⁹⁹ Paul, *Three Generations of Imbeciles Are Enough*, 386–87.

¹⁰⁰ "Mental Unfit Check Sought," *Detroit Free Press*, May 23, 1931, 7.

¹⁰¹ "Judge Asks Sterilization Of 3 Torch Murderers," *The Washington Post*, August 20, 1931, 4; "Prison Gates Shut on Trio," *Detroit Free Press*, August 21, 1931, 1.

¹⁰² "Sterilization Law Praised," 27.

Sterilisation, Michigan was responsible for “more than two-thirds” of the approximately 300 non-institutional operations performed in the United States.¹⁰³ Moreover, several civil suits in the early 1930s suggest that, despite the procedural safeguards surrounding sterilization orders, judges were complicit in issuing coercive demands.

William Wells, a 22-year-old farm hand from Oceana County, filed the first suit against the county’s former probate judge, probate register, sheriff, and surgeon. He claimed that he signed a sterilization petition only when he was threatened with a long prison sentence and that the operation weakened him physically and mentally.¹⁰⁴ Despite the charge that he contributed to the delinquency of a 16-year-old female ward of the state, the judge of the case, Earl Pugsley, stated that Wells was of normal mentality and thus able to give consent, while Wells’s attorney argued that he was subnormal and therefore deprived of all the legal protections safeguarding his rights. The defense contended that Wells and his mother read the permit before signing it, were not threatened with any jail sentences, and despite repeated attempts to find a “good home” for the girl, he “took her away from every home that had been found for her.”¹⁰⁵ On the last day of the trial, the defense brought in Dr. William Dubois of Grand Rapids, who stated that he never witnessed any complaints from patients following the “500 operations” he had performed already.¹⁰⁶ After deliberating for over 12 hours, the jury awarded Wells \$3,250 in damages, implicating the judge, the probate registrar, and the sheriff, but not the physician.¹⁰⁷

A few months later, in January 1934, Wayne County Auditor Edward H. Williams charged officials at the Wayne County Training School in Northville of using “trickery” to obtain parents’

¹⁰³ L.G. Brock, *Report of the Departmental Committee on Sterilisation* (London: His Majesty’s Stationery Office, 1934), 112 n.9.

¹⁰⁴ “Man Files Suit for \$30,000 after Sterilization Operation,” *Detroit Free Press*, July 11, 1933, 1.

¹⁰⁵ “Doctor Says Prisoner Knew about Sterilizing Operation,” *Detroit Free Press*, July 12, 1933, 8.

¹⁰⁶ “Sterilization Suit in Hands of Jury,” *Detroit Free Press*, July 13, 1933, 8.

¹⁰⁷ “Farm Youth given \$3,250 for Sterilization Operation,” *Detroit Free Press*, July 14, 1933, 10.

and patients' signatures permitting the sterilization of 25-30 inmates.¹⁰⁸ As part of the auditing board, Williams' charges were not criminal, nor were they challenging the legality of the sterilization law; rather, he focused his efforts on the application of the procedures in place and ensuring no irregularities took place.¹⁰⁹ The five affidavits read into the records proved that Mildred Ainsworth, the chief social worker of the training school, informed parents of inmates that their child could not leave the facility until they submitted to a sterilization procedure. One of them also mentioned that the probate court refused to defer a sterilization hearing on account of a death in the family.¹¹⁰ Although no charges were filed against Ainsworth or the superintendent of the institution, Dr. Robert Haskell, the story made national headlines and revealed to the public how many sterilizations were taking place in the state.¹¹¹

For sterilization to occur in the United States, the judiciary had to analyze state sterilization laws and render them constitutionally legal. American jurisprudence had to consider the sterilization of mentally or physically unfit individuals as a legitimate exercise of the state's police power. It took nearly two decades, but eugenic and progressive thought eventually accomplished this shift among American jurists. Progressives emphasized the utilization of scientific findings to inform judicial interpretations and stressed utilitarianism over individual liberties. Eugenicists applied these ideas to the sterilization of the feebleminded and other groups labeled defective, categorizing them as a social menace whose reproduction had to be curtailed by every available means. Although they were less successful in several court cases in the second decade of the twentieth century, by the mid-1920s their persistence paid off. Cases like *Smith v. Wayne Probate Judge* sanctioned state sterilization laws and the United States Supreme Court did the same with *Buck v.*

¹⁰⁸ "Officials Deny Forcing Wards to Sterilization," *Detroit Free Press*, January 12, 1934, 1.

¹⁰⁹ "Sterilization Quiz to Hear 10," *The Detroit News*, January 14, 1934, 4.

¹¹⁰ "Get Affidavits on Sterilization," *Detroit Free Press*, January 16, 1934, 1-3.

¹¹¹ "Sterilization in Michigan."

Bell. Following this decision, several state legislatures enacted and implemented sterilization programs.

In Michigan, this required the participation of probate judges. Due to the structure of the Michigan judiciary, it was the probate court system that handled cases involving juveniles and young adults from state institutions. Following the enactment of sterilization legislation, probate judges signed sterilization orders. Their acceptance of eugenic ideas, including the belief that it was necessary to sterilize the unfit to improve the genetic makeup of society, was essential for sterilization legislation to be transferred to the actual practice of sterilizing large numbers of inmates and patients in state institutions. Their participation, although not as fully analyzed, was just as vital as that of geneticists and alienists for eugenic sterilization policies to occur. Following the linkage between eugenics and Nazi atrocities, probate judges were more hesitant to approve sterilization orders in the 1950s, with declining numbers of operations as a result. It also was because of advances in human genetics that refuted the simple Mendelism of many eugenicists and revealed the complexity of human inheritance.

Chapter 5 Linking Eugenics to Medical Genetics at the Institute of Human Biology

Although geneticists did not appreciate Aldred Scott Warthin's research on the inheritance of cancer susceptibility when he was alive, his work in this field is now recognized as possibly his greatest contribution to medical science, with Henry Lynch referring to him as "the father of cancer genetics."¹ His venture into cancer studies began in 1895, before Mendel's work was rediscovered, when his wife's seamstress mentioned her fear of dying from cancer, because many in her family suffered the same fate. He then collected the medical history of the seamstress's family, subsequently known as "Family G," while also searching for other "cancer families" in Michigan.² By 1913, he had found four families with complete records for three generations, with members in each cohort diagnosed with cancer. Family G had the most complete records, which disclosed that out of 48 descendants of a grandfather with cancer, 17 "have died or been operated on" for stomach cancer in the males and uterine cancer in the females.³ To Warthin, these records were "so striking that it can be interpreted as showing an inherited susceptibility to cancer."⁴

Despite the fact his findings revealed a potential hereditary contributing factor to the etiology of certain tumors with potential eugenic significance, fellow researchers largely ignored or disputed Warthin's conclusions. Charles B. G. DeNancrede, chair of the Department of Surgery at

¹ Henry T. Lynch, "Aldred Scott Warthin, M.D., Ph.D. (1866-1931)," *CA: A Cancer Journal for Clinicians* 35, no. 6 (1985): 345–46, <https://doi.org/10.3322/canjclin.35.6.345>.

² This story is told by Warthin as well as most of the secondary work on his role in cancer genetics research. The seamstress did indeed die of cancer. Wright, "Aldred Scott Warthin," 5–6.

³ Family G and one other family showed a tendency to gastrointestinal and uterine cancer. Another family showed a tendency to develop breast and lip cancer, and the fourth family showed a tendency to cancer of the breast, stomach, bladder, and rectum. Aldred Scott Warthin, "Heredity with Reference to Carcinoma: As Shown by the Study of the Cases Examined in the Pathological Laboratory of the University of Michigan, 1895-1913," *Archives of Internal Medicine* XII, no. 5 (November 1, 1913): 546–55, <https://doi.org/10.1001/archinte.1913.00070050063006>.

⁴ Warthin, "Heredity with Reference to Carcinoma," 548.

the University of Michigan (UM), stated in a discussion of Warthin's work that he had "a very distinct opinion regarding the lack of proof as to the hereditary nature of carcinoma, despite my early teaching that this was an unquestionable fact."⁵ Tione Pieters argues that the American Society for the Control of Cancer's (ASCC) message of *Do Not Delay* in the 1910s explains the lack of enthusiasm around Warthin's work on the hereditary nature of carcinomas. Cancer was initially grouped with tuberculosis and syphilis due to their similar histologic lesions, but was redesignated in the late nineteenth century as a "surgical disease" that could be cured if a surgeon was able to remove the tumor quickly enough.⁶ Similar to the anti-tuberculosis campaigns during the same period, the ASCC emphasized that cancer, when detected early, was curable.⁷ The ASCC considered Warthin's claims of inherited carcinoma, and the fatalist message that they implied, counterproductive to their message.⁸ In his follow-up work on the inheritance of cancer susceptibility in 1925, Warthin noted that his work reported twelve years earlier was "met with little favor among surgical writers and particularly among those interested in propaganda for the prevention of cancer."⁹ By this time, Family G experienced 28 deaths in the family from cancer out of 144 descendants, 88 of which were adults, giving an incidence rate of 19.18% and 31.81%, respectively. Based on these percentages, Warthin argued that cancer was inherited as a "recessive unit-character."¹⁰ Furthermore, members of the second and third generations received cancer diagnoses at progressively earlier ages, and the carcinomas remained localized in the gastro-intestinal tracts of the male family members and the uterus of the females. This new information, along with the

⁵ Aldred Scott Warthin, "Family Susceptibility to Cancer," *The Journal of the Michigan State Medical Society* 13, no. 1 (January 1914): 39.

⁶ Gaudillière and Löwy, "The Hereditary Transmission of Human Pathologies between 1900 and 1940," 317–18.

⁷ For one such iteration of the "early detection leads to cure" message for tuberculosis, see George Dock, "Some Modern Views of Tuberculosis," *The Journal of the Michigan State Medical Society* 7, no. 4 (April 1908): 185.

⁸ Pieters, "Aldred Scott Warthin's Family 'G.'"

⁹ Aldred Scott Warthin, "The Further Study of a Cancer Family," *The Journal of Cancer Research* 9, no. 2 (June 1, 1925): 279–80, <https://doi.org/10.1158/jcr.1925.279>.

¹⁰ Warthin, "The Further Study of a Cancer Family," 282.

experimental work of Clarence Cook Little and Maud Slye on cancer inheritance in mice, further convinced Warthin that susceptibility to certain carcinomas was possibly an inherited trait.¹¹

Warthin continued to study “cancer families,” and in 1930, one year before his death, he presented his findings before the American College of Physicians that buttressed the data he previously collected. Family G had ten more deaths in the family due to cancer, bringing the incidence rate among adults to 43.2%. The increased diagnostic rate suggested to Warthin that, rather than susceptibility inheritance being a recessive trait, “it is much more probable that the inheritance in this family is dominant, inasmuch as the cancer cases all come from cancer parents.” Family members also appeared to have a predisposition to tuberculosis in addition to the continued predominance of carcinomas in the GI tracts of males and the uterus in females.¹² Members from later generations of Family G and other “Durchschlag” families, as he alternatively called them, continued to develop the carcinoma at earlier ages and involving the same organs. In the end, he attributed these familial cancers to:

at least four hereditary factors: the normal constitution resistant to blastoma; the pathologic blastoma constitution; the normal resistant organ or tissue make-up; and the pathologic organ predisposition to cancer. Each of these factors must be composite; no one is a simple unit factor in the Mendelian sense. Each one represents large and complex genes in which a hundred or a thousand subsidiary factors may enter and which may mendelize independently or in combination.¹³

Like his work on tuberculosis and syphilis, discussed in Chapter 2, Warthin was aware of the possible eugenic implications of his findings. From his research on the inheritance of cancer susceptibility, he concluded that “the man who has a history of the multiple incidence of carcinoma

¹¹ Cancer incidence rates were limited to the adults due to the belief at the time that carcinomas developed no earlier than at age 25 or 30. Warthin, “The Further Study of a Cancer Family,” 282–85.

¹² Aldred Scott Warthin, “Heredity of Carcinoma in Man,” *Annals of Internal Medicine* 4, no. 7 (January 1931): 687–88, <https://doi.org/10.7326/0003-4819-4-7-681>.

¹³ Despite claiming cancer susceptibility was the result of four hereditary factors, because these factors were split along a normal-pathologic constitution and a normal-pathologic organ predisposition, Warthin was claiming that it was due to two alleles at two loci. Warthin, “Heredity of Carcinoma in Man,” 691–92.

in his family should not marry a woman who has the same kind of family history, but he should marry a woman who has no history of cancer in her family.” Furthermore, Warthin contended that families susceptible to cancer should limit their exposure to environmental agents that could cause cancer, including smoking and radiation.¹⁴

Thus, over a period of thirty-five years, Warthin’s argument of the inheritance of cancer shifted quite dramatically, which may also explain why his work received little attention. Warthin determined that cancer susceptibility was a familial predisposition in his first paper on Family G, which was combined with several other families in the state. Twelve years later, after limiting his work to Family G, Warthin claimed that cancer was inherited as a Mendelian recessive. Five years after that, Warthin’s conclusions again shifted; now, cancer in this family was passed down as an autosomal dominant characteristic at two separate loci. This shift can largely be explained by analyzing Warthin’s interpretation of the data he obtained. In his initial 1913 paper, the pedigree chart of Family G clearly demonstrates the incidence of cancer as an autosomal dominant trait. In the second generation, five children eventually developed cancer, whereas five did not. Moreover, among the five individuals of that generation who did develop cancer, they all passed the trait to at least one of their offspring.¹⁵ However, by pooling the data from Family G with that of several other families, Warthin failed to recognize this pattern of inheritance. Rather he saw it as proof of a constitutional diathesis, or family predisposition, towards cancer, a theory common among physicians in the first two decades of the twentieth century including those who trained Warthin in Europe.¹⁶ Coming two years before Thomas Hunt Morgan’s group published *The Mechanism of Mendelian Heredity*, which, as mentioned in Chapter 2, formally established Mendelian genetics

¹⁴ Warthin, “Heredity of Carcinoma in Man,” 696.

¹⁵ Warthin, “Heredity with Reference to Carcinoma,” 549.

¹⁶ Pieters, “Aldred Scott Warthin’s Family ‘G,’” 93; Rosenberg, *No Other Gods*, 218.

as an academic discipline and ushered in an era of genetics research based on chromosome mapping, this is not surprising.

In his follow-up study in 1925, a similar pattern emerges by simply looking at the pedigree chart. Of the 21 offspring of the third generation over the age of 40 born to those who developed cancer, twelve had developed carcinomas.¹⁷ However, because Warthin combined the data from all members of the family—including those who did not inherit the genetic profile and thereby did not develop cancer—together to obtain a cancer incidence rate, rather than tracing the pattern of inheritance through the pedigree, Warthin observed what appeared to be the effects of a recessive gene. Although his decision to analyze incidence rates to determine whether cancer was inherited as a dominant or recessive trait was not unique, Warthin's plethora of data from four generations separated him from other researchers of human genetics, who typically had information on only two or three generations.¹⁸ Consequently, he had a greater number of individuals as part of his dataset, including those who did not inherit any susceptibility to cancer. In his final analysis of 1930, Warthin's training in pathology deceived him. He believed that both the inheritance of the neoplasms and their presence in similar organs needed an explanation.¹⁹ Thus, while finally determining the inheritance of cancer in Family G as a dominant trait, he argued that susceptibility to carcinoma and its position in organ-specific regions were inherited separately.

After I. J. Hauser and Carl Weller provided a follow-up study of Family G in 1936, Warthin's work and its significance in the etiology of certain cancers was essentially forgotten for thirty years.²⁰ By the time Warthin's data was reexamined, Franklin, Watson, and Crick had

¹⁷ Warthin, "The Further Study of a Cancer Family," 281.

¹⁸ As mentioned in Chapter 1, Albert Barrett used incidence rates to argue that manic-depressive psychosis was a dominant trait, since more than 25% of children of patients with the disorder were also eventually diagnosed with the condition. Barrett, "Hereditary and Familial Factors in the Development of the Psychoses," 12.

¹⁹ Warthin, "Heredity of Carcinoma in Man," 690.

²⁰ I. J. Hauser and Carl V. Weller, "A Further Report on the Cancer Family of Warthin," *The American Journal of Cancer* 27, no. 3 (July 1, 1936): 434–49.

demonstrated that genes resided in the DNA and molecular genetics emerged as an independent and vibrant discipline. After Henry Lynch discovered a similar predisposition to colorectal cancer in a family in Nebraska, he gathered medical records and personal interviews from Family G. In 1971, he published his findings, calling it a “cancer family syndrome” that was an autosomal dominant trait.²¹ Subsequent genetic analyses of Family G and other cancer-prone families revealed the presence of germline mutations in DNA mismatch repair (MMR) genes.²² “Lynch syndrome,” as it is now called, is the presence of mutations in the *MLH1*, *MSH2*, *MSH6*, *PMS2*, or *EPCAM* genes.²³ In 2000, some members of Family G consented to providing additional medical information, including their DNA, to researchers. It was reported that family members carry the *MSH2* thymine to guanine mutation, leading to a three-fold increase in the likelihood of endometrial and colorectal cancers compared to the general population.²⁴ Following these developments based on advances in molecular genetics, geneticists recognized Warthin’s work on the hereditary nature of cancer as the key introductory point to cancer genetics research. Much like Margaret Lasker’s pedigree work on pentosuria, Warthin’s initial investigations into cancer genetics proved vital to later understandings of the genetic basis of disease.²⁵

²¹ Henry T. Lynch and Anne J. Krush, “Cancer Family ‘G’ Revisited: 1895-1970,” *Cancer* 27, no. 6 (1971): 1505–11, [https://doi.org/10.1002/1097-0142\(197106\)27:6<1505::AID-CNCR2820270635>3.0.CO;2-L](https://doi.org/10.1002/1097-0142(197106)27:6<1505::AID-CNCR2820270635>3.0.CO;2-L).

²² C. Richard Boland and Henry T. Lynch, “The History of Lynch Syndrome,” *Familial Cancer* 12, no. 2 (2013): 146–47.

²³ The first four of these MMR genes code for proteins responsible for correcting nucleotide mismatches that are “missed” in the initial editing function of DNA polymerase; consequently, their mutation produces an accumulation of somatic mutations that can result in the development of tumors. A mutation in the *EPCAM* gene can epigenetically silence the neighboring *MSH2* gene through hypermethylation. Fay Kastrinos and Elena M. Stoffel, “History, Genetics, and Strategies for Cancer Prevention in Lynch Syndrome,” *Clinical Gastroenterology and Hepatology* 12, no. 5 (May 2014): 715–16, <https://doi.org/10.1016/j.cgh.2013.06.031>.

²⁴ Julie A. Douglas et al., “History and Molecular Genetics of Lynch Syndrome in Family G: A Century Later,” *JAMA* 294, no. 17 (November 2, 2005): 2195, <https://doi.org/10.1001/jama.294.17.2195>.

²⁵ Nurit Kirsh and L. Joanne Green, “A Feeling for the Human Subject: Margaret Lasker and the Genetic Puzzle of Pentosuria,” *Journal of the History of Biology* 54, no. 2 (June 2021): 247–74, <https://doi.org/10.1007/s10739-021-09642-9>.

In the 1920s, however, it was Warthin's contemporary and boss (as president of the University of Michigan from 1925 to 1929), Clarence Cook Little, who was viewed as one of the leading researchers in the field of cancer genetics research. Confrontational yet brilliant, Little cut his teeth in genetic research under William E. Castle at Harvard, who convinced him that mouse genetics would prove a fruitful avenue for research.²⁶ In 1909, while still an undergrad, he mated brothers and sisters of dilute brown mice to create an inbred strain.²⁷ Whereas mouse fanciers and others had produced inbred mice with specific phenotypes long before Little, he was unique in recognizing the potential a genetically homogeneous strain of mammals could provide for genetics research.²⁸ They were the key material on which he conducted his own hereditary investigations and, later, as the Director of the Jackson Laboratory in Bar Harbor, Maine Little shipped millions of these and other strains of pure-bred mice to researchers around the world.²⁹ Little focused his attention on the inheritance of fur color in mice as he pursued his doctorate, which proved fortuitous, for the polygenic nature of this trait served as a major building block for his later analyses of cancer genetics.

While at Harvard, Little worked with Ernest Tyzzer on the inheritance of cancer susceptibility and tissue transplantation. Tyzzer, based on experiments where he transplanted cancer tissues between mice of similar strains and between parents and children, was puzzled by the fact that although susceptibility to death from a tumor could be passed down from parents to their offspring (the F₁ generation), this susceptibility almost completely disappeared in the following

²⁶ James F. Crow, "C. C. Little, Cancer and Inbred Mice," *Genetics* 161, no. 4 (August 1, 2002): 1358.

²⁷ C. C. Little, "Notes on a Species Cross in Mice and on an Hypothesis Concerning the Quantitative Potentiality of Genes," *Science* 66, no. 1718 (December 2, 1927): 542, <https://doi.org/10.1126/science.66.1718.542.b>.

²⁸ Hugh Auchincloss Jr and Henry J. Winn, "Clarence Cook Little (1888–1971): The Genetic Basis of Transplant Immunology," *American Journal of Transplantation* 4, no. 2 (2004): 156, <https://doi.org/10.1046/j.1600-6143.2003.00324.x>.

²⁹ Karen Rader, *Making Mice: Standardizing Animals for American Biomedical Research, 1900-1955* (Princeton: Princeton University Press, 2004).

generation (F₂). Thus, the genes for tumor susceptibility appeared to behave as a dominant trait in one generation but not in the next. In 1914, Little wrote an article in *Science* that addressed Tyzzer's seemingly contradictory data and eventually served as the basis of the concept of histocompatibility in genetics.³⁰ Expanding on his work on the polygenic inheritance of coat color in mice, he demonstrated mathematically that the trait's manifestation depends on the codominant expression of genes at more and more loci, thus, the proportion of F₂ offspring who phenotypically express the trait will be fewer and fewer.³¹ Therefore, a trait that depended on several dominant genes may appear to defy Mendelian inheritance in the second generation. Two years later, in 1916, Little and Tyzzer published data revealing that only 1.6% of the F₂ crosses between Japanese waltzing mice and common house mice remained susceptible to carcinoma transplantation, in contrast to the nearly 100% of their F₁ parents.³² According to their calculations, they estimated that around a dozen genes were necessary for the acceptance of this tumor transplant.³³ Following this work, Little devoted the rest of his career to studying cancer genetics.

In the roughly ten years between these findings and assuming the presidency at UM, Little continued to produce inbred mice, examine the inheritance of cancer susceptibility, and expand his administrative roles. While working at the Station for Experimental Evolution under Charles Davenport in Cold Spring Harbor, New York, he developed the black C57BL mouse strain, one

³⁰ Auchincloss Jr and Winn, "Clarence Cook Little (1888–1971)," 156–57.

³¹ Although he did not express it in this notation, Little derived the formula for multifactorial dominant expression as $(3/4)^n$, with n being the number of genes that determined the trait. C. C. Little, "A Possible Mendelian Explanation for a Type of Inheritance Apparently Non-Mendelian in Nature," *Science* 40, no. 1042 (December 18, 1914): 904–6, <https://doi.org/10.1126/science.40.1042.904>.

³² C. C. Little and E. E. Tyzzer, "Further Experimental Studies on the Inheritance of Susceptibility to a Transplantable Tumor, Carcinoma (J. w. A.) of the Japanese Waltzing Mouse," *The Journal of Medical Research* 33, no. 3 (January 1916): 393–453.

³³ E. E. Tyzzer and C. C. Little, "Studies on the Inheritance of Susceptibility to a Transplantable Sarcoma (J. w. B.) of the Japanese Waltzing Mouse," *Journal of Cancer Research* 1, no. 3 (July 1916): 387–88.

of the most popular and successful inbred mice in scientific research.³⁴ Little also became prominent within the eugenics community, serving as the General Secretary of the Second International Congress of Eugenics in 1921. He attempted to deflect criticisms that the eugenics movement was “impractical and in the hands of ‘faddists’” by developing a “strong programme” in genetics and anthropology.³⁵ While certain eugenic “faddists” still reported their findings—such as Madison Grant and Harry Laughlin—a considerable proportion of conference participants were well-respected biologists. This included several with no discernible connection to eugenics, such as Calvin Bridges and Sewall Wright.³⁶ Little presented on the inheritance of a predisposition to cancer in humans. Based on data individuals submitted to the Eugenics Record Office, he claimed such a predisposition was inherited according to “multiple Mendelizing factors,” although the transition from cancer predisposition to incidence required certain environmental irritations.³⁷ In 1922, at the age of 33, C. C. Little was appointed president of the University of Maine, making him the youngest university president in the country. Three years later, in 1925, he accepted the same position at the University of Michigan.

According to his scientific colleagues who wrote biographical sketches, Little’s presidency was similar in both institutions.³⁸ He was innovative, controversial, seemed to attract the opposition of his constituents, and ultimately resigned at both universities. He also vigorously promoted the welfare of undergraduate students and was outspoken in his advocacy for women’s education. One of his most influential reforms was the introduction of Freshman Week, which he started

³⁴ G. D. Snell, “Clarence Cook Little,” *Biographical Memoirs of the National Academy of Sciences* 46 (1975): 242–43.

³⁵ C. C. Little, “The Second International Congress of Eugenics,” *The Eugenics Review* 13, no. 4 (January 1922): 511.

³⁶ “Reports of the Second International Congress of Eugenics,” *The Eugenics Review* 15, no. 2 (July 1923): 409–14.

³⁷ C. C. Little, “The Inheritance of a Predisposition to Cancer in Man,” in *Scientific Papers of the Second International Congress of Eugenics*, vol. 1, 2 vols. (Baltimore, MD: Williams & Wilkins Company, 1923), 186–90.

³⁸ This paragraph is based on Snell, “Clarence Cook Little,” 243–44; and Crow, “C. C. Little, Cancer and Inbred Mice,” 1357.

while in Orono and implemented in Ann Arbor. At UM, the faculty vehemently opposed his attempt to design a separate college for freshmen and sophomores. In advocating for the students' health, Little worked to improve intramural facilities; however, his policies banning liquor and automobiles were much less popular. He continuously appealed to the legislatures of both states for more money to support their respective universities. These repeated requests, combined with his public statements on topics like birth control, euthanasia, and eugenics (and his divorce), culminated in his resignation as president of UM in 1929.

One key difference between Little's tenures, however, was that during his presidency at the University of Maine, he was able to continue research on cancer susceptibility inheritance and transplantation, whereas in Ann Arbor his research output was principally on college administration and reform.³⁹ His list of publications confirms this: 11 of his 12 publications between 1922 and 1924, compared to only 4 of 12 from 1925 to 1928, were on cancer. Moreover, two of these papers were on the effects of radiation in inducing cancer, while another was a further critique of Maud Slye's work on cancer, rather than an original publication.⁴⁰ It is perhaps noteworthy that despite their close proximity, Little never cited Warthin's work until after he had left UM. Part of the reason for this may have been because of Warthin's shifting interpretations of his data, as mentioned earlier. Another, perhaps more fundamental, reason may have been that Little did not trust human genetics research. Little cited Warthin's 1930 conclusion that cancer susceptibility was inherited according to genes at two loci, referring to it as a "highly theoretical interpretation." Although he had no issue with such an explanation, Little stressed the importance of recognizing

³⁹ Snell provides a bibliography of Little's work. Snell, "Clarence Cook Little," 254–55.

⁴⁰ Little's long and public feud with Maud Slye, who was investigating cancer genetics at the University of Chicago, began in 1915. In a 1928 paper, Little tabulated the pedigree data from Slye's articles to refute her claim that all forms of cancer were inherited as an autosomal recessive trait at one loci. Rather, he argued that breast cancer was a sex-linked dominant, though other forms of cancer were dependent on different genes. C. C. Little, "Evidence That Cancer Is Not a Simple Mendelian Recessive," *The Journal of Cancer Research* 12, no. 1 (March 1, 1928): 30–46, <https://doi.org/10.1158/jcr.1928.30>.

“the utter inadequacy of individual human pedigrees, as at present gathered, to serve as the scientific basis for any complex theory of genetics.”⁴¹ Similar to his critique of Slye, Little emphasized statistical methods in demonstrating the facts of inheritance over pedigree analysis. Whether it was in the analysis of humans or mice, mathematical tools, in short, were more reliable than family histories.

Following C. C. Little’s departure and Warthin’s death, research on cancer genetics at the University of Michigan did not emerge for another twenty years. The next such study appeared in 1951, when Drs. Harold F. Falls and James V. Neel published two articles on retinoblastoma, a hereditary neoplasm of the eye. Gathering every known case of the disease that occurred in Michigan between 1938 and 1947, they conducted interviews of the patients and their families, obtained information as to whether any relatives also suffered from retinoblastoma, and conducted ophthalmological examinations of every living patient and their relatives. Based on the pedigrees they acquired, Falls and Neel concluded that the disease was inherited as a single-gene autosomal dominant trait. Due to the highly lethal nature of the disease, which can only be treated by surgically removing the eye before the malignancy spreads, they determined that the gene responsible for retinoblastoma mutated within the population at a rate of 2.3×10^{-5} per generation.⁴² This mutation rate, they reasoned based on theories from population genetics, explained its persistence despite the diminished fitness of the disease.

As is apparent in comparing Falls and Neel’s study on retinoblastoma to the pedigree analyses of Warthin and the statistical tabulations of Little, cancer genetics research, and research into

⁴¹ C. C. Little, “The Role of Heredity in Determining the Incidence and Growth of Cancer,” *The American Journal of Cancer* 15, no. 4 (October 1, 1931): 2780, <https://doi.org/10.1158/ajc.1931.2780>.

⁴² Harold F Falls and James V. Neel, “Genetics of Retinoblastoma,” *American Medical Association Archives of Ophthalmology* 46, no. 4 (1951): 367–89; James V. Neel and Harold F. Falls, “The Rate of Mutation of the Gene Responsible for Retinoblastoma in Man,” *Science* 114, no. 2964 (1951): 419–22.

the inheritance of human traits more generally, was drastically transformed by the middle of the twentieth century. This was the result of institutional and theoretical advances that occurred in the fifty years that separated these publications. These changes, moreover, both influenced and were influenced by the relationship between human genetics and eugenics.

Despite the legislative success of eugenicists in the late-1920s, as discussed in the last chapter, developments within multiple fields emerged that produced significant changes in the theoretical foundations of eugenics. Psychologists, anthropologists, and sociologists provided data suggesting that cultural and environmental factors explained many of the behavioral, cognitive, and temperamental differences between groups of people that eugenicists asserted were biological.⁴³ Geneticists, meanwhile, undermined several key assumptions prominent among eugenicists. R. C. Punnett, professor of genetics at Cambridge University, demonstrated as early as 1917 that sterilization policies would do little in reducing the number of deleterious genes within a population. Since sterilization impacted only individuals who were homozygous for a trait, heterozygous carriers continued to transmit these traits, an argument that Ronald Fisher and J. B. S. Haldane reinforced a decade later.⁴⁴ Meanwhile, the British medical geneticist Lionel Penrose revealed that feeble-mindedness was a catchall term for a variety of clinically differentiated conditions that were each the result of complex interactions between an individual's genes and their environment.⁴⁵ More specifically, he demonstrated as early as 1933 that maternal age was significantly correlated with the birth of children with Down's syndrome, then still called "Mongolism."⁴⁶ A couple of years later, he corroborated Asbjørn Følling's claim that phenylketonuria (PKU)—a genetic

⁴³ Degler, *In Search of Human Nature*, 187–211.

⁴⁴ Punnett, "Eliminating Feeble-mindedness"; Kevles, *In the Name of Eugenics*, 165–66.

⁴⁵ Ludmerer, *Genetics and American Society*, 125–26.

⁴⁶ Lionel Sharples Penrose and John Burdon Sanderson Haldane, "The Relative Aetiological Importance of Birth Order and Maternal Age in Mongolism," *Proceedings of the Royal Society of London. Series B, Containing Papers of a Biological Character* 115, no. 795 (August 1, 1934): 431–50, <https://doi.org/10.1098/rspb.1934.0051>.

metabolic disorder in which the enzyme necessary to convert the amino acid phenylalanine to tyrosine is missing from the liver, resulting in impaired cognitive development—was a Mendelian recessive characteristic, while suggesting that a specially prepared diet low in phenylalanine would potentially cure the disease.⁴⁷ Mainstream eugenics may not have been “a farrago of flawed science,” as Daniel Kevles has argued, but by the mid-1930s, the simple Mendelism upon which many eugenicists based their arguments was under attack on several fronts.⁴⁸

Conceptual Change in Eugenics and the Rise of Medical Genetics

From the 1930s through the 1970s, eugenics underwent significant changes, both as the science of human inheritance and a program of sociopolitical policies to improve the hereditary constitution of a population. As noted above, some of these alterations were due to scientific challenges to eugenics. However, change was also the result of developments external to science. Many earlier works on the history of the eugenics movement argued that the uncovering of Nazi atrocities during the Second World War in the name of eugenics “stripped the eugenics movement of its trappings of science,” and revealed the racist, nativist, and classist prejudices that underscored the work of eugenicists.⁴⁹ More recent analyses, however, have demonstrated that, rather than a complete repudiation of eugenics *in toto*, eugenic ideas and policies were fractured along two lines. On the one hand, genetics research into the inheritance of diseases, initiated in eugenics research, continued with medical genetics. On the other hand, ecologists, demographers, environmentalists, and development theorists promulgated the idea that overpopulation was becoming an increasingly global concern and introduced family planning, contraceptives, and sterilization methods to individuals around the world.

⁴⁷ Lionel S. Penrose, “Inheritance of Phenylpyruvic Amentia (Phenylketonuria),” *The Lancet* 226, no. 5839 (July 27, 1935): 192–94, [https://doi.org/10.1016/S0140-6736\(01\)04897-8](https://doi.org/10.1016/S0140-6736(01)04897-8); Cowan, *Heredity and Hope*, 119–21.

⁴⁸ Kevles, *In the Name of Eugenics*, 164; Mazumdar, “‘Reform’ Eugenics and the Decline of Mendelism,” 51.

⁴⁹ Haller, *Eugenics*, 7; Kevles, *In the Name of Eugenics*, 174–75.

During the middle-third of the twentieth century, medical genetics started its ascendancy as an independent discipline of genetics research. Several historians have examined the concomitant rise of medical genetics, the decline of eugenics, and the connections between the two. Collectively, they generally note that, at a minimum, the “eugenic impulse” to urge the “selection of the best offspring possible” remained within medical genetics.⁵⁰ The immediate development of genetic counseling—where physicians provided potential parents an estimate of the probability that they would transmit certain genetic diseases or traits to their children—alongside the study of hereditary disease buttressed this impulse.⁵¹ Whether medical geneticists identified their aims explicitly as eugenics or not was determined largely by external sociopolitical developments, such as public perceptions of eugenics in relation to the atrocities committed under the Nazi regime, the antagonistic relationship between eugenic ideas and feminist notions of reproductive autonomy, or revelations of continued sterilization operations performed disproportionately on poor women of color.⁵² By the mid-1970s, when the public definition of eugenics was restricted primarily to compulsory sterilization programs, medical geneticists and genetic counselors sharply demarcated their work from eugenics.⁵³

Although it is generally recognized that medical genetics only flourished after World War II, accounts of the field’s “starting point” differ widely. Some claim medical genetics began in the

⁵⁰ Comfort, *The Science of Human Perfection*, xi; and Nils Roll-Hansen, “Some Thoughts on Genetics and Politics: The Historical Misrepresentation of Scandinavian Eugenics and Sterilization,” in *History of Human Genetics: Aspects of Its Development and Global Perspectives*, ed. Heike I. Petermann, Peter S. Harper, and Susanne Doetz (New York: Springer International Publishing, 2017), 167–87, https://doi.org/10.1007/978-3-319-51783-4_11; Ruth Schwartz Cowan, on the other hand, argues that there is no connection between eugenics and medical genetics, since the founders of the latter wished above all to alleviate human suffering, while their methods contradicted to eugenic goal of eliminating deleterious genes from populations. Cowan, *Heredity and Hope*.

⁵¹ Alexandra Stern, *Telling Genes: The Story of Genetic Counseling in America* (Baltimore: Johns Hopkins University Press, 2012), 2–3.

⁵² Diane Paul, “From Eugenics to Medical Genetics,” *Journal of Policy History* 9, no. 1 (January 1997): 97–98, <https://doi.org/10.1017/S0898030600005844>; Rebecca Kluchin, *Fit to Be Tied: Sterilization and Reproductive Rights in America, 1950-1980* (New Brunswick, NJ: Rutgers University Press, 2011), 7.

⁵³ Paul, “From Eugenics to Medical Genetics,” 98; Paul, *The Politics of Heredity*, 135.

1950s, with the opening of Victor McKusick's Moore Clinic at the Johns Hopkins Hospital in 1957.⁵⁴ As Nathaniel Comfort has argued, however, this designation epitomizes an "origin myth," for investigations into the inheritance of clinical disease in humans and the development of medical genetics departments at universities were established well before this time.⁵⁵ Rather, he, along with many others, place the founding of medical genetics with the pioneering work of William Allan, Madge Macklin, and Laurence Snyder in the 1930s, particularly the appointment of Snyder as professor of medical genetics at Ohio State University in 1932, the first such position in the country.⁵⁶ This notably occurred at a time when American physicians were gradually becoming more receptive to genetic explanations of disease.⁵⁷ The decades of the 1930s through the 1950s, in these accounts, represent a period of transition in the history of eugenics; as the eugenic ideas espoused by the likes of Harry Laughlin, Charles Davenport, and others fell out of favor, medical genetics began its ascendancy. The key difference, in most these interpretations, is the repudiation of the race and class prejudices of earlier work on human genetics. As the older generation of eugenicists retired or died, the new generation of medical geneticists conducted work that was more grounded in scientific data.⁵⁸

Others attribute the origins of medical genetics, as a scientific enterprise distinct from eugenics to the work of Sir Archibald Garrod, whose biochemical research in 1902 on alkaptonuria demonstrated the first recorded incidence of a metabolic disorder inherited according to Mendelian

⁵⁴ Hugh Young Rienhoff, Jr., "Genetic Medicine at the Bedside," *Nature* 453, no. 7194 (May 22, 2008): 452; Adam Hadhazy, "Father of Medical Genetics, Victor McKusick, Dies at 86," *Scientific American*, July 25, 2008, <https://blogs.scientificamerican.com/news-blog/father-of-medical-genetics-victor-m-2008-07-25/>; Lawrence K. Altman, "Victor McKusick, 86, Dies; Medical Genetics Pioneer," *The New York Times*, July 24, 2008, sec. Health, <https://www.nytimes.com/2008/07/24/health/24mckusick.html>.

⁵⁵ Comfort, *The Science of Human Perfection*, 163–64.

⁵⁶ Nathaniel Comfort, "'Polyhybrid Heterogeneous Bastards': Promoting Medical Genetics in America in the 1930s and 1940s," *Journal of the History of Medicine & Allied Sciences* 61, no. 4 (October 2006): 415–55, <https://doi.org/10.1093/jhmas/jrl001>; Kevles, *In the Name of Eugenics*, 209.

⁵⁷ Ludmerer, *Genetics and American Society*, 183–84.

⁵⁸ Ludmerer, *Genetics and American Society*, 165–71.

principles.⁵⁹ While Garrod himself was by no means a eugenicist, many eugenicists in the early-twentieth century did conduct important research on the inheritance of disease. As Kenneth Ludmerer has noted, the production of biased, pseudoscientific work alongside investigations of lasting value was characteristic of the early years of human genetics research. Charles Davenport serves as a primary example of this phenomenon. Alongside investigations into the inheritance of thalassophilia—or the “love of the sea” among naval officers—as a sex-linked recessive trait, were demonstrations of Huntington’s chorea as a dominant characteristic.⁶⁰ Furthermore, Davenport’s work on the inheritance of skin pigmentation, conducted on the children of interracial marriages in Jamaica, was so influential that Curt Stern used it as an example in his 1960 textbook on human genetics.⁶¹

Another related point demarcating eugenics research from that of medical genetics is the attitude of physicians on eugenics itself. Several contemporary medical geneticists, as well as scholars examining the records afterwards, note that physicians were mostly antagonistic to the claims of eugenicists. Much of the literature mentions eugenicists frequently criticizing the advances of medicine, particularly those in bacteriology and hygiene that eliminated much infant mortality and allowed greater numbers of individuals to survive to reproductive age. These criticisms, the argument goes, made physicians hostile towards eugenicists.⁶² The frequently discussed

⁵⁹ Cowan, *Heredity and Hope*, 41; Alan R. Rushton, “Bateson and the Doctors: The Introduction of Mendelian Genetics to the British Medical Community 1900–1910,” in *History of Human Genetics: Aspects of Its Development and Global Perspectives*, ed. Heike I. Petermann, Peter S. Harper, and Susanne Doetz (New York: Springer International Publishing, 2017), 59–71, https://doi.org/10.1007/978-3-319-51783-4_4.

⁶⁰ Charles Benedict Davenport and Mary Theresa Scudder, *Naval Officers: Their Heredity and Development*, Carnegie Institution of Washington, Publication no. 259 (Washington: Carnegie Institution of Washington, 1919); Davenport, *Heredity in Relation to Eugenics*, 102.

⁶¹ It is also the first study of polygenic inheritance on human traits. Categorizing skin color into five classes using a color top, Davenport concluded that the variability of pigmentation shown in the children of interracial marriages was the result of genes at two separate loci. Later investigations revealed that skin color is a quantitative trait, much like stature, with a continuous distribution throughout the population. Curt Stern, *Principles of Human Genetics*, 2nd ed., A Series of Books in Biology (San Francisco, CA: W. H. Freeman and Company, 1960), 350–54.

⁶² A representative argument of this claim can be found at Cowan, *Heredity and Hope*, 64.

social Darwinistic implications of medical advances did likely rub some doctors the wrong way, however, this does not mean that they were inherently opposed to eugenics. Many physicians, such as Dr. John Harvey Kellogg, believed that artificial selection needed to replace natural selection, a position medical geneticists like Curt Stern later considered reasonable.⁶³

Not all eugenicists' work was discarded in the middle of the century; therefore, one cannot simply demarcate a point in time when eugenics "ended," and medical genetics "began." Research into the inheritance of cancer and other diseases were conducted simultaneously alongside investigations into feeble-mindedness and the effects of miscegenation with clearly eugenic aims. Furthermore, despite medical geneticists in the middle of the twentieth century often distancing their work from eugenics, they also considered their work an extension of eugenic goals. According to Sheldon Reed, the Director of the University of Minnesota's Dight Institute for Human Genetics and who coined the term "genetic counseling"—a field almost synonymous with medical genetics in the middle of the twentieth century—Francis Galton represented "the fountainhead from which modern genetic counseling developed."⁶⁴ The Heredity Clinic at UM was founded with a similar purpose.

Lee Dice and the Heredity Clinic

The creation of the Heredity Clinic was through the efforts of Lee Raymond Dice, an ecologist who worked almost exclusively with the deermouse *Peromyscus*. Dice earned his Bachelor of Arts from Stanford, where he took David Starr Jordan and Vernon Kellogg's course in organic evolution.⁶⁵ He earned his doctorate in 1915 at UC Berkeley under Samuel J. Holmes, who Dice

⁶³ Kellogg, "Relation of Public Health Work to Race Degeneracy"; Stern, *Principles of Human Genetics*, 732.

⁶⁴ Sheldon C. Reed, "A Short History of Genetic Counseling," *Social Biology* 21, no. 4 (December 1, 1974): 332, <https://doi.org/10.1080/19485565.1974.9988131>.

⁶⁵ Francis C. Evans, "Lee Raymond Dice, (1887-1977)," *Journal of Mammalogy* 59, no. 3 (August 1978): 635.

credited with introducing him to eugenics.⁶⁶ Forced to give up a scholarship to work with Thomas Hunt Morgan at Columbia due to eye strain he developed while studying fish in Alaska, Alexander Ruthven hired Dice as Curator of Mammals in the Museum of Zoology at UM. During C. C. Little's presidency, Dice established the Laboratory for Mammalian Genetics to house his growing collection of mice and became director of the lab in 1934. In 1942, it was renamed the Laboratory of Vertebrate Biology (LVB).⁶⁷

It was only after he became director of the LVB that Dice's interests turned to eugenics. In 1935, Harrison Hunt, a zoologist and eugenicist at Michigan State College, introduced a resolution to the Michigan Academy of Science, Arts, and Letters to establish a "family research bureau" that would "study the causes of criminality and of mental defects and diseases."⁶⁸ Two years later, Dice outlined how such a "laboratory for the study of human heredity" should be formulated. Because, Dice argued, the number of "epileptic, insane, delinquent, or criminal persons" are growing every year, such a laboratory must collaborate frequently with all state institutions and its immediate focus should be research on hereditary mental deficiencies. Initially, he envisioned that the lab would aid eugenics by determining which criminals and patients at state institutions should be barred from having children. Dice agreed with Dr. Robert Dixon of Lapeer that half of all feebleminded cases were due to genetics, while believing that criminality was an inherited defect.

⁶⁶ Lee Raymond Dice to Mrs. Avis H. Olsen, April 18, 1964, Box 5, Correspondence: H, Lee Raymond Dice Papers, Bentley Historical Library, University of Michigan.

⁶⁷ The Laboratory of Vertebrate Biology would quickly be renamed the Laboratory of Vertebrate Genetics to better portray the research program of the lab. It was later renamed the Laboratory of Vertebrate Biology again when it was reformulated as a unit of the Institute of Human Biology. For simplicity's sake, I will refer to it as LVB. Evans, "Lee Raymond Dice, (1887-1977)," 637.

⁶⁸ Lee R. Dice, "A Proposed Laboratory for the Study of Human Heredity in Michigan" (Michigan Academy of Science, Arts and Letters, 1937), 84, Box 6, Reprints, Lee Raymond Dice Papers, Bentley Historical Library, University of Michigan; Much like David Starr Jordan, Hunt was a pacifist who believed that war had dysgenic consequences. Harrison R. Hunt, *Some Biological Aspects of War* (New York: The Galton Publishing Company, 1930).

He claimed the state should ensure that individuals with these traits will not pass down such conditions to children before they are released.⁶⁹

Four years later, in 1941, Dice got the opportunity to construct such a laboratory for studying human heredity. As part of a study on heredity and aging, Dice secured a grant from the Horace Rackham Graduate School to form the Heredity Clinic as a unit of the LVB, which opened to the public in November of that year.⁷⁰ Searching for a person trained in both genetics and medicine, Dice initially had secured Lionel Penrose to oversee the clinic; however, the Canadian government pressured him to stay in the country for the war effort.⁷¹ He then hired Dr. C. Nash Herndon, an instructor in medical genetics at the Bowman Gray School of Medicine at Wake Forest in North Carolina employed through a Carnegie Institute of Washington fellowship.⁷² Herndon, however, was soon offered to lead the Bowman Gray Medical Genetics Department, and on March 11, 1942, resigned from his position at Ann Arbor.⁷³ Thus, the UM Heredity Clinic had a rather inauspicious beginning.

For its first five years, it was mostly three individuals who operated the Heredity Clinic. Aside from Dice, Charles W. Cotterman came from Ohio State University—where he obtained his

⁶⁹ Dice, “A Proposed Laboratory for the Study of Human Heredity in Michigan,” 84–85.

⁷⁰ Lee R. Dice, “The Laboratory of Vertebrate Biology Report” (Ann Arbor, MI: University of Michigan, 1942), 5–6, Box 5, Laboratory of Vertebrate Biology Meeting Minutes, 1945-1952, Lee Raymond Dice Papers, Bentley Historical Library, University of Michigan; Lee R. Dice, “Counseling Centers on Human Heredity in North America,” *Eugenical News* 37, no. 2 (June 1952): 32.

⁷¹ Lionel S. Penrose to Lee Raymond Dice, May 30, 1941, Box 3, Correspondence: Lionel S. Penrose, Lee Raymond Dice Papers, Bentley Historical Library, University of Michigan; Lee Raymond Dice to Lionel S. Penrose, June 20, 1941, Box 3, Correspondence: Lionel S. Penrose, Lee Raymond Dice Papers, Bentley Historical Library, University of Michigan.

⁷² C. Nash Herndon to Lee R. Dice, August 28, 1941, Box 1, Institute of Human Biology, Correspondence and Administrative Material, 1946, Department of Human Genetics (DHG) Records, BHL, UM.

⁷³ Lee R. Dice, “Report to Dean C. S. Yoakum on Research Project #R-108 for 1941-42” (Ann Arbor, MI: Laboratory of Vertebrate Biology, August 1, 1942), 1, Box 1, Institute of Human Biology - Laboratory of Vertebrate Biology - Correspondence and Administrative Material, 1948, Department of Human Genetics Records, Bentley Historical Library, University of Michigan.

PhD in human genetics under Laurence Snyder—in 1940 as a Research Associate in the LVB.⁷⁴ An innovative yet eccentric mathematical geneticist, Cotterman helped obtain data, interpret statistical findings, and developed a means of mathematically correcting ascertainment bias (the fact that proportions of cases of a genetic trait are inflated due to collecting data from families who have a relatively that phenotypically expressed the trait, while data on those with the trait who did not manifest the phenotype are not recorded) when translating pedigree data to populations.⁷⁵ The other individual, following Herndon's resignation, was Dr. Harold F. Falls, from the UM Ophthalmology Clinic. Despite being appointed only to quarter-time, Falls helmed the clinic from 1942 until James V. Neel arrived in 1946.⁷⁶ In the interim, Dice attempted once again to get Penrose to join his staff, but by that time it seemed likely that he would replace Ronald Fisher for the Galton Professorship at University College London.⁷⁷ Nevertheless, the Heredity Clinic was able to acquire records on 890 kindreds in its first five years, providing valuable source material for their investigations into human heredity. Over half of the kindreds came from University Hospital referrals, and nearly another 20% came from Falls and the UM Orthodontics Clinic.⁷⁸

⁷⁴ Lee R. Dice, "Report to Dean Yoakum on Research Grant R-108, 1940-1941" (Ann Arbor, MI: Institute of Human Biology, July 21, 1941), 1, Box 1, Institute of Human Biology, Correspondence and Administrative Material, 1941-1942, Department of Human Genetics Records, Bentley Historical Library, University of Michigan.

⁷⁵ Kevles, *In the Name of Eugenics*, 209; Harold F. Falls et al., "Report to Horace H. Rackham School of Graduate Studies on Studies of Aging and Human Heredity (Research Project Number R-108)" (Ann Arbor, MI: Laboratory of Vertebrate Biology, August 26, 1946), 2, Box 1, Institute of Human Biology - Laboratory of Vertebrate Biology - Correspondence and Administrative Material, 1948, Department of Human Genetics Records, Bentley Historical Library, University of Michigan; C. W. Cotterman, "A Weighting System for the Estimation of Gene Frequencies from Family Records," *Contributions from the Laboratory of Vertebrate Biology* 33 (1947): 1–21.

⁷⁶ "History of Department of Human Heredity" (n.d.), Box 1, Institute of Human Biology, History (Timeline and Correspondence), Department of Human Genetics Records, Bentley Historical Library, University of Michigan.

⁷⁷ Lee R. Dice to Lionel S. Penrose, February 26, 1942, Box 1, Institute of Human Biology, Correspondence and Administrative Material, 1945, Department of Human Genetics Records, Bentley Historical Library, University of Michigan; Lee R. Dice to Charles W. Cotterman, December 14, 1943, Box 1, Institute of Human Biology, Correspondence and Administrative Material, 1943-1944, Department of Human Genetics Records, Bentley Historical Library, University of Michigan; Lee R. Dice to Lionel S. Penrose, March 28, 1944, Box 1, Institute of Human Biology, Correspondence and Administrative Material, 1943-1944, Department of Human Genetics Records, Bentley Historical Library, University of Michigan.

⁷⁸ The numbers are provided in Lee R. Dice, "Annual Reports on Research Grant R-108" (Ann Arbor, MI: Institute of Human Biology, 1941-1946), Box 1, Institute of Human Biology, Correspondence and Administrative Material, DHG Records, BHL, UM.

The UM Heredity Clinic, the Bowman Gray Department of Medical Genetics, and the Dight Institute at the University of Minnesota all opened in 1941.⁷⁹ Each institution saw patients suffering from hereditary diseases, collected their family histories, provided physical and mental examinations on the patient and their relatives, and offered advice to the parents on the likelihood of conceiving another child with the same affliction. The most important aspect of this work, according to Dice, was gathering the necessary materials to conduct human genetics research. A secondary component was disseminating knowledge of human heredity to students and researchers. Finally, a tertiary feature was in counseling parents on hereditary disease.⁸⁰ To a greater degree than either the Bowman Gray or the Dight Institute, according to the historian of science Alexandra Minna Stern, the Heredity Clinic emphasized genetic research over genetic counseling. This was partly because of the eugenic overtones implicit in genetic counseling and partly due to Dice's scientific background as an experimental ecologist.⁸¹ In this connection, the staff of the Heredity Clinic emphasized the collection of data through pedigrees and their analysis. In order to obtain necessary medical records, the Heredity Clinic was designed as an outpatient clinic of the University Hospital, while also remaining a unit of the LVB.⁸² In addition, Falls brought in several individuals from the Ophthalmology Clinic as well as his private practice.

Thus, in the early years of the Heredity Clinic, the staff was primarily concerned with procuring as much information on hereditary disease as possible, to shed light on the nature of

⁷⁹ Stern, *Telling Genes*, 19.

⁸⁰ Dice, "Report to Dean C. S. Yoakum on Research Project #R-108 for 1941-42," 2; "Objectives of the Department of Human Heredity" (Ann Arbor, MI, n.d.), Box 1, Institute of Human Biology - Laboratory of Vertebrate Biology - Correspondence and Administrative Material, 1949-1952, Department of Human Genetics Records, Bentley Historical Library, University of Michigan.

⁸¹ Personal communication with author.

⁸² Lee R. Dice, "Memorandum Concerning the Heredity Clinic" (Ann Arbor, MI, November 2, 1948), Box 1, Institute of Human Biology - Laboratory of Vertebrate Biology - Correspondence and Administrative Material, 1948, Department of Human Genetics Records, Bentley Historical Library, University of Michigan; Dice, "Report to Dean Yoakum on Research Grant R-108, 1940-1941," 1.

inheritance. In addition to investigations on the hereditary nature of disease, Dice also wished to gather data on the genetic nature of intelligence and mental disorders. Indeed, it was his belief that the heredity of epilepsy and convulsive behaviors he observed in *Peromyscus* also applied to humans that led him to develop the Heredity Clinic in the first place.⁸³ Starting in 1942, staff members provided psychometric tests to individuals at the Heredity Clinic, including examinations of “primary mental abilities,” “reaction time,” and “music discrimination.”⁸⁴

Two years later, Dice sent Dr. Winifred White, a research assistant, to the Coldwater Home and Training School “to secure suggestions about the possible heredity of mental deficiency” by investigating families with multiple members at the institution.⁸⁵ This was in connection with the Michigan Council for Research on Mental Disorders, a brief collaborative project Dice spearheaded with several institutions and universities in the state to coordinate research on mental disabilities.⁸⁶ Much like his reasoning in 1937, Dice believed that close collaboration between the university and state institutions would foster a means of facilitating research into mental disabilities.⁸⁷ Just as important for Dice and the Heredity Clinic, state institutions provided a steady num-

⁸³ Lee R. Dice, “Professional History of Lee Raymond Dice” (Memoir, n.d.), 4, Box 6, Memoir and Family Papers, Lee Raymond Dice Papers, Bentley Historical Library, University of Michigan.

⁸⁴ Lee R. Dice, “Report to Dean C. S. Yoakum on Research Project #R-108 for 1942-43” (Ann Arbor, MI: Laboratory of Vertebrate Biology, July 1, 1943), 3, Box 1, Institute of Human Biology - Laboratory of Vertebrate Biology - Correspondence and Administrative Material, 1948, Department of Human Genetics Records, Bentley Historical Library, University of Michigan.

⁸⁵ Lee R. Dice, “Memorandum to Dr. E. J. Humphreys on Preliminary Explorations Made by the Department of Human Heredity at the Coldwater Home and Training School” (June 19, 1944), 1, Box 1, Institute of Human Biology, Correspondence and Administrative Material, 1946, Department of Human Genetics Records, Bentley Historical Library, University of Michigan.

⁸⁶ Robert L. Dixon, “Michigan Council for Research on Mental Disorders Minutes of the Meeting of the Executive Committee, January 24, 1945” (Meeting Minutes, January 24, 1945), Box 3, Michigan Council for Research on Mental Disorders, Lee Raymond Dice Papers, Bentley Historical Library, University of Michigan; Lee Raymond Dice to Robert L. Dixon, August 18, 1944, Box 3, Michigan Council for Research on Mental Disorders, Lee Raymond Dice Papers, Bentley Historical Library, University of Michigan.

⁸⁷ Michigan Council for Research on Mental Disorders, “Topics Suggested for Discussion” (Meeting Minutes, October 4, 1944), Box 3, Michigan Council for Research on Mental Disorders, Lee Raymond Dice Papers, Bentley Historical Library, University of Michigan; The Michigan Council for Research on Mental Disorders was only briefly in operation because soon after it was developed, the Michigan State Hospital Commission was reorganized to include a component for research into mental disease, thus making the Council superfluous. Dixon, “Michigan Council for Research on Mental Disorders Minutes of the Meeting of the Executive Committee, January 24, 1945.”

ber of individuals on which to conduct hereditary research. By November, 1944, the Heredity Clinic had obtained information from 49 kindreds based on patients from the Lapeer Home and Training School and studied in collaboration with the UM Neuropsychiatric Institute.⁸⁸ Although Dice recognized that training and education played vital roles in the intellectual development of the individual, he nevertheless believed that intelligence was an inherited trait, that mental deficiency ran in families, and that “mental defectives can be improved by special training, but cannot reach [the] intellectual level of superior ability.”⁸⁹

Therefore, the formation of medical or human genetics as a field of study, as it developed in Michigan, had various underpinnings to previous eugenic ideas, concepts, and philosophies. Foremost among these was the persistent belief that mental deficiency was both an inherited trait and constituted a serious social problem that society should address with the aid of genetics research. Dice also served on the Board of Directors for the American Eugenics Society as he helmed the LVB.⁹⁰ However, it would be disingenuous to suggest that Dice and his staff at the Heredity Clinic were no different from the previous generation of eugenicists such as John Harvey Kellogg, Victor Vaughan, or Charles Davenport. For one, they never explicitly endorsed any sort of policy for involuntary sterilization. Although several, including Dice, believed that mental defectives were too incompetent to control their reproduction and therefore counselors or physicians may need to coerce them into limiting the number of children they have, they assumed that most individuals would voluntarily prevent the production of physically or mentally subnormal

⁸⁸ “Research on Mental Disorders Being Conducted by the Department of Human Heredity, University of Michigan” (Ann Arbor, MI, December 7, 1944), Box 3, Michigan Council for Research on Mental Disorders, Lee Raymond Dice Papers, Bentley Historical Library, University of Michigan.

⁸⁹ His sixth lecture on human heredity, which he gave to students throughout the 1940s, primarily dealt with the roles of nature and nurture in intellectual development. Lee R. Dice, “Outlines for Lectures on Human Heredity” (Ann Arbor, MI, n.d.), 6, Box 1, Institute of Human Biology - Lecture Outlines, Human Heredity, 1940s, Department of Human Genetics Records, Bentley Historical Library, University of Michigan.

⁹⁰ Evans, “Lee Raymond Dice, (1887-1977),” 639.

children if they were given the proper information.⁹¹ Contrasting such views to that of the atrocities committed under Nazism, geneticists repeatedly asserted that in a democracy only a disproportionately small group of individuals could or should be forcibly sterilized.⁹² Many geneticists in the mid-twentieth century were attempting to, as Lancelot Hogben put it, “outgrow the castration complex” of earlier eugenicists.⁹³

Second, and perhaps more important, was the growing recognition that inheritance in humans was an extremely complicated process. While remnants of the intellectual hubris of the eugenicists from the previous generation remained, particularly around the role of genetics in the etiology of certain intellectual disabilities, these geneticists were aware that most human traits outside a few specific and rare diseases were polygenic, influenced by the environment, and extremely difficult to select for, either artificially or naturally. And none of the UM Heredity Clinic staff were more aware of the difficulties inherent in genetic analysis than James Van Gundia Neel.

James Van Gundia Neel

As stated previously, Dice wanted someone who was trained in both medicine and genetics to run the clinic, which made Neel uniquely well-fitted for the position. After graduating from Wooster College, Neel pursued his PhD in genetics under Curt Stern at the University of Rochester, specializing in *Drosophila*. Following two years as an instructor in genetics at Dartmouth, Neel spent a year with Theodosius Dobzhansky and Leslie Dunn at Columbia as an NRC Fellow, where he examined the records of the Eugenics Record Office, only to find that “most of the material there was worthless.”⁹⁴ It was likely during his time at Dartmouth that Neel first became interested

⁹¹ Dice, “Outlines for Lectures on Human Heredity,” 8.

⁹² Lee R. Dice, “Resources of Mental Ability: How Can the Supply of Superior Ability Be Conserved and Perhaps Increased?,” *Eugenics Quarterly* 7, no. 1 (March 1, 1960): 18, <https://doi.org/10.1080/19485565.1960.9987426>.

⁹³ Lancelot Hogben, *Nature and Nurture* (London: George Allen & Unwin Ltd., 1939), 32.

⁹⁴ He did, however, publish a paper on the inheritance of red hair based on pedigrees from the ERO. James V. Neel, *Physician to the Gene Pool: Genetic Lessons and Other Stories* (New York: J. Wiley, 1994), 14–18, 25.

in studying mutation, after an Oregon strain of the fruit fly he was studying experienced a brief yet massive spike in mutation rates.⁹⁵ Then, the onset of World War II changed Neel's career in two significant ways. First, it offered a means for him to enter medical school, something he had considered doing since taking a human genetics seminar under Stern. Once again at Rochester, in 1944 he obtained his MD and worked at Strong Memorial Hospital as an assistant resident. During his residency he and William Valentine published their work on the genetics of beta-thalassemia, then known as "Cooley's anemia," where they demonstrated that genetic carriers of the disease could be identified through a comprehensive hematological examination.⁹⁶

Second, the war, or more specifically the atomic bombs that ended it, provided Neel with the opportunity to analyze the effects of atomic radiation on humans. Through his University of Rochester connections, Neel had contacts with the Manhattan Engineering District, which eventually culminated in him leading the Atomic Bomb Casualty Commission (ABCC) investigation into the effects of the weapons. After getting hired at UM, Neel spent much of the first two years in Japan organizing the research. The study ascertained a level of urgency following Nobel Prize winning geneticist Hermann Muller's claims that radiation was causing potentially catastrophic effects by straining the "mutational load" of mankind.⁹⁷ Based on the notion that new mutations were overwhelmingly negative from the standpoint of the fitness of the species, Muller argued that as mutations increased in the population, on account of atomic radiation or other sources, it increased the "genetic load" or total number of potentially lethal genes within the human race, thus reducing its evolutionary fitness.⁹⁸ After years of collecting, tabulating, and analyzing every

⁹⁵ James V. Neel, "A Study of a Case of High Mutation Rate in *Drosophila Melanogaster*," *Genetics* 27, no. 5 (September 1942): 519–36; W. J. Schull, "Scientist, Journalist, Orchidist--Will the Real James V. Neel Please Stand Up," *Progress in Clinical and Biological Research* 218 (1986): 8.

⁹⁶ William N. Valentine and James V. Neel, "Hematologic and Genetic Study of the Transmission of Thalassemia: (Cooley's Anemia; Mediterranean Anemia)," *Archives of Internal Medicine* 74, no. 3 (September 1944): 185–96.

⁹⁷ H. J. Muller, "Our Load of Mutations," *American Journal of Human Genetics* 2, no. 2 (June 1950): 111–76.

⁹⁸ Kevles, *In the Name of Eugenics*, 259.

exposed and nonexposed pregnancy termination they could find in both Hiroshima and Nagasaki, in 1956 Neel and William J. Schull, also at UM and part of the ABCC study, concluded that although any irradiation exposure will likely result in mutations, their findings could not demonstrate any statistically significant discrepancies between those exposed to radiation from the atomic bombs and those that were not exposed.⁹⁹ Susan Lindee has argued that Neel shared the same conception of mutations as Muller. Consequently, he did not include statistics on early spontaneous abortion in the 1956 report because he equated “mutation in human populations with pollution of the gene pool and with human suffering.”¹⁰⁰ Nevertheless, Neel’s work with the ABCC and his position at UM put him on the forefront of medical genetics research.

In connection with his work with the ABCC on the effect of mutations on the health of humans, Neel wanted to conduct research on the normal rate of mutation in a population to provide a baseline comparison.¹⁰¹ Therefore, much of Neel’s early work at the Heredity Clinic was in the mathematical investigation of diseases which maintained a certain frequency in a population through mutation. This included his study mentioned at the beginning of this chapter on the frequency of retinoblastoma in Michigan. By analyzing the number of individuals in a given population who suffered from diseases that made it likely that they would not survive long enough to reproduce, one could theoretically ascertain the mutation rate responsible for the disease in question. In determining the total number of individuals with a given disease, the Heredity Clinic, as an outpatient clinic connected with a university hospital, offered certain distinct advantages. It was able to obtain all the documented cases within the hospital, connected the clinic to various

⁹⁹ James V. Neel and William J. Schull, *The Effect of Exposure to the Atomic Bombs on Pregnancy Termination in Hiroshima and Nagasaki* (Washington D.C.: National Academies Press, 1956), 216.

¹⁰⁰ Susan M. Lindee, *Suffering Made Real: American Science and the Survivors at Hiroshima*, Paperback ed (Chicago: University of Chicago Press, 1997), 170–78.

¹⁰¹ Schull, “Scientist, Journalist, Orchidist--Will the Real James V. Neel Please Stand Up,” 5–6.

private physicians who may have encountered the disease in question, and allowed it to analyze records from the State Department of Vital Statistics and state institutions that deal with hereditary diseases.¹⁰² Neel and the Heredity Clinic conducted similar surveys to statistically derive mutation rates for neurofibromatosis, multiple polyposis of the colon, aniridia, and hemophilia.¹⁰³ Such investigations helped medical geneticists better understand the human mutation rate as well as the genetic nature of several diseases.

Neel, in contrast to genetic counselors such as Sheldon Reed or C. Nash Herndon, stalwartly refuted any connection between eugenics and medical genetics.¹⁰⁴ In this regard, his position at the Heredity Clinic, with its emphasis on research over genetic counseling to parents carrying hereditary defects, proved beneficial to this demarcation. Starting in the 1947-1948 fiscal year, when Neel first spent significant time in Ann Arbor, annual reports began distinguishing the patients referred from the university and other hospitals in the state from those actively pursued for the investigation into specific hereditary diseases. Until 1956, when the Institute of Human Biology (which encompassed the Heredity Clinic and the LVB as units within it) was reorganized into the Department of Human Genetics as a distinct unit within the Medical School, roughly half of the families registered on file at the Heredity Clinic were specifically for research into genetic disease. This included records on patients with retinoblastoma, sickle-cell anemia, neurofibromatosis, multiple polyposis of the colon, and Huntington's chorea.¹⁰⁵ Thus, one means by which Neel

¹⁰² James V. Neel, "Problems in the Estimation of the Frequency of Uncommon Inherited Traits," *American Journal of Human Genetics* 6, no. 1 (March 1954): 52–53.

¹⁰³ Neel, "Problems in the Estimation of the Frequency of Uncommon Inherited Traits," 59; T. Edward Reed and James V. Neel, "A Genetic Study of Multiple Polyposis of the Colon (With an Appendix Deriving a Method of Estimating Relative Fitness)," *American Journal of Human Genetics* 7, no. 3 (September 1955): 236–63; T. Edward Reed and Harold F. Falls, "A Pedigree of Aniridia with a Discussion of Germinal Mosaicism in Man," *American Journal of Human Genetics* 7, no. 1 (March 1955): 28–38.

¹⁰⁴ Lindee, *Suffering Made Real*, 68.

¹⁰⁵ James V. Neel, William J. Schull, and Harold F. Falls, "Annual Report: Heredity Clinic," Annual Report (Ann Arbor, MI: Heredity Clinic, 1947-1956), Box 1, DHG Records, BHL, UM.

separated human genetics from eugenics was through his explicit focus on hereditary disease. He never analyzed the possible inheritance of socially constructed traits such as feeble-mindedness or, more broadly, intelligence.

Moreover, Neel's theoretical understanding and conceptualization of genetics was vastly different from that of the previous generation of eugenicists. Coming into graduate school through *Drosophila* genetics in the late-1930s, Neel was a population geneticist. After the development of the Modern Synthesis that bridged the gulf between biometry and Mendelism through the works of Ronald Fisher, Sewall Wright, and J. B. S. Haldane, he and other geneticists in the mid-twentieth century comprehended populations as "gene pools," or abstract reservoirs of collections of genes with the potential to intermix. Evolution, in this framework, was the "progressive shifting of a mean value" of a single gene or cluster of genes within this pool across generations through natural selection, mutation, or genetic drift.¹⁰⁶ Starting with the Hardy-Weinberg theorem, which postulated that a randomly mating population would obtain "genetic equilibrium," or stability in the frequencies of certain alleles or genes, within a generation, population geneticists could then trace the evolution of genes—that is, their divergence from this equilibrium—through mathematical techniques.¹⁰⁷ Through such mathematical methods, as Neel wrote in his and William Schull's textbook *Human Heredity*, one could "extract as much information as possible from human genetic data."¹⁰⁸

¹⁰⁶ Julian Huxley, *Evolution: The Modern Synthesis* (New York: Harper & Brothers Publishers, 1943), 28; Provine, *The Origins of Theoretical Population Genetics*, ix–x; Sapp, *Genesis*, 147.

¹⁰⁷ For example, Cotterman stated as late as 1964 that while genetic parameters such as inbreeding, mutation, penetrance, etc., may affect gene frequencies, the Hardy-Weinberg Theorem remained "the center of interest." Charles W. Cotterman, "Estimation of Gene Frequencies in Nonexperimental Populations," in *Statistics and Mathematics in Biology*, ed. Oscar Kempthorne et al., Reprint (New York: Hafner Publishing Company, 1964), 449; Provine, *The Origins of Theoretical Population Genetics*, 131.

¹⁰⁸ James V. Neel and William J. Schull, *Human Heredity* (Chicago: University of Chicago Press, 1954), 2.

However, while Neel repudiated eugenics and considered much of their data junk, he also adopted many of the methodologies that eugenicists employed in obtaining information regarding the heredity of specific traits. For Neel, Dice, and the rest of the Heredity Clinic, the family pedigree chart remained the primary means of demonstrating whether a characteristic was dominant or recessive, sex-linked or autosomal, polygenic, or environmentally influenced. The primary efforts of Neel's attempt to "make human genetics as rigorous as *Drosophila* research" at the Heredity Clinic was to "assemble the largest possible database of genetic traits using family pedigrees."¹⁰⁹ Dice understood the importance of these charts when in 1946 he wrote an article in the *Journal of Heredity* calling for standardized nomenclature and symbols to be used in the pedigrees from the various medical genetics departments across the country. Of particular importance, according to Dice, was demarcating between patients examined by physicians and those who were presumed to possess the trait through anecdotal evidence.¹¹⁰ To these researchers, their primary issue with previous eugenics research was in how they obtained it; the field worker survey, in particular, was unsuited for proper scientific investigation.

Medical geneticists denigrated the previous efforts of field workers like those from the ERO, in part, because new diagnostic techniques provided them with the means of detecting the presence or absence of several inherited pathologies. Biochemical diagnostic tools, developed and refined from the 1930s through the 1950s, allowed molecular biologists and medical geneticists to chemically define certain diseases, aided in the detection of genetic carriers of others, and exposed the biochemical and genetic variability of humans. The first of these was the detection of the ABO

¹⁰⁹ Porter, *Genetics in the Madhouse*, 343–44.

¹¹⁰ Dice proposed that the symbols for individuals who were unexamined be left blank, those who were allegedly affected by the disease under study according to anecdotal evidence be marked with a half-shaded, half-blank symbol, and those determined by medical examination to have the disease be marked with a fully shaded symbol. Lee R. Dice, "Symbols for Human Pedigree Charts," *Journal of Heredity* 37, no. 1 (January 1946): 14, <https://doi.org/10.1093/oxfordjournals.jhered.a105525>.

blood groups in the 1930s. However, it was the separation of amino acids through paper chromatography and, later, starch gel electrophoresis that greatly aided biomedical researchers in the middle of the century.

Paper chromatography, which was relatively inexpensive and technically simple, revealed the importance of amino acid anomalies in the production of certain diseases. Fanconi's syndrome, Wilson's disease, and cystinuria were quickly recognized as amino acid imbalance disorders.¹¹¹ Similar to those engaged in blood group analysis, genetic researchers using paper chromatography also analyzed ethnic differences in amino acid production and excretion. H. Eldon Sutton and Philip J. Clark, both at the IHB, found differences in the excretion of β -aminoisobutyric acid among Chinese and white subjects, which they concluded was due to hereditary differences.¹¹²

Just as important to human geneticists as the biochemical detection of disease, however, was the use of such techniques to uncover genetic carriers. According to Neel, identifying genetic carriers through clinical diagnostics greatly increased the number of individuals requiring investigation, helped reveal the physiological or biochemical etiology of various diseases, and aided with early diagnosis and treatment. Just as important as these, however, was the possibility to "genetically control" hereditary diseases.¹¹³ By uncovering those who had the potential to pass a genetic disease down to their children, physicians could warn them of the statistical probability that their offspring will inherit the affliction and advise them on whether to have children.

Medical geneticists, then, combined the methodologies of eugenicists, the theoretical advances of the population geneticists, and the diagnostic tools from biochemistry to develop a

¹¹¹ H. Eldon Sutton, "The Use of Paper Chromatography in Human Biology," *Eugenics Quarterly* 2, no. 4 (December 1, 1955): 210, <https://doi.org/10.1080/19485565.1955.9987249>.

¹¹² H. Eldon Sutton and Philip J. Clark, "A Biochemical Study of Chinese and Caucasoids," *American Journal of Physical Anthropology* 13, no. 1 (1955): 53–65, <https://doi.org/10.1002/ajpa.1330130106>.

¹¹³ James V. Neel, "The Clinical Detection of the Genetic Carriers of Inherited Disease," *Medicine* 26, no. 2 (May 1947): 116, <https://doi.org/10.1097/00005792-194705000-00001>.

coherent strategy to detect, tabulate, and analyze inherited diseases. At the Heredity Clinic, staff members examined the patient as well as their relatives to determine the entire family's carrier status. By comparing the results of diagnostic tests among relatives to the general population, medical geneticists provided clarity to several disorders that were known or assumed to have a hereditary basis. When relatives scored between the "normal" population and the "abnormal" patients, it was presumed that they were a genetic carrier. As Falls and Neel wrote, the "improved medical methodology and instrumentation" alongside advances in genetic theory allowed for the creation of a field defined by "the detection of the genetic carriers of inherited diseases."¹¹⁴ In families with gout, for instance, it was revealed that relatives had hyperuricemia, a condition inherited as an autosomal dominant, and could thus be considered genetic carriers. Furthermore, the relatively higher average blood uric acid levels in all men explained why they were more likely to be diagnosed with gout than women, not because it was a sex-linked trait.¹¹⁵ Similarly, high cholesterol levels were linked to genetic carriers of xanthomatosis and abnormal EEG readings to epilepsy.¹¹⁶ The most successful of these carrier studies, however, were those on hereditary anemias.

Genetic Anemias: Sickle Cell and Thalassemia

In 1925 Thomas Cooley, the head pediatrician at the Children's Hospital in Detroit, described with Pearl Lee four children with anemia, an enlarged spleen, an enlarged liver, "a peculiar mongoloid appearance" due to enlarged cranial and facial bones, and discolored skin and eyes. In describing and clinically differentiating what is now termed homozygous β -thalassemia

¹¹⁴ Harold F. Falls and James V. Neel, "The Detection of Carriers of 'Recessive' Genes," *Eugenics Quarterly* 1, no. 3 (September 1, 1954): 166, <https://doi.org/10.1080/19485565.1954.9987187>.

¹¹⁵ James V. Neel, "The Detection of the Genetic Carriers of Hereditary Disease," *American Journal of Human Genetics* 1, no. 1 (1949): 23.

¹¹⁶ Neel, "The Clinical Detection of the Genetic Carriers of Inherited Disease."

from other anemias, Cooley and Lee considered it to be congenital, rather than explicitly inherited.¹¹⁷ From 1925 to the 1940s, American and Italian researchers continued to independently investigate what was then called (in the United States) Cooley's anemia, which was disproportionately diagnosed in people of Mediterranean descent. A particularly vexing issue was the discovery, in 1940, of a hematological disorder very similar to homozygous β -thalassemia, but in contrast to the severe anemia and other syndromes that those with homozygous β -thalassemia suffered from, these individuals only had a very minor anemia or were completely asymptomatic.¹¹⁸

When Neel and Valentine produced their paper in 1944, there were three divergent theories then circulating that attempted to explain the genetic nature of the disease and why some individuals suffered from severe, life-threatening conditions while others did not. These were: (1) that thalassemic anemia is a homozygous recessive condition and heterozygous carriers display mild symptoms; (2) that thalassemia and the minor anemia are both the result of a dominant gene which is variably expressed; and (3) that thalassemia is due to the simultaneous presence of two non-allele dominant genes, whereas the minor anemia is the effect of inheriting only one of these genes.¹¹⁹ In analyzing the blood of individuals with homozygous β -thalassemia and comparing it to their relatives, they found that both parents of a thalassemic child had target and oval red blood cells, these cells were smaller than normal (microcytic) and had less color than normal (hypochromic), and their erythrocytes were more resistant to hypotonic solutions. Moreover, all these findings were divergent from the normal population yet were also less severe than in samples from people with homozygous β -thalassemia.

¹¹⁷ Thomas B. Cooley and Pearl A. Lee, "A Series of Cases of Splenomegaly in Children with Anemia and Peculiar Bone Changes," in *Hematology*, ed. Marshall A. Lichtman et al. (San Diego: Academic Press, 2000), 113–16, <https://doi.org/10.1016/B978-012448510-5.50104-7>.

¹¹⁸ Neel, "The Detection of the Genetic Carriers of Hereditary Disease," 21.

¹¹⁹ Valentine and Neel, "Hematologic and Genetic Study of the Transmission of Thalassemia: (Cooley's Anemia; Mediterranean Anemia)," 188–89.

Following their hematological examinations, Valentine and Neel constructed pedigree charts on families with thalassemic children. By demonstrating that both parents of thalassemic children had the mild condition and analyzing the ratio of offspring with thalassemia to those showing the mild condition or no blood abnormalities at all, they concluded that thalassemia was a recessive trait and developed when two parents with the mild condition, or genetic carriers, had children. They suggested that “the full-blown disease be designated ‘thalassemia major’ and the mild carrier state ‘thalassemia minor.’” While they understood that uncovering the genetic basis of the disease was an important finding in itself, they were more interested in the fact that thalassemia appeared to be the “first inherited condition of any medical importance in which it seems possible to detect carriers with a high degree of accuracy.” In a prescient statement, they noted that other “blood dyscrasias, such as sickle-cell anemia” were promising avenues for future investigations into understanding genetic carriers of diseases.¹²⁰

Sickle cell anemia is a chronic anemia which disproportionately affects people of African descent, characterized by rheumatoid pain, leg ulcers, and the rapid destruction of large numbers of red blood cells (known as a hemolytic crisis). Its name comes from the sickle-shaped appearance of red blood cells, which were first observed and described in 1910 by James Herrick. As Keith Wailoo has argued, in the thirty years following this discovery, research on sickle cell anemia was limited to a small group of interested researchers. While this resulted in the development of a diagnostic technique to observe blood cell sickling by sealing the blood under a cover slip to lower the oxygen pressure and periodically observing it, it also led specialists to view sickle cell anemia as “a Mendelian dominant trait that could be spread *outward* from the black population into whites

¹²⁰ Valentine and Neel, “Hematologic and Genetic Study of the Transmission of Thalassemia: (Cooley’s Anemia; Mediterranean Anemia),” 195–96.

through intermarriage.”¹²¹ Taliaferro and Huck, for example, argued in 1923 that the trait causing blood cells to sickle was inherited as a single Mendelian dominant character, based on the analysis of a single family chart.¹²² Then, in 1949, scientists’ understanding of the disease was radically transformed.

Following his work on the genetic nature of thalassemia, Neel turned his attention to sickle cell anemia. In 1947, as part of a review on genetic diseases, he first speculated that much like how thalassemia major was the homozygous recessive condition of thalassemia minor, sickle cell anemia was a recessive trait that developed when two parents with sickle cell anemia (the minor, heterozygous condition) had children.¹²³ To prove this, he compared the number of sickled cells in blood smears of individuals diagnosed with sickle cell anemia to those of their asymptomatic relatives.¹²⁴ In 1949, after obtaining patient information from the UM University Hospital, the Anemia Clinic of the Detroit Children’s Hospital, and the Wayne County General Hospital and Infirmary in Eloise, Neel reported in *Science* the results of cover slip tests on 42 parents of 29 patients with sickle cell anemia. According to the heterozygous-homozygous hypothesis, all 42 parents’ blood should sickle, which is exactly what occurred. He suggested that previous publications that failed to find sickling in some parents was because of a “lack of familiarity with the techniques necessary to elicit sickling.”¹²⁵ Using the Hardy-Weinberg theorem, he calculated that for every 44 children born with sickle cell anemia, one child will be born with sickle cell anemia. For every 1,000 African American children born in the US, 1.8 will be diagnosed with sickle cell anemia. At the end of the article,

¹²¹ Keith Wailoo, *Dying in the City of the Blues: Sickle Cell Anemia and the Politics of Race and Health*, Studies in Social Medicine (Chapel Hill: University of North Carolina Press, 2001), 78.

¹²² Despite being cognizant of the fact that some individuals whose blood cells sickled manifested the anemia and others did not, they failed to recognize that the mild condition may explain the inheritance of the anemia. W. H. Taliaferro and J. G. Huck, “The Inheritance of Sickle-Cell Anaemia in Man,” *Genetics* 8, no. 6 (November 1923): 594–98.

¹²³ Neel, “The Clinical Detection of the Genetic Carriers of Inherited Disease,” 127–29.

¹²⁴ Cowan, *Heredity and Hope*, 156.

¹²⁵ James V. Neel, “The Inheritance of Sickle Cell Anemia,” *Science* 110, no. 2846 (July 15, 1949): 65.

Neel noted how understanding the genetic nature of the disease can eventually result in its elimination in the population. Sounding much like earlier eugenicists who greatly oversold the efficacy of their policies to eliminate traits like feeble-mindedness, Neel stated that:

in the absence of marriage between individuals whose erythrocytes exhibit the sickling phenomenon, the frequency of the homozygote would greatly decrease, and sickle cell anemia would tend to disappear, with only a very rare case arising as a result of mutation in a normal individual married to a person homozygous or heterozygous for the sickling gene.¹²⁶

Four months later, Linus Pauling and his team at Caltech published their electrophoretic studies that made sickle cell anemia a “researcher’s commodity for doing science as well as a social commodity for building awareness of the African American condition.”¹²⁷ Electrophoresis is the study of the movement of substances with different molecular makeups. By dissolving the substance in a liquid and placing it in a spatially uniform electric field, the molecules in the substance migrated through a medium (whether liquid, paper, or, after 1955, starch gel) and separated according to the molecule’s size and charge, which is determined by its protein structure.¹²⁸ When normal carbon monoxide-hemoglobin compounds, for example, are placed in a basic phosphate buffer, they are positively charged; consequently, they move toward the negative ion in an electrophoretic matrix. Sickle cell hemoglobin in the same mixture, by contrast, has a negative charge and moves toward the positive ion. The different electrophoretic mobilities of sickle cell and non-sickle cell hemoglobin thus suggested that they consisted of different protein structures. Moreover, the hemoglobin of those with sickle cell trait moved as if it were made up of “a mixture of the normal hemoglobin and the sickle cell hemoglobin in roughly equal proportions.” Only 25-

¹²⁶ Neel, “The Inheritance of Sickle Cell Anemia,” 66.

¹²⁷ Wailoo, *Dying in the City of the Blues*, 115.

¹²⁸ Kevles, *In the Name of Eugenics*, 226–27; Olof Vesterberg, “History of Electrophoretic Methods,” *Journal of Chromatography A*, First international symposium on high-performance capillary, 480 (January 1, 1989): 3–19, [https://doi.org/10.1016/S0021-9673\(01\)84276-X](https://doi.org/10.1016/S0021-9673(01)84276-X).

40% of the hemoglobin of those with sickle cell trait moved to the abnormal position in the medium, in contrast to the 80-100% of hemoglobin of those with sickle cell anemia.¹²⁹ Although Pauling and his team obtained the results of their study before Neel published his 1949 paper, they noted that their electrophoretic studies confirmed his hypothesis that sickle cell anemia represented the carrier state of sickle cell anemia, which was inherited as a homozygous recessive trait.¹³⁰ Those with an electrophoresis apparatus could easily identify heterozygous carriers, although these devices were still relatively expensive and difficult to operate.

The dual discoveries of the hereditary nature of β -thalassemia and sickle cell anemia transformed human population genetics research. They represented two disorders that were inherited according to known Mendelian principles that disproportionately affected people according to their race. Moreover, while the selective advantages of the heterozygous states were not yet known, geneticists surmised that because they were so common among people of Mediterranean and African descent, respectively, there must be some adaptive significance. This stood in stark contrast to the other known genetically inherited traits that various ethnicities manifested in different proportions which provided no reasonable adaptive advantages, such as the ABO and MN blood groups or the ability to taste phenylthiocarbamide.¹³¹ That said, it was not until A. C. Allison published the results of his studies in 1954, in which he injected the malaria strain *P. falciparum* into individuals with sickle cell trait, that it was determined sickle cell trait conferred a genetic resistance to malaria.¹³² Thus, the gene for sickle cell represented a balanced polymorphism, that

¹²⁹ Linus Pauling et al., "Sickle Cell Anemia, a Molecular Disease," *Science*, November 25, 1949, 544, <https://doi.org/10.1126/science.110.2865.543>.

¹³⁰ Pauling et al., "Sickle Cell Anemia, a Molecular Disease," 547.

¹³¹ James V. Neel, "The Population Genetics of Two Inherited Blood Dyscrasias in Man," *Cold Spring Harbor Symposia on Quantitative Biology* 15 (January 1, 1950): 141, <https://doi.org/10.1101/SQB.1950.015.01.017>.

¹³² A. C. Allison, "Protection Afforded by Sickle-Cell Trait against Subtertian Malarial Infection," *The British Medical Journal* 1, no. 4857 (1954): 290–94.

is, two alleles coexist in a gene pool simultaneously due to selective pressures stabilizing the presence of both on account of their selective advantage. In the meantime, Neel maintained that it was possible that an abnormally high mutation rate might explain why these inherited traits were so prevalent in specific populations.¹³³ He also identified hemoglobin C through electrophoresis, which, when combined with sickle cell hemoglobin, produced clinically similar symptoms to sickle cell anemia.¹³⁴ Neel further demonstrated the clinical similarity between sickle cell anemia due to recessivity of two sickle cell genes and that resulting from an individual inheriting the gene for sickle cell trait and that for thalassemia minor. This, he believed, helped explain the occasional occurrence of sickle cell anemia among white individuals.¹³⁵

Neel still suggested that the traits for thalassemia and sickle cell anemia were the result of mutation, in part, due to his background as a population geneticist and his previous work in Japan on the effects of radiation from the 1946 atomic bombs. Neel was thus conditioned to search for mutations as an explanation for the prevalence of certain characteristics, even if they were deemed deleterious, within a population. Thus, despite recognizing that sickle cell trait, and the concomitant anemia, were prevalent in considerable numbers in individuals of African descent, he failed to connect it to the evolutionary advantage that sickle cell trait provided to those in areas with high incidences of malaria.

¹³³ James V. Neel, "Data Pertaining to the Population Dynamics of Sickle Cell Disease," *American Journal of Human Genetics* 5, no. 2 (June 1953): 154–67; James V. Neel and F. H. Bethell, "Medical Staff Conference: Sickle Cell Anemia," *University of Michigan Medical Bulletin* 19, no. 5 (May 1953): 112.

¹³⁴ James V. Neel, Eugene Kaplan, and Wolf W. Zuelzer, "Further Studies on Hemoglobin C: I. A Description of Three Additional Families Segregating for Hemoglobin C and Sickle Cell Hemoglobin," *Blood* 8, no. 8 (August 1, 1953): 724–34, <https://doi.org/10.1182/blood.V8.8.724.724>; Eugene Kaplan, Wolf W. Zuelzer, and James V. Neel, "Further Studies on Hemoglobin C: II. The Hematologic Effects of Hemoglobin C Alone and in Combination with Sickle Cell Hemoglobin," *Blood* 8, no. 8 (August 1, 1953): 735–46, <https://doi.org/10.1182/blood.V8.8.735.735>.

¹³⁵ James V. Neel, "Perspectives in the Genetics of Sickle Cell Disease," *Blood* 7, no. 4 (April 1, 1952): 469, <https://doi.org/10.1182/blood.V7.4.467.467>.

Following Allison's discovery of the relationship between malaria and sickle cell trait, Neel and others at UM investigated the prevalence of the gene responsible for sickle cell anemia in Africa. According to Allison, the frequency of genes responsible for sickle cell trait would be higher in areas where malaria was hyperendemic and lower where malaria was less frequent.¹³⁶ However, Frank Livingstone, while working on his doctorate at UM, found that Africans in Liberia did not have sickle cell hemoglobin present nearly as often as populations in East Africa, despite the nearly equivalent prevalence of malaria in both areas.¹³⁷ By sampling blood from individuals in various ethnic groups throughout the country and tabulating the presence of sickle cell trait, he claimed that, whereas the gene responsible for sickle cell may be a balanced polymorphism in East Africa, in West Africa it was still in the process of spreading throughout the populations. Large discrepancies in the prevalence of sickling cells between neighboring groups offered clues, Livingstone reasoned, to the mating structures of various peoples and allowed researchers to trace the spread and flow of this gene throughout West Africa.¹³⁸ Neel suggested a similar diffusion of hemoglobin C throughout West Africa.¹³⁹

The discovery of this relationship between malaria and sickle cell, and subsequent surveys of the spread of the genes resulting in sickle cell trait throughout Africa, seemed to confirm geneticists' understanding of racial differences. According to the population genetics framework, groups of populations—whether they be demarcated as races, “subdivisions of mankind,” or some other nomenclature—can be differentiated according to the frequencies of particular alleles within

¹³⁶ Allison, “Protection Afforded by Sickle-Cell Trait against Subtertian Malarial Infection,” 293.

¹³⁷ Frank B. Livingstone, “The Distribution of the Sickle Cell Gene in Liberia,” *American Journal of Human Genetics* 10, no. 1 (March 1958): 33.

¹³⁸ Frank B. Livingstone, “The Wave of Advance of an Advantageous Gene: The Sickle Cell Gene in Liberia,” *Human Biology* 32, no. 2 (May 1960): 202.

¹³⁹ James V. Neel et al., “Data on the Occurrence of Hemoglobin C and Other Abnormal Hemoglobins in Some African Populations,” *American Journal of Human Genetics* 8, no. 3 (September 1956): 138–50.

those populations rather than in the complete presence or absence of a certain allele.¹⁴⁰ As Neel stated in his 1961 Harvey Lecture, once a trait has been determined to be the result of one's genes, "the population geneticist is concerned to define the frequency in the gene pool of the gene responsible for this trait, and compare this frequency from one population to the next."¹⁴¹ Geneticists in the mid-twentieth century recognized both thalassemia and sickle cell anemia to be "racial diseases" of southeastern Europeans and Africans, respectively. Since they occurred more frequently in these populations, as compared to others, the finding that sickle cell anemia occurred in India, for example, did little to change the relationship between sickle cell and Africans.¹⁴² Similarly, because this subpopulation status was based on relative frequencies of alleles, the lack of sickle cell trait among Kru population, often referred to as the "true Negro," did not change the association between the disease and race.¹⁴³ Although the connection between thalassemia and those of Mediterranean ethnicity had minimal social consequences to people of Mediterranean ethnicity, the relationship between sickle cell disease and blacks, in the United States, resulted in compulsory screening programs that discriminated against African Americans in their insurance plans, their opportunities for employment, and the genetic counseling they received.

The ability to biochemically determine who was a carrier for various genetic diseases eventually led to the implementation of several screening programs in the United States and elsewhere. Mass screening of PKU, for instance, ensued after Robert Guthrie developed a simple bacterial inhibition assay to detect the level of phenylalanine in the blood of newborns.¹⁴⁴ Despite some controversy over the issue of false positives, by 1977, 40 states passed laws screening all newborns

¹⁴⁰ Neel, "The Population Genetics of Two Inherited Blood Dyscrasias in Man," 141; Laurence H. Snyder, "Old and New Pathways in Human Genetics," *American Journal of Human Genetics* 3, no. 1 (March 1951): 7.

¹⁴¹ James V. Neel, "A Geneticist Looks at Modern Medicine" (Harvey Lectures, New York, February 16, 1961), 134.

¹⁴² James V. Neel, "Implications of Some Recent Developments in Hematological and Serological Genetics," *American Journal of Human Genetics* 6, no. 2 (June 1954): 212–13.

¹⁴³ Livingstone, "The Distribution of the Sickle Cell Gene in Liberia," 40.

¹⁴⁴ Philip Reilly, *Genetics, Law, and Social Policy* (Cambridge: Harvard University Press, 1977), 27.

for PKU.¹⁴⁵ Moreover, screening programs for such “racial diseases” as beta-thalassemia among Greeks and Tay-Sachs in Ashkenazi Jews have engendered minimal controversy and are largely viewed as successful procedures.¹⁴⁶ In contrast, the screening of sickle cell anemia in the United States during the 1970s stands as “a story of failure.”¹⁴⁷

Several scholars have offered explanations for why “genetic screening” for heterozygous carriers of the sickle cell trait failed compared to similarly inherited diseases. Neel suggested that the difference between the “high acceptance” of Tay-Sachs screening and the “low acceptance” of sickle cell screening was due to the “confusion surrounding the introduction” of the latter program.¹⁴⁸ Some of this stemmed from the many variations of state laws. Connecticut, for instance, funded child screening through school districts but failed to mandate it. Ten states mandated sickle cell screening for all children going into public schools but provided no funding for it. Nine states required testing before issuing marriage licenses.¹⁴⁹ Part of this confusion was in the timing of the development and implementation of sickle cell screening. By 1972, when Congress passed the National Sickle Cell Anemia Control Act, twelve states and the District of Columbia had already enacted mandatory sickle cell screening laws aimed at school-age children or young adults.¹⁵⁰ During a period when African Americans had just successfully fought for more equitable political participation yet were still attempting to address several medical and socioeconomic

¹⁴⁵ James V. Neel, “On Emphases in Human Genetics,” *Genetics* 78, no. 1 (September 1974): 37; Philip R. Reilly, “Mass Neonatal Screening in 1977,” *American Journal of Human Genetics* 29, no. 3 (May 1977): 302.

¹⁴⁶ For the success of the Tay-Sachs program, see Barton Childs et al., “Tay-Sachs Screening: Motives for Participating and Knowledge of Genetics and Probability,” *American Journal of Human Genetics* 28, no. 6 (November 1976): 537–49; Barton Childs et al., “Tay-Sachs Screening: Social and Psychological Impact,” *American Journal of Human Genetics* 28, no. 6 (November 1976): 550–58; For the success of a rather coercive program to screen for thalassemia in Cyprus, see Cowan, *Heredity and Hope*, 181–222.

¹⁴⁷ Cowan, *Heredity and Hope*, 150.

¹⁴⁸ James V. Neel, “Priorities in the Application of Genetic Principles to the Human Condition: A Dissident View,” *Perspectives in Biology and Medicine* 35, no. 1 (1991): 62–63, <https://doi.org/10.1353/pbm.1991.0029>.

¹⁴⁹ Cowan, *Heredity and Hope*, 165.

¹⁵⁰ Kevles, *In the Name of Eugenics*, 255–56.

needs, it seemed suspicious to many African Americans that several public health agencies, physicians, and activists shifted their attention to a rare, incurable disease.¹⁵¹ As Philip Reilly has argued, sickle cell screening laws were “fundamentally different from PKU legislation” in that they “were not intended to identify people in need of medical care.”¹⁵² Moreover, the test results for sickle cell were much more ambiguous. The primary test used in the sickle cell screening programs, the Sickledex, failed to discern whether the person being tested was heterozygous (a carrier) or homozygous (had sickle cell anemia). Therefore, even if one tested positive on the Sickledex, they then had to submit to an electrophoretic test to determine if they were a carrier or had the anemia.¹⁵³ To make matters worse, physicians and politicians often failed to distinguish between diagnosing individuals with the heterozygote carrier status or the homozygote anemic condition.¹⁵⁴ The National Sickle Cell Anemia Control Act, for example, stated that “sickle cell anemia is a debilitating, inheritable disease that afflicts approximately two million American citizens.” Although the law mentioned in the next sentence the mode of inheritance for sickle cell anemia, the two million figure referred to those who had the sickle cell trait, not the anemia.¹⁵⁵

Furthermore, if the test revealed an individual to be a carrier for sickle cell trait, physicians or obstetricians were unable to offer much in the way of preventive or therapeutic measures. Connected to the Tay-Sachs screening program, for instance, was the prenatal diagnosis of fetuses by amniocentesis of parents known to be carriers. By extracting and examining fetal tissues and

¹⁵¹ Howard Markel, “Appendix 6. Scientific Advances and Social Risks: Historical Perspectives of Genetic Screening Programs for Sickle Cell Disease, Tay-Sachs Disease, Neural Tube Defects and down Syndrome, 1970-1997,” in *Promoting Safe and Effective Genetic Testing in the United States: Final Report of the Task Force on Genetic Testing*, ed. Neil A. Holtzman and Michael S. Watson (Baltimore: Johns Hopkins University Press, 1998), <https://biotech.law.lsu.edu/research/fed/tfgr/appendix6.htm>.

¹⁵² Reilly, *Genetics, Law, and Social Policy*, 37.

¹⁵³ Cowan, *Heredity and Hope*, 160–61.

¹⁵⁴ Markel, “Scientific Advances and Social Risks.”

¹⁵⁵ “National Sickle Cell Anemia Control Act,” Pub. L. No. 92–294, S. 2676 136 (1972); Cowan, *Heredity and Hope*, 167.

cells from the amniotic fluid, physicians could determine whether the baby was going to be born with Tay-Sachs; consequently, on learning of the diagnosis, the mother could choose to abort the fetus.¹⁵⁶ Prenatal diagnosis of sickle cell anemia, however, was not available until 1978 when Yuet Kan developed a DNA marker test.¹⁵⁷ Before then, the risks involved in obtaining fetal blood made it impossible to offer prenatal diagnosis to expectant mothers who were known to be sickle cell carriers.¹⁵⁸ Instead, genetic counselors could only inform them that if they married another sickle cell carrier, there would be a 25% chance their child would have sickle cell anemia and a 50% chance they would be a heterozygous carrier of the trait.¹⁵⁹ With the goal of merely diminishing marriages between carriers, and thereby limiting the number of pregnancies resulting in sickle cell disease, scholars have considered sickle cell screening laws to be eugenic measures.¹⁶⁰

Just as important as these differences between genetic screening programs for beta-thalassemia, Tay-Sachs, and sickle cell anemia, however, was the stigmatization African American carriers of the sickle cell trait suffered compared to individuals of these other disorders. As a 1984 Office of Technology Assessment paper on Human Gene Therapy noted, the effective use of genetic screening “requires that there be no stigma attached to carrying a potential genetic defect and trust that genetic patient data will be properly used.”¹⁶¹ Based on interviews with individuals screened for Tay-Sachs in Baltimore, Barton Childs and his team revealed that for them “the carrier

¹⁵⁶ Cowan, *Heredity and Hope*, 72–78; James V. Neel, “Human Genetics,” in *Advances in American Medicine: Essays at the Bicentennial*, ed. John Z. Bowers and Elizabeth F. Purcell, vol. 1 (New York: Josiah Macy, Jr. Foundation, 1976), 87.

¹⁵⁷ Y. W. Kan and A. M. Dozy, “Polymorphism of DNA Sequence Adjacent to Human Beta-Globin Structural Gene: Relationship to Sickle Mutation,” *Proceedings of the National Academy of Sciences* 75, no. 11 (November 1, 1978): 5631–35, <https://doi.org/10.1073/pnas.75.11.5631>.

¹⁵⁸ Neil A. Holtzman, “Eugenics and Genetic Testing,” *Science in Context* 11, no. 3–4 (1998): 401, <https://doi.org/10.1017/S0269889700003100>.

¹⁵⁹ F. C. Fraser, “Genetic Counseling,” *American Journal of Human Genetics* 26, no. 5 (September 1974): 645–46.

¹⁶⁰ Reilly, *Genetics, Law, and Social Policy*, 67.

¹⁶¹ “Human Gene Therapy,” Background Paper (Washington, D.C.: United States Congress, Office of Technology Assessment, 1984), 19.

state is not regarded as a stigma.”¹⁶² However, despite the fact that sickle cell frequency was directly related to the presence of malaria, and not due to one’s race, Kentucky and New York’s screening laws obligated “Negro couples” and all individuals “not of the ‘Caucasian, Indian, or Oriental races,’” respectively, to be tested before applying for a marriage license.¹⁶³ Furthermore, following a *New England Journal of Medicine* report that four black Army recruits died during training because of the onset of “sickle-cell crisis,” the Department of Defense restricted sickle cell trait carriers from serving as pilots or deep-sea divers.¹⁶⁴ A National Academy of Science-National Research Council committee revealed that the relationship between these deaths and their carrier status were “only circumstantial,” yet advised the DOD to retain these restrictions and to mandate sickle cell screening for all recruits.¹⁶⁵ Meanwhile, Linus Pauling, who provided the means of detecting carriers of the sickle cell trait, suggested in 1968 that all heterozygous carriers be forced to have a tattoo on their forehead showing their carrier status, in order to ensure that two individuals with sickle cell trait “would refrain from falling in love with one another.”¹⁶⁶ Finally, those confirmed to be carriers of the sickle cell trait were denied health and life insurance and other employment opportunities.¹⁶⁷ This raised concerns about the privacy of such genetic data and who had access to genetic records.¹⁶⁸

These developments culminated in many within the Black community expressing the belief that sickle cell screening constituted a form of genocide, although Ruth Schwartz Cowan has

¹⁶² Childs et al., “Tay-Sachs Screening,” November 1976, 556.

¹⁶³ Cowan, *Heredity and Hope*, 165.

¹⁶⁴ Stephen R. Jones, Richard A. Binder, and Everett M. Donowho, “Sudden Death in Sickle-Cell Trait,” *New England Journal of Medicine* 282, no. 6 (February 5, 1970): 323–25, <https://doi.org/10.1056/NEJM197002052820607>.

¹⁶⁵ Barbara J. Culliton, “Sickle Cell Screening of Recruits Urged,” *Science*, February 16, 1973, 663, <https://doi.org/10.1126/science.179.4074.663>.

¹⁶⁶ Linus Pauling, “Reflections on the New Biology: Foreword,” *UCLA Law Review* 15, no. 2 (1967-1968): 269–70.

¹⁶⁷ Markel, “Scientific Advances and Social Risks”; Cowan, *Heredity and Hope*, 170.

¹⁶⁸ “Human Gene Therapy,” 19.

claimed that Black feminists disagreed with this sentiment.¹⁶⁹ Such arguments were part of a general backlash surrounding the reproductive control of people of color. This included the discovery of an Indian Health Service campaign that sterilized between 25-50% of Native American women seeking health services through the IHS.¹⁷⁰ Just as influential was the *Relf v. Weinberger* lawsuit that revealed how “doctors and overzealous social workers had been targeting poor women ... in a nationwide epidemic of sterilization.”¹⁷¹ In this context, by the mid-1970s, sickle cell anemia had become a central point in debates on “reproductive freedom in the black community.”¹⁷² Not even a decade later, genetic screening for sickle cell anemia was reduced to miniscule numbers, offered primarily to expectant mothers in genetic counseling sessions. Despite his role in providing much of its theoretical foundation, James Neel’s involvement in the controversy surrounding sickle cell detection was nonexistent.

Institute of Human Biology

Neel’s lack of interest in the developing screening programs is partly explained by institutional changes at the University of Michigan. By the time amniocentesis was developed in the 1960s as a tool to detect genetic disease, the Heredity Clinic was no longer part of the Institute of Human Biology (IHB). Following Lee Dice’s retirement in 1956, the UM Board of Regents placed the Heredity Clinic within the Department of Human Genetics in the Medical School and transferred the Laboratory of Vertebrate Biology to the Zoology Department.¹⁷³ With this, some of the

¹⁶⁹ Markel, “Scientific Advances and Social Risks”; Cowan, *Heredity and Hope*, 175–78.

¹⁷⁰ Jane Lawrence, “The Indian Health Service and the Sterilization of Native American Women,” *American Indian Quarterly* 24, no. 3 (2000): 400–419.

¹⁷¹ Gregory Michael Dorr, “Protection or Control? Women’s Health, Sterilization Abuse, and *Relf v. Weinberger*,” in *A Century of Eugenics in America: From the Indiana Experiment to the Human Genome Era*, ed. Paul A. Lombardo, Bioethics and the Humanities (Bloomington, IN: Indiana University Press, 2011), 161.

¹⁷² Wailoo, *Dying in the City of the Blues*, 185.

¹⁷³ Francis C. Evans, “Institute of Human Biology, University of Michigan, Minutes of Staff Meeting of March 6, 1956” (Meeting Minutes, Ann Arbor, MI, March 6, 1956), Box 5, Institute of Human Biology - Meeting Minutes, Lee Raymond Dice Papers, Bentley Historical Library, University of Michigan.

connections between the Heredity Clinic and its eugenic past were severed. Although, as Lee Dice commented, each section of the IHB was “largely autonomous in its research program,” the questions each group within the institute investigated were intertwined into a larger general direction towards understanding “the factors that cause and control the evolution of races and species.”¹⁷⁴ He hoped the animal and human work being conducted at the IHB would provide clues to the genetic and ecological “principles and procedures that can be applied to man and to human communities.”¹⁷⁵ Dice considered the IHB to be “a nursery of new ideas in those areas that involve both biological and social science,” with the belief that when interest in one of these areas was sufficiently developed, the university would place it in a more formal position within a more established department.¹⁷⁶ Consequently, he considered the transfer of the Heredity Clinic to a Department of Medical Genetics to be a successful example of such a development.

With the establishment of a Department of Medical Genetics, however, the work of the Heredity Clinic was further cemented into research on hereditary diseases. Indeed, Dice preferred giving the new department the title “medical genetics” over “human genetics” to better reflect the direction of the research of its staff and the instruction it would provide to students.¹⁷⁷ While the IHB was interdisciplinary in its construction, with people trained in genetics, medicine, psychology, zoology, ecology, and anthropology, the Department of Medical Genetics comprised only those individuals with genetic or medical backgrounds.¹⁷⁸ Thus, with this reformulation, the clinic

¹⁷⁴ Lee R. Dice to Charles E. Odegaard, December 2, 1955, Box 5, Institute of Human Biology, Lee Raymond Dice Papers, Bentley Historical Library, University of Michigan.

¹⁷⁵ Francis C. Evans, “Institute of Human Biology, University of Michigan, Minutes of Staff Meeting of June 28, 1954” (Meeting Minutes, Ann Arbor, MI, June 28, 1954), Box 5, Institute of Human Biology - Meeting Minutes, Lee Raymond Dice Papers, Bentley Historical Library, University of Michigan.

¹⁷⁶ Lee R. Dice to Richard J. Porter, January 10, 1956, Box 5, Institute of Human Biology, Lee Raymond Dice Papers, Bentley Historical Library, University of Michigan.

¹⁷⁷ Lee R. Dice to Charles E. Odegaard, January 6, 1956, Box 5, Ad Hoc Committee on Institute of Human Biology, Lee Raymond Dice Papers, Bentley Historical Library, University of Michigan.

¹⁷⁸ “The Institute of Human Biology,” May 15, 1955, Box 5, Ad Hoc Committee on Institute of Human Biology, Lee Raymond Dice Papers, Bentley Historical Library, University of Michigan.

was dissociated from broader studies into human heredity. This included the two long-term research programs examining “normal human traits” and “the trends of heredity in actual human populations” still underway when the IHB was dissolved, the Assortative Mating Study and the Hereditary Abilities Study.¹⁷⁹

Assortative mating is the “tendency for individuals to select mates who are like themselves.” Dice viewed it as a mechanism that would, if taken to its extremes, separate populations “into hereditary classes or castes” through voluntary means.¹⁸⁰ Thus, he considered it an important means of accomplishing eugenic goals without resorting to coercive measures. It resulted in the clustering of genetically differentiated groups within society, which he often also split according to race and class and served as an important source of the hereditary variability that allowed humans to continue to evolve.¹⁸¹ However, there was little available information in the 1950s on the level of assortative mating among humans. Accordingly, to ascertain the effects of such reproductive choices among humans, Dice initiated the Assortative Mating Study in 1950, seeking to compare the anthropometric measurements, intelligence, occupations, and general health of couples throughout Ann Arbor.¹⁸²

Wickliffe Draper, the wealthy eugenicist who founded the Pioneer Fund, a nonprofit foundation notorious for offering race scientists substantial grants, provided an anonymous \$100,000 grant for the study.¹⁸³ Although James Neel was concerned about Draper’s intentions with the

¹⁷⁹ Lee R. Dice, “Institute of Human Biology Report” (Ann Arbor, MI: University of Michigan, 1955), 4, Box 5, Institute of Human Biology, Lee Raymond Dice Papers, Bentley Historical Library, University of Michigan.

¹⁸⁰ Lee R. Dice, “Heredity and Population Betterment,” *The Scientific Monthly* 75, no. 5 (1952): 278.

¹⁸¹ Lee R. Dice, *Man’s Nature and Nature’s Man: The Ecology of Human Communities* (Ann Arbor: University of Michigan Press, 1955), 71.

¹⁸² “Assortative Mating Study” (Research Project, Ann Arbor, MI, 1951), Box 1, Institute of Human Biology, Correspondence and Administrative Material, 1951, Department of Human Genetics Records, Bentley Historical Library, University of Michigan.

¹⁸³ Wickliffe Draper to Alexander G. Ruthven, April 18, 1950, Box 63, May 20, 1950 D2-, Board of Regents Records, Bentley Historical Library, University of Michigan; James P. Adams to Wickliffe Draper, Communication, April 25, 1950, Box 63, May 20, 1950 D2-, Board of Regents Records, Bentley Historical Library, University of Michigan; Lee

funds, he was eventually convinced that they would be able to analyze “mating patterns in endogenous white communities,” and thus studying intraracial rather than interracial differences.¹⁸⁴ Dice used this money to conduct a study to obtain data on the tendency of Ann Arbor residents to “choose mates with relatively similar height, with similar education, with similar religion, and with other characters and social affiliations like themselves,” which he believed had “an important effect on the future heredity of our people.”¹⁸⁵ For the next five years, members of the IHB developed a means of randomly sampling the Ann Arbor population, conducting interviews, and gathering data on the degree of assortative mating. As the IHB was dissolved just as the data collection phase of the research program was finished, Dice convinced the university to retain Philip Clark to complete his analyses, while Dice continued to aid their work through his position at the Cranbrook Institute of Science.¹⁸⁶

Several publications emerged from the Assortative Mating Study. The first of these appeared in 1959, analyzing the correlation between various anthropometric measurements and differential fertility. They found that measurements of “body breadth and thickness” were positively correlated to fertility and that “individuals of both sexes who are above average in fertility tend to be more stoutly built than individuals of below average fertility,” that shorter women were likely to be more fertile, and that there was no consistent relationship between measurements of length and male fertility.¹⁸⁷ In 1964-1965, Dice, Clark, and Robert Gilbert of the Mississippi State College of Women published three more articles in *Eugenics Quarterly* based on the assortative

R. Dice to Wickliffe Draper, April 7, 1950, Box 63, May 20, 1950 D2-, Board of Regents Records, Bentley Historical Library, University of Michigan; For more information on Draper and the Pioneer Fund, see William Tucker, *The Funding of Scientific Racism: Wickliffe Draper and the Pioneer Fund* (Urbana, IL: University of Illinois Press, 2007).

¹⁸⁴ Stern, *Telling Genes*, 59–60.

¹⁸⁵ Lee R. Dice to Alexander G. Ruthven, April 26, 1950, Box 63, May 20, 1950 D2-, Board of Regents Records, Bentley Historical Library, University of Michigan.

¹⁸⁶ Dice to Odegaard, January 6, 1956.

¹⁸⁷ Philip J. Clark and J. N. Spuhler, “Differential Fertility in Relation to Body Dimensions,” *Human Biology* 31, no. 2 (May 1959): 133–34.

mating data. In the last of these, they failed to find any relationship between reproduction and religious affiliation or church attendance.¹⁸⁸ However, the other two reports contradicted previous eugenicists' claims on the relationship between intelligence, class, and fecundity.

A recurring theme throughout much of the eugenics literature in the early twentieth century was the discrepancy between the number of children of educated and uneducated mothers. Dual concerns, one on the hyperfecundity of immigrants and lower-class whites and the other regarding the paucity of middle- and upper-class educated children, fueled speculations over race suicide.¹⁸⁹ As Wendy Kline has demonstrated, the “positive eugenics” campaigns promoting the proliferation of children among the genetically fit helped “pave the way for the pronatalism of the 1950s.”¹⁹⁰ Following the postwar baby boom in the United States, concerns over the reproductive capacities of educated women declined somewhat, although calls for curtailing the reproduction of poor women of color, both within and outside the United States, proliferated, the development of which will be examined in the next chapter. Nevertheless, questions on the differential reproduction between those blessed with beneficial hereditary endowments and those less endowed remained a focal point among midcentury eugenicists. Dice's anxieties over differential reproduction stemmed from the work of his dissertation adviser, Samuel J. Holmes, who expressed such fears in the 1920s.¹⁹¹

The individuals conducting the Assortative Mating Study, much like earlier eugenicists, assumed that an individual's level of education was a “useful index” of their inherited ability and personality. However, they found that although women 50 years and older showed significant neg-

¹⁸⁸ Lee R. Dice, Philip J. Clark, and Robert I. Gilbert, “Relation of Fertility to Religious Affiliation and to Church Attendance in Ann Arbor, Michigan, 1951-54,” *Eugenics Quarterly* 12, no. 2 (June 1965): 107–9.

¹⁸⁹ Leonard, *Illiberal Reformers*, 117–18; Soloway, *Demography and Degeneration*.

¹⁹⁰ Kline, *Building a Better Race*, 125.

¹⁹¹ For instance, he cites Holmes' 1923 *Studies in Evolution and Eugenics* in demonstrating the “alarm” hereditarians have expressed towards the issue of race suicide. Lee R. Dice, Philip J. Clark, and Robert I. Gilbert, “Relation of Fertility to Education in Ann Arbor, Michigan, 1951-54,” *Eugenics Quarterly* 11, no. 1 (March 1964): 30.

ative correlations between fertility and years of schooling, the younger generation revealed no such correlations. To Dice and his collaborators, this demonstrated a shift in both educational opportunities provided to all women and broader changes in the mating patterns of the population. Thus, they concluded that the “dysgenic trend in inherited ability” of the previous generation was declining.¹⁹²

The IHB’s other report on assortative mating, regarding the relationship between fertility, occupation, and income, confirmed their findings on education. Dice and his team considered the correlation between education and income as proof that males earning \$6,000 or more per year “possessed greater abilities on the average than those with smaller incomes.” Although the group with salaries between \$6,000-\$9,999 per year showed only “mediocre fertility,” this was offset by the “greater fertility of those males who were earning \$10,000 or more per year than of those with smaller income.” Thus, they believed there was a “eugenic trend toward an increase in ability” in Ann Arbor during the early 1950s. They explained their findings, which were in direct contrast to those of other researchers continuing to observe more dysgenic trends, by noting that the Ann Arbor population may represent a unique sample compared to the rest of the country on account of its proximity to the university, and therefore the likelihood that the populace was more educated compared to the median.¹⁹³

The other research program that began under the IHB and continued after its dissolution was the Hereditary Abilities Study. After obtaining a \$90,000 grant from the McGregor Fund of Detroit, IHB staff members gathered anthropometric, psychometric, biochemical, and personality measurements from 82 pairs of like-sexed monozygotic (identical) and dizygotic (fraternal) twins

¹⁹² Dice, Clark, and Gilbert, “Relation of Fertility to Education in Ann Arbor, Michigan, 1951-54,” 41–42.

¹⁹³ Lee R. Dice, Philip J. Clark, and Robert I. Gilbert, “Relation of Fertility to Occupation and to Income in the Male Population of Ann Arbor, Michigan, 1951-54,” *Eugenics Quarterly* 11, no. 3 (September 1964): 164–66.

from high schools in Detroit, Ann Arbor, Ypsilanti, and Dearborn, between 1952-1955.¹⁹⁴ Their decision to compare twins was rooted in the work of Francis Galton, who was “among the first to recognize the genetic significance of monozygotic and dizygotic types.” Galton, these researchers argued, had shown that the differences between identical and fraternal twins in their demonstrated variance in a variety of characteristics would reveal the role that heredity and environment each played in their development. From such studies came the concept of heritability, defined as “the proportion of the variation in a trait which is attributable to genetic factors.”¹⁹⁵ In twin studies, it was assumed that all the demonstrated variance between monozygotic twins of a trait is “due to non-genetic (i.e., environmental) factors, because identical twins have identical genetic makeup.”¹⁹⁶ By comparing this variance to that revealed in dizygotic twins, who share 50% of their genes, while, presumably, having a similar environmental variance to that of monozygotic twins, researchers can mathematically ascertain the relative roles of heredity and environment in producing the total variance of the trait in question.¹⁹⁷

Many scholars have criticized heritability for several reasons, particularly in its application to behavioral and psychiatric genetics. Some, such as Steven Rose, argue that heritability is “meaningless” outside of its use in agricultural breeding experiments. In the production of plants, one can control, and limit, the environmental variance that is simply assumed to be in similar degrees

¹⁹⁴ Lee R. Dice, “Hereditary Abilities Study: Progress Report for the Period June 16, 1952, to August 1, 1953” (Ann Arbor, MI, 1953), Box 1, Institute of Human Biology, Correspondence and Administrative Material, 1953, Department of Human Genetics Records, Bentley Historical Library, University of Michigan; Evans, “Lee Raymond Dice, (1887-1977),” 637–38; Steven G Vandenberg, “The Hereditary Abilities Study: The University of Michigan,” *Eugenics Quarterly* 3, no. 2 (June 1956): 94–95.

¹⁹⁵ H. Eldon Sutton, Steven G. Vandenberg, and Philip J. Clark, “The Hereditary Abilities Study: Selection of Twins, Diagnosis of Zygoty and Program of Measurements,” *American Journal of Human Genetics* 14, no. 1 (March 1962): 52.

¹⁹⁶ Vandenberg, “The Hereditary Abilities Study,” 95–96.

¹⁹⁷ The formula for obtaining heritability estimates is $h^2 = (\sigma^2_D - \sigma^2_M) / \sigma^2_D$, where σ^2_D and σ^2_M represent the within-pair variances of dizygotic and monozygotic twins, respectively. Philip J. Clark, “The Heritability of Certain Anthropometric Characters as Ascertained from Measurements of Twins,” *American Journal of Human Genetics* 8, no. 1 (March 1956): 51.

when studying twins or random population samples.¹⁹⁸ Diane Paul, meanwhile, has argued that estimates of the heritability of a trait demonstrate the politicization of the broader nature-nurture debate. According to Paul, they “depend on value-laden assumptions about the current social order,” not the elucidation of genetic principles.¹⁹⁹ Much of their criticism is also directed towards the conflation between heritability, which measures the proportion of the variance of a phenotypic trait in a population attributed to genetic causes, with genetic causation, or the direct role of genes in the expression of a certain phenotype.²⁰⁰ Tim Morris has also claimed that population parameters, such as assortative mating, stratification, and dynastic effects (additive effects of parental choices in the environment in which they rear their children), bias heritability estimates in unrelated populations.²⁰¹ Jay Joseph has criticized the use of twin studies in demonstrating heritability and the potentially genetic etiology of psychiatric disorders.²⁰² Genome-wide Association Studies (GWAS), which scan the human genome in an attempt to uncover single nucleotide polymorphisms related to various phenotypic traits, have further demonstrated that previously suggested heritability estimates for such characteristics as height, autism, and schizophrenia were far too high.²⁰³ That said, at the time of the Hereditary Abilities Study, such criticisms were much less prevalent (or unavailable) than they are today.

As H. Eldon Sutton stated, the Hereditary Abilities Study’s objective was “to measure the extent to which genetic variability is responsible for the variations in special abilities in human

¹⁹⁸ Steven P. R. Rose, *Lifelines: Life beyond the Gene* (Oxford: Oxford University Press, 2003), 293.

¹⁹⁹ Paul, *The Politics of Heredity*, 90.

²⁰⁰ David S. Moore and David Shenk, “The Heritability Fallacy,” *WIREs Cognitive Science* 8, no. 1–2 (2017): 1, <https://doi.org/10.1002/wcs.1400>.

²⁰¹ Morris et al., “Population Phenomena Inflate Genetic Associations of Complex Social Traits.”

²⁰² Jay Joseph, “Genetic Research in Psychiatry and Psychology: A Critical Overview,” in *Handbook of Developmental Science, Behavior, and Genetics*, ed. K. Hood et al. (Malden, MA: Wiley-Blackwell, 2010), 557–625; Jay Joseph, *The Trouble with Twin Studies: A Reassessment of Twin Research in the Social and Behavioral Sciences* (New York: Routledge, 2016).

²⁰³ Brendan Maher, “Personal Genomes: The Case of the Missing Heritability,” *Nature* 456, no. 7218 (November 1, 2008): 18–21, <https://doi.org/10.1038/456018a>.

beings.” Thus, they recognized that they were not examining the “mode of heredity” involved in the production of characteristics such as intelligence or special abilities; rather, they were hoping these studies would elucidate which traits “merit further study as to the mechanism of inheritance,” while also potentially revealing how proper training may help develop various abilities.²⁰⁴ They also readily admitted that “a fundamental assumption” underlying their heritability studies was that “the environment of the two members of a set of monozygotic twins are neither more nor less different from one another than are the environments of the two members of a pair of dizygotic twins of the same sex.”²⁰⁵ Finally, they explicitly stated that heritability was an estimate “of the proportion of the variation in the trait which is genetically determined” rather than “the extent to which a trait is genetically determined” and that any obtained estimate was limited to the “population from which it is derived.”²⁰⁶ Such cautious and reserved statements may help explain why the Hereditary Abilities Study results never gained as much popularity as similar works, for instance, Richard Herrnstein and Charles Murray’s *The Bell Curve*.²⁰⁷

However, heritability remained of interest to researchers at the IHB because they considered it “an index of the susceptibility of a character to genetic change.” Connecting this work to that of the Assortative Mating Study, they suggested that a trait with higher heritability may reflect “the evolutionary effect of differential fertility with respect to that character.” They found that most anthropometric measurements were significantly heritable, including stature, appendage

²⁰⁴ H. Eldon Sutton, “The Hereditary Abilities Study,” *Metropolitan Detroit Science Review* 16, no. 2 (December 1955): 34–35.

²⁰⁵ Sutton, Vandenberg, and Clark, “The Hereditary Abilities Study: Selection of Twins, Diagnosis of Zygosity and Program of Measurements,” 52.

²⁰⁶ Clark, “The Heritability of Certain Anthropometric Characters as Ascertained from Measurements of Twins,” 53.

²⁰⁷ Of course, certain sociocultural developments that took place between the 1950s and the 1990s also explain this. However, 6 articles about *The Bell Curve*, let alone the book itself, have more citations than the most referenced Hereditary Abilities Study paper, which is Steven Vandenberg’s paper on heritability in the performance of various psychometric tests. “Hereditary Abilities Study,” Google Scholar, February 2, 2021, https://scholar-google-com/scholar?hl=en&as_sdt=0%2C23&q=hereditary+abilities+study&btnG=; “*The Bell Curve*,” Google Scholar, February 2, 2021, https://scholar-google-com/scholar?hl=en&as_sdt=0%2C23&q=the+bell+curve&btnG=.

lengths, and facial features.²⁰⁸ In the biochemical studies, they observed several amino acids demonstrating significant heritability, particularly the excretion of lysine, but also noted that shared environments made their analysis more difficult.²⁰⁹

The psychometric tests, led by Steven Vandenberg, consisted of a battery of paper-and-pencil, personality, sensory, cognitive, and motor tests. Rather than attempting to measure “general intelligence” or IQ, Vandenberg and his associates wished to measure a variety of mental abilities. As he put it, it was not uncommon to find “someone who is highly gifted verbally but who is poor in numerical ability or in the ability to understand mechanical principles and vice versa.” Accordingly, twins were given parts of the Progressive Matrices Test; L.L. Thurstone’s Chicago Primary Mental Abilities tests; vocabulary tests from the Weschler Intelligence Scale for Children; the spelling portion of Terman and Ruch’s Stanford Achievement Test; motor tests such as tweezer dexterity, hand steadiness, and maze puzzles; Thurstone and Cattell’s personality quizzes; and several others in an attempt to separate and measure each of the various components of intelligence. They found that a little less than half of the tests showed statistically significant heritability; however, 65% of the measurements on primary mental abilities were considered to have high heritability. Vandenberg concluded that “hereditary factors play a role in many areas of human performances, often in spite of the fact that these skills are highly practiced.”²¹⁰ In another study, he found a “small but persistent hereditary contribution of hereditary components” to the voca-

²⁰⁸ Clark, “The Heritability of Certain Anthropometric Characters as Ascertained from Measurements of Twins,” 50–53.

²⁰⁹ H. Eldon Sutton, Elvira Gil De Lamadrid, and Marie B. Esterer, “The Hereditary Abilities Study: Genetic Variation in Human Biochemical Traits,” *American Journal of Human Genetics* 14, no. 1 (March 1962): 64–82.

²¹⁰ Steven G. Vandenberg, “The Hereditary Abilities Study: Hereditary Components in a Psychological Test Battery,” *American Journal of Human Genetics* 14, no. 2 (June 1962): 221–35.

tional preferences of the twins, “particularly for scientific careers.”²¹¹ These studies represented the last contributions of the IHB to research on human heredity.

Neel, for his part, did not participate in either the Assortative Mating or the Hereditary Abilities studies. Aside from his initial concern about receiving funding from Wickliffe Draper, he essentially removed himself from the research projects. In part, this was because he was already quite busy. As the data was being collected for both these programs, Neel was busy co-authoring a textbook on human genetics with William Schull and continuing to consult for the ABCC with their work on the effects of the atomic bombs and writing the first report of their findings. By the time that the analysis phase of these ventures was underway, the IHB had been officially removed and he was the head of the new Department of Medical Genetics. It would not be until 1967 that Neel would be involved in genetic studies with twins, which he conducted on a much larger scale through the Veterans Administration.²¹² Moreover, his interests were never geared towards the investigation of “normal” or “superior” traits within a population. Although he gave tacit support to this work, he never seemed actively to participate in it. Nor did he use their conclusions as a base to expand on what was known about human inheritance, in contrast to his IHB colleague James Spuhler, who argued in 1962 that assortative mating for intelligence was an established fact.²¹³ Finally, it was during this period, between 1955 and 1960, that Neel’s own research interests shifted in another direction entirely.

Eugenics, Euphenics, and Chronic Disease

²¹¹ Steven G. Vandenberg and Lillian Kelly, “Hereditary Components in Vocational Preferences,” *Acta Geneticae Medicae et Gemellologiae: Twin Research* 13, no. 3 (July 1964): 274, <https://doi.org/10.1017/S1120962300015584>.

²¹² Seymour Jablon et al., “The NAS-NRC Twin Panel: Methods of Construction of the Panel, Zygosity Diagnosis, and Proposed Use,” *American Journal of Human Genetics* 19, no. 2 (March 1967): 133–61.

²¹³ J. N. Spuhler, “Empirical Studies on Quantitative Human Genetics,” in *The Use of Vital and Health Statistics for Genetic and Radiation Studies* (New York: United Nations, 1962), 247.

After the “early excitement associated with the discovery of the biochemical variants of hemoglobin began to wane” in the 1960s, Neel’s interests turned to the genetic basis of chronic disease.²¹⁴ Like the claims eugenicists made forty years before him, Neel argued that the successes of public medicine—particularly the development of antibiotics—made an understanding of the genetic basis of a variety of chronic diseases more important than ever. While the role of genetics in the production of these disorders was vastly more complex, Neel nevertheless believed that “the total contribution of heredity to the chronic disease problem is considerable.”²¹⁵ By the early-1950s, he and other medical geneticists thought heredity was the primary or secondary etiological factor in at least eleven disease clusters. This included many disorders that eugenicists were earlier concerned with, such as tuberculosis, late manifestations of syphilis, and epilepsy. Based on electroencephalographic (EEG) readings of relatives of patients diagnosed with idiopathic epilepsy, as well as similar clinical prognoses of monozygotic twins, Neel reasoned that heredity was a significant component in its manifestation.²¹⁶ Comparisons of monozygotic and dizygotic twins demonstrated to him that schizophrenia and manic-depressive psychoses were also inherited, at least to some extent, while other disorders associated with mental deficiency, such as Huntington’s chorea, PKU, and gargoylism, were definitively due to the inheritance of specific genes.²¹⁷ These findings, to Neel and many other mid-century medical geneticists, had important eugenic consequences.

Like many genetic counselors in the period, he believed that with proper information, most parents would act rationally as they planned their family size.²¹⁸ Neel stated that “families would voluntarily limit family size if they had accurate facts at their disposal,” both to “reduce their

²¹⁴ Schull, “Scientist, Journalist, Orchidist--Will the Real James V. Neel Please Stand Up,” 6; It was also because biochemical genetics at this time was requiring much more knowledge in biochemistry than Neel had acquired. James V. Neel, “Between Two Worlds,” *American Journal of Human Genetics* 18, no. 1 (January 1966): 5.

²¹⁵ James V. Neel, “Heredity in the Prevention of Chronic Disease,” *Eugenical News* 38 (1953): 20.

²¹⁶ Neel, “The Detection of the Genetic Carriers of Hereditary Disease,” 25.

²¹⁷ Neel, “Heredity in the Prevention of Chronic Disease,” 22.

²¹⁸ Paul, “From Eugenics to Medical Genetics,” 97.

contribution to this disease in the next generation” and to “be in a better position to care for such children as they already have.” Like his contemporaries, Neel stressed that the major difference between genetic counseling and eugenics was the voluntary nature of their respective programs. “Most geneticists today,” Neel believed, were “firmly opposed to anything that savors of compulsion” in directing the reproduction of individuals. That said, Neel and other genetic counselors alleged that they could “make a significant contribution to the prevention of chronic disabilities” so long as it remained “on a voluntary basis.” Although “considerable discredit” came to human genetics because of the “premature and ill-advised attempts to apply fragmentary knowledge to complex situations,” and even though medical genetics was still “in its infancy” as a field, Neel felt the potential benefits of continued human genetics research outweighed its possible misuse, as had occurred in the recent past.²¹⁹ Such benefits included the potential reduction of such diseases within the population, the ability to detect disorders, and the possibility to apply therapeutic treatments in the earliest stages of prognosis.

That said, for many mental disorders, genetic counselors provided few therapeutic interventions. Rather, they were limited to offering parents what information they had on the prognosis and the likelihood that future children would also have the disease in question. The latter component constituted most of genetic counseling before the 1970s. As mentioned earlier, the emphasis was on providing accurate information to parents, who were assumed to act responsibly once they were made aware of the potential inheritance of the disease. Parents often came to the Heredity Clinic because they already had a child afflicted with a hereditary disorder. When the genetic nature of the trait in question was known, such as the recessive inheritance of sickle cell anemia or the dominant heredity of Huntington’s chorea, genetic counselors were able to provide exact

²¹⁹ Neel, “Heredity in the Prevention of Chronic Disease,” 23–24.

estimates of the probability—in these instances, 25% and 50%, respectively—another child would be similarly affected.

With more complicated inherited diseases, however, genetic counselors turned to empiric risk figures. These figures, as Neel wrote, were “statements based on experience rather than an understanding of etiological mechanisms” of the condition in question.²²⁰ It involved the tabulation of all the known occurrences of the disease in question in the relatives of patients displaying that same trait. For instance, if 5 out of 100 siblings of epileptic patients were found to also have the condition, the empiric risk figure would be 5%.²²¹ The only way to determine whether such a trait was based, at least in part, on genetic factors was in its non-random distribution in the population. Thus, its prevalence among siblings proved to medical geneticists that a certain trait was inherited to some extent.²²² Because empiric risk figures were reliant on sibling data, they were liable to change as medical geneticists collected more data on the recurrence of various diseases among patients’ family members. As Neel noted, such statistics, when given to concerned parents, could be “quite misleading.”²²³ With traits that were either congenital or the result of specific interactions between genes and the environment, the best that genetic counselors could do was to obtain as much relevant information as possible, namely, the number of incidences among family members in which the disease occurred.

Aside from chronic mental illness, it quickly became apparent that prolonged physical diseases such as diabetes and cardiovascular disease were also due to genetic factors. In contrast to mental disease, for which medical geneticists envisioned few potential solutions, Neel offered

²²⁰ James V. Neel, “The Meaning of Empiric Risk Figures for Disease or Defect,” in *Heredity Counseling: A Symposium Sponsored by the American Eugenics Society*, ed. Helen G. Hammons (New York: Hoeber-Harper, 1959), 65.

²²¹ James V. Neel, “A Pedigree of Clubfoot,” *Archives of Pediatrics & Adolescent Medicine* 79, no. 3 (March 1, 1950): 442, <https://doi.org/10.1001/archpedi.1950.04040010455004>.

²²² James V. Neel, “Genetics and Human Congenital Malformations,” *Pediatrics* 19, no. 4 (April 1, 1957): 750.

²²³ Neel, “The Meaning of Empiric Risk Figures for Disease or Defect,” 67.

environmental or cultural changes as a means of alleviating the burden of such physical disorders. His reasoning in many ways paralleled John Harvey Kellogg's fifty years before, as discussed in Chapter 2. Whereas Kellogg viewed the sociocultural changes brought about by industrialization as disastrous to the human body and offered eugenics and eugenics as solutions to this "race degeneration," Neel saw the onset of the "Atomic Age" as producing environmental effects that were potentially deleterious to humans' health and requiring a "genetic readjustment" to this new environment.²²⁴ He considered two recent changes especially important in fostering "certain anti-evolutionary developments" in human cultures. First, humans were becoming exposed to a variety of "mutagenic agents." While the initial concern of such agents was radiation following the use of atomic weapons in Japan, by the 1970s, partly due to the ABCC reports finding minimal observable effects on the Japanese population and partly because of works like Rachel Carson's *Silent Spring*, many researchers turned their attention to chemical sources.²²⁵ These exposures increased the mutation rates of humans, which, as mentioned earlier, geneticists assumed to result in negative phenotypic expressions in most cases. Second, alongside increased mutation rates was a lessening of the effects of natural selection on the removal of harmful genes in the gene pool. Medical advances allowed those who would have died before their reproductive years in previous generations to live long enough to have children of their own, thus increasing the proportion of detrimental genes in the gene pool, not just in the current generation but continuing it into the genera-

²²⁴ John Harvey Kellogg, "Evils of Civilization" (Lecture, Battle Creek Sanitarium, June 24, 1909), Box 5, Folder 5, John Harvey Kellogg Papers, Bentley Historical Library, University of Michigan; Neel, "A Geneticist Looks at Modern Medicine," 128.

²²⁵ Rachel Carson, *Silent Spring*, Anniversary edition (Boston, MA: Houghton Mifflin Company, 2002); James V. Neel, "The Detection of Increased Mutation Rates in Human Populations," *Perspectives in Biology and Medicine* 14, no. 4 (1971): 522–23, <https://doi.org/10.1353/pbm.1971.0043>; For the influence of women scientists like Rachel Carson and Charlotte Auerbach on educating the public about the hereditary dangers of radiation and mutagenic chemicals, see Marsha L. Richmond, "Women as Public Scientists in the Atomic Age: Rachel Carson, Charlotte Auerbach, and Genetics," *Historical Studies in the Natural Sciences* 47, no. 3 (June 2017): 349–88, <https://doi.org/10.1525/hsns.2017.47.3.349>.

tions ahead.²²⁶ To Neel, humans were entering a period, largely due to the successes of applied science from physics and medicine, in which a new environment was being created that would require a rapid rate of evolution in order to cope with the situation.

Solving this state of affairs required the expertise of geneticists to guide human evolution in a manner that mitigated as much damage to the species as possible. According to Neel, two reform strategies seemed available. The first was managing human evolution through the manipulation of its gene pool or, more simply, eugenics. However, as stated earlier, Neel never believed that our knowledge of human genetics was sufficient to justify intervening into the development, maintenance, and progression of the human gene pool. Instead, he advocated for what he called “culture engineering,” which he understood as utilizing “the milieu in which we function” in a way to ensure it was “best fitted to man’s needs.”²²⁷ Accordingly, and despite using different terminology, Neel invoked a form of eugenics to combat what he considered the further degeneration of the human race.

The quintessential example of Neel’s program of culture engineering involved curtailing diabetes. In one of his most cited papers, Neel hypothesized that the increasing proliferation of diabetes in the western world was due to the recent overabundance of available food making what was previously an evolutionary adaptation a liability; or, as he put it in his rather catchy title, it represented “a thrifty genotype rendered detrimental by progress.”²²⁸ More specifically, he suggested that certain individuals had inherited a predisposition to produce and distribute insulin more readily following food digestion. Venturing a hypothesis as to how this might have occurred, Neel suggested that this trait, during the hunting and gathering days of man, this provided an

²²⁶ Neel, “A Geneticist Looks at Modern Medicine,” 128–29.

²²⁷ Neel, “A Geneticist Looks at Modern Medicine,” 145.

²²⁸ James V. Neel, “Diabetes Mellitus: A ‘Thrifty’ Genotype Rendered Detrimental by ‘Progress’?,” *American Journal of Human Genetics* 14, no. 4 (1962): 353–62.

evolutionary advantage in a feast-or-famine diet but more recently has resulted in the overproduction of insulin. This, in turn, is countered by the overproduction of “insulin antagonists” or “anti-insulins,” which eventually overtook the development of insulin and caused clinical diabetes.²²⁹ The proper means of reducing diabetes incidence rates was thus a change in dietary patterns, broadly applied to the entire population but, with the aid of physicians, reinforced individually to those genetically predisposed to the condition.²³⁰

Neel was inclined to such a hypothesis in explaining the prevalence of diabetes for two reasons. One was that it provided an explanation for why a negative clinical condition that was at least partly genetic in its etiology was occurring so frequently in the population. Much like how sickle cell trait established itself as a balanced polymorphism in areas where malaria was endemic (due to the advantages it offered despite the reproductive disadvantages of sickle cell anemia), Neel postulated that a similar situation must have occurred with diabetes.²³¹ Although the inheritance of a predisposition to diabetes is much more complicated than that of sickle cell anemia, when Neel formulated this argument the theory that diabetes was inherited as a recessive trait at a single locus had not been ruled out.²³² Thus, in many ways, the evolutionary picture of diabetes seemed to parallel that of sickle cell anemia. Consequently, Neel supposed that the occurrence of diabetes can be explained in much the same way as sickle cell anemia.

The other reason Neel preferred such a theory was that it was one that could be tested. Much like how those prone to gout demonstrated higher blood uric acid levels, Neel suggested that those susceptible to diabetes theoretically should show abnormal metabolic processes compared

²²⁹ Neel, “Diabetes Mellitus,” 357–58.

²³⁰ Similar dietary changes were also suggested for people diagnosed with hypertension, atherosclerosis, and those who were obese. Neel, “Priorities in the Application of Genetic Principles to the Human Condition,” 60–61.

²³¹ Neel, “Diabetes Mellitus,” 359.

²³² Arthur Steinberg had presented pedigrees suggesting this to be the case. James V. Neel, “Symposium: The Genetics of Various Constitutional Defects,” *American Journal of Human Genetics* 4, no. 4 (December 1952): 252.

to those not so predisposed.²³³ Indeed, Neel and his colleagues at the Department of Medical Genetics at the University of Michigan tested the glucose tolerance curves (GTT) of 103 controls and 573 “apparently healthy, first degree relatives of diabetic patients” from the UM Hospital. They found that those who obtained abnormal cortisone-GTT readings were more likely to develop diabetes and that the children of diabetic parents displayed GTT scores that significantly deviated from the control group. Although evidence was accumulating by the time of this 1965 study that the genetic nature of diabetes was more complex than Neel originally thought, his hypothesis that an inherited disposition to quickly release insulin has been rendered detrimental due to overabundant food supplies still remained possible. Moreover, there now seemed to be a way to identify individuals susceptible to diabetes well before they showed its clinical symptoms.²³⁴

Neel’s “thrifty gene” explanation for the frequency of diabetes was eventually discredited. First, it never distinguished between type I and type II diabetes, lumping them both into a single clinical entity. Second, researchers could only rarely replicate Vallance-Owen’s results eliciting insulin antagonists, which formed the physiological basis of Neel’s “quick insulin trigger” theory.²³⁵ Nevertheless, he still adhered to his cultural engineering model, although by the 1970s he adopted Joshua Lederberg’s term “euphenics,” defined as “the science of optimizing the phenotypic expression of the genotype” to explain it.²³⁶ This framework was limited primarily to considering proper nutrition, particularly towards those with family histories of multifactorial traits such as diabetes and hypertension, but also included ensuring those predisposed to cancer to avoid mutagenic agents. Euphenic measures on the intellectual development of individuals was largely

²³³ Neel, “Diabetes Mellitus,” 358.

²³⁴ James V. Neel et al., “Diabetes Mellitus,” in *Genetics and the Epidemiology of Chronic Diseases*, ed. James V. Neel, Margery W. Shaw, and William J. Schull, Public Health Service Publication No. 1163 (Washington, D.C.: Government Printing Office, 1965), 111–29.

²³⁵ James V. Neel, “The ‘Thrifty Genotype’ in 1998,” *Nutrition Reviews* 57, no. 5 (May 1999): S2.

²³⁶ Neel, “Human Genetics,” 89–90.

relegated to properly allocating resources in education and controlling the content and exposure of children to television, although he did note that dietary changes could potentially increase IQ scores by 5 points.²³⁷

Neel's eugenics program paralleled John Harvey Kellogg's eugenic reforms in several ways. At their cores, both were a set of environmental policies designed to prevent various clinical conditions they believed had at least some genetic basis and to ensure the best possible expression of the genes in each individual. Neel and Kellogg both believed that "the most precious possession" of humans was their germ plasm.²³⁸ They both felt that educational efforts were necessary to inform the public of how to implement their reforms. Furthermore, it was up to physicians and geneticists working together to educate the public on these matters. Such collaborations were fundamentally a response to what its advocates viewed as the decreasing effects of natural selection in the United States due to medical advances. While Neel never referred to this phenomenon as "race degeneration" like earlier eugenicists, they both considered this a significant social problem that required prophylactic efforts.²³⁹ In the end, but in differing degrees, Neel and Kellogg promoted reshaping Western culture to resemble more closely that of "our uncivilized ancestors."²⁴⁰

Neel's belief that natural selection operated more efficiently in "primitive" cultures was largely based on his studies of several indigenous tribes in South America. Indeed, one of the primary reasons he started studying such groups as the Xavante and Yanomamo tribes was to

²³⁷ James V. Neel, "How Would Haldane Have Viewed the Societal Implications of Today's Genetic Knowledge?," in *Human Population Genetics: A Centennial Tribute to J. B. S. Haldane*, ed. Partha P. Majumder (Boston, MA: Springer US, 1993), 331–40, https://doi.org/10.1007/978-1-4615-2970-5_22; Neel, *Physician to the Gene Pool*, 392–93; Neel, "On Emphases in Human Genetics," 39.

²³⁸ James V. Neel, "Changing Patterns of Disease and Their Implications for Vital Statistics and Genetics," in *The Use of Vital and Health Statistics for Genetic and Radiation Studies* (New York: United Nations, 1962), 3.

²³⁹ James V. Neel, "Some Ethical Issues at the Population Level Raised by 'Soft' Eugenics, Euphenics, and Isogenics," *Human Heredity* 50, no. 1 (February 2000): 15.

²⁴⁰ Neel, "Some Ethical Issues at the Population Level Raised by 'Soft' Eugenics, Euphenics, and Isogenics," 17–18.

ascertain whether natural selection had been relaxed in Western civilizations.²⁴¹ Simultaneously, Neel assumed that studying tribes that were “in an essentially pre-Columbian state” would provide the “biological parameters” that existed for “the majority of human evolution.”²⁴² By analyzing differential reproduction, inbreeding, migration, and mortality, Neel hoped to determine whether the tempo of human evolution had slowed as technological and medical advances decreased the mortality rate of all individuals.²⁴³ For Neel, the studies he conducted on various American Indian groups were a representation of both the differences between “advanced” and “primitive” cultures, but also a demonstration of how humans evolved before the onset of “civilization.” As Susan Lindee has argued, Neel’s research on several Amerindian tribes—including the collection of blood, saliva, and other bodily materials—was a means of reconstructing the voices and the history of humans from a distant past.²⁴⁴

James Van Gundia Neel and many midcentury medical geneticists were staunch opponents of “narrow definitions of eugenics,” in the sense that eugenics was based on shoddy pseudoscience or compulsory programs aimed at curtailing the reproduction of marginalized groups.²⁴⁵ Nevertheless, he and the establishment of the UM Heredity Clinic were, according to Daniel Kevles, one of the quintessential examples of “reform eugenics,” which consisted of those medical geneticists hoping to utilize “genetics for medical purposes and to improve the biological quality of human populations.”²⁴⁶ He epitomized the advance of genetic science beyond that of early-twentieth-century eugenicists. Although the collection and analysis of human pedigrees remained a substan-

²⁴¹ James V. Neel, “The Study of Natural Selection in Primitive and Civilized Human Populations,” in *Natural Selection in Man*, ed. J. N. Spuhler (Detroit, MI: Wayne State University Press, 1958), 44–45.

²⁴² James V. Neel and Francisco M. Salzano, “A Prospectus for Genetic Studies of the American Indian,” *Cold Spring Harbor Symposia on Quantitative Biology* 29 (January 1, 1964): 85, <https://doi.org/10.1101/SQB.1964.029.01.014>.

²⁴³ Neel, “Between Two Worlds,” 11–12.

²⁴⁴ Susan M Lindee, “Voices of the Dead: James Neel’s Amerindian Studies,” in *Lost Paradises and the Ethics of Research and Publication*, ed. F. Salzano and M. Hurtado (Oxford: Oxford University Press, 2003), 63.

²⁴⁵ Paul, *The Politics of Heredity*, 96.

²⁴⁶ Kevles, *In the Name of Eugenics*, 253.

tial component of understanding the genetic nature of various traits, Neel was much more careful in his interpretations. In contrast to individuals like Charles Davenport, who provided studies of the inheritance of Huntington's chorea alongside those of "love of the sea" and other manifestations of a person's life due largely to external forces, Neel restricted his investigations to the hereditary basis of physical disorders that could definitively be demonstrated. In this manner, he and other medical geneticists considerably differed from their scientific predecessors.

Neel and the medical geneticists' understanding of genetics, furthermore, was starkly different from that of the eugenicists. Following the Modern Synthesis, Neel framed his investigations of retinoblastoma, neurofibromatosis, and other diseases through the lens of their effect on the "gene pool," an abstract concept that positioned groups of individuals as collections of genes within a larger reservoir from which human evolution operates. Moreover, each individual obtained both good and bad genes from this pool. While some individuals may possess more good genes than bad, and vice versa, this was framed in relative rather than absolute terms. That is, it "was the total genotype, not the single gene, that mattered" when discussing the possible dysgenic or eugenic changes in the population.²⁴⁷

Neel and his contemporaries also largely demarcated eugenics from their own investigations through the policies they endorsed. As Kenneth Ludmerer has noted, midcentury geneticists considered the application of genetics research to social issues from "both a scientific and ethical point of view."²⁴⁸ Neel never promoted such policies as the wholesale sterilization of the feeble-minded, nor did he suggest curtailing the immigration of people from various parts of the world according to their genetic constitution. Rather, he was part of a small group of individuals who provided counseling to parents seeking to understand why their child was afflicted with a

²⁴⁷ Paul, "From Eugenics to Medical Genetics," 106–7.

²⁴⁸ Ludmerer, *Genetics and American Society*, 173.

certain physical or mental disease. Although such counseling often blurred the line between coercion and voluntarism, it nevertheless represented a substantial deviation from the advocacy of eugenicists to state legislatures wishing to prevent all physical and mental degenerates from reproducing defective offspring for the next generation.

This did not mean, however, that Neel and other geneticists in the second half of the twentieth century were completely separated from their eugenic predecessors. As Ted Porter has argued, the geneticists' wish "to attribute the abuses of eugenics to bad science" and "to insist on scientific rigor as the antidote" was, at best, optimistic.²⁴⁹ Neel's work on the genetics of thalassemia and, later, sickle cell anemia indirectly resulted in the compulsory screening of African Americans throughout the United States, which led to discriminatory practices in health insurance and genetic counseling that many opponents decried as a new form of eugenics. Moreover, he never suggested that eugenics was inherently a bad thing. Rather, he believed there were "sufficient safeguards to protect the rights of the individual" in state laws coercively sterilizing individuals, that there were "undoubtedly individual cases in which sterilization is desirable," and, for other eugenic proposals, the scientific knowledge was not sufficient to justify their implementation *at that time*.²⁵⁰ Theoretically, then, once the science of human genetics caught up to various eugenic applications, it may well justify their use.

Although scholars such as Kevles and Ludmerer have emphasized the separation of racial and class biases from eugenicists and medical geneticists, this does not mean that marginalized groups did not factor significantly into the works of medical geneticists. Much of Neel's lengthy career was spent extracting genetic and biochemical data from the marginalized. This included those "uniquely victimized by history," such as atomic bomb survivors in Hiroshima and Nagasaki

²⁴⁹ Porter, *Genetics in the Madhouse*, 342.

²⁵⁰ Neel and Schull, *Human Heredity*, 343–47.

as well as the Xavante and Yamamomo tribes that were relatively isolated from Western civilization.²⁵¹ It also included detailed investigations initiated first by Lee Dice into patients at state institutions who, due to various physical or mental disabilities, were suited for studies on the inheritance of genetic traits. Thus, although marginalized groups were not uniquely selected merely for their presumed genetic inferiority as they were in the past, they nonetheless remained a key, albeit largely silenced, component of genetics research throughout the twentieth century.

Finally, Neel and his contemporaries remained committed to the idea that, in Western or “advanced” cultures, natural selection had been lessened through medical and technological innovations. Much like the earlier eugenicists, he viewed this as resulting in negative consequences to the collective gene pool of the population. The degenerationist framework that led John Harvey Kellogg to advocate for a program of race betterment that combined eugenics and eugenics similarly animated Neel to endorse genetic counseling alongside euphenics as a means of stemming the tide of genetic degeneracy. In this, Kellogg’s eugenics and eugenics and Neel’s medical genetics and euphenics were both attempts to relieve hereditary suffering and promote genetic health.²⁵² While eugenicists envisioned racial betterment as a means of improving such generalized phenotypes as intelligence and social behavior, genetic counselors primarily restricted their services to lethal or debilitating diseases with some genetic basis, and Neel limited euphenics primarily to alterations in dietary patterns to mitigate the rising rates of obesity, diabetes, and hypercholesterol.

Medical genetics, then, differentiated itself from eugenics in several ways, yet remained connected to it as well. While the science of genetics advanced well beyond the ideas and theories of early-twentieth-century eugenicists, the desire to prevent the deterioration of the total human

²⁵¹ Lindee, “Voices of the Dead,” 78.

²⁵² Comfort, *The Science of Human Perfection*, xi.

germ plasm remained. Genetic counseling, which was radically transformed in the 1970s due to the formation of graduate programs at women's colleges providing educated women entry into the field, continued to separate itself from its eugenic past.²⁵³ By this time, Neel was firmly established as a researcher within the Department of Medical Genetics at UM. In contrast to those like Sheldon Reed, who lamented the entry of women into genetic counseling in part because it threatened his own position, Neel never publicly decried these changes since it posed much less of an occupational threat to him. As he neared the end of his career, he turned his attention towards the issue of population growth and the concomitant fear of overpopulation. This is yet another field of research with significant ties to the eugenics movement.

²⁵³ Stern, *Telling Genes*; Paul, "From Eugenics to Medical Genetics," 108–9.

Chapter 6 From Race Suicide to Population Control: The Social Eugenics of Family Planning

4/14/22 1:33:00 PM Starting in the early 1970s, James Neel argued that the “new eugenics” of “policies designed to improve the genetic well-being of our species” must include forms of population control. Population policies, according to Neel, had greater implications for the human gene pool “than all the genetic counseling of the next 100 years.” His solution, which he believed to be the most equitable while preserving the current state of the total human gene pool, was the “even-handed policy” limiting every couple in the world to having only two children.¹ The desire to control the total reproduction of inhabitants of nations all over the world, invariably expressed as “population planning,” “population control,” “family planning,” or “population policies,” emerged in the 1950s among ecologists, demographers, and private foundations.² Examining national and international census reports and vital statistics, these groups concluded that population growth was increasing at a rate that neither the various nations nor the planet itself could accommodate. Their solution was to reduce the expansion rate of the population. By the late-1960s, this became an instrumental component of American foreign policy once the subject of population control had reached the American public. While undoubtedly divergent from the field of medical genetics that was emerging simultaneously, population planning, too, was rooted in the eugenics movement of the early-twentieth century.

¹ James V. Neel, “Social and Scientific Priorities in the Use of Genetic Knowledge,” in *Ethical Issues in Human Genetics: Genetic Counseling and the Use of Genetic Knowledge*, ed. Bruce Hilton et al. (New York: Plenum Press, 1973), 353–68.

² “Family planning” theoretically is different from these other terms in that its main goal is to offer individuals the ability to plan for the number of children they desire and space them out accordingly. However, in the context of post-World War II national policies to reduce birth rates under the guise of family planning programs, this distinction is blurred.

While eugenicists influenced these population planners, they both traced their heritage to the ideas of the British political economist Thomas Malthus. In his 1798 *Essay on the Principle of Population*, Malthus argued that “population, when unchecked, increases in a geometrical ratio.” In contrast, agricultural production increased “only in an arithmetical ratio,” which produced a check on unlimited population growth.³ Other factors serving to reduce the population were war and disease. In contrast to later eugenicists, however, Malthus did not propose regulating the fecundity of individuals. In explaining how overpopulation contributed to poverty through limited resources, he considered it to be necessary to ensure poor people with large families would be motivated enough to seek work.⁴

In the context of biological theorizing, Malthus’s theory of population increase, of course, proved pivotal to both Charles Darwin and Alfred Russell Wallace’s formation of the theory of evolution by natural selection. To Darwin, species produced more offspring than could be cared for, which created competition that helped favor the survival of those better adapted to the environment, thus leading to species change over time. Thus, as Darwin admitted, his theory of evolution was “the doctrine of Malthus applied to the whole animal and vegetable kingdoms.”⁵ The concept that those better suited to their environment were more likely on average to survive and contribute more offspring to the population also stimulated Francis Galton’s understanding of Gaussian distribution. In contrast to mid-nineteenth century statisticians such as Adolphe Quetelet, who reified the statistical means of individuals’ physical and social traits as the fundamental expression of a nation or race, while variation represented perturbations from that “virtuous golden

³ Thomas Malthus, “An Essay on the Principle of Population,” 1798, 4–5.

⁴ Eric B. Ross, *The Malthus Factor: Population, Poverty, and Politics in Capitalist Development* (London: Zed Books, 1998), 4.

⁵ Charles Darwin, *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*, 2nd ed. (New York: D. Appleton and Company, 1861), 12.

mean,” Galton emphasized the tails of the bell curve.⁶ It was these groups that he believed eugenically improved society or caused degeneration by shifting the average of a group’s expression of a genetic trait to one side or the other, depending on their rate of reproduction.⁷ From its inception, then, eugenic theorists were fundamentally concerned with tabulating and charting the differential fertilities of both the genetically fit and unfit.

This, in part, was the result of trends in birth rates among Western nations during the nineteenth century. Aside from France, whose birth rate fell much earlier and continued much longer, British and American birth rates, along with those of several other European nations, declined around the 1870s and continued to decline until the 1940s. The same data also revealed that the birth rates of immigrants and the lower classes did not experience any diminution. This fostered concerns over “race suicide”—the idea that a minority group will eventually outbreed the Anglo-Saxons currently in power—and racial degeneration.⁸ While such fears about the demographic implications of declining birthrates were demonstrated more clearly and consistently in Great Britain, American eugenicists expressed similar anxieties, if to a lesser degree.⁹ John Harvey Kellogg, as noted in Chapter 2, blended neo-Lamarckian heredity with British demography to argue that the

⁶ Quetelet viewed the regularity of socially abnormal events, such as suicide and crime, as proof that statistics can reveal general laws that govern society. When applied to populations, the law of large numbers revealed the group’s “average man,” whose physical and social characteristics could be measured over time. He then applied the error law of astronomical measurements to variations from the means of populations. Just as the normal distribution of several measurements of celestial objects could be pooled together to determine their “true” position, the variations within populations could be measured and pooled together to reveal that “the average man really was the type of nature.” Gerd Gigerenzer et al., *The Empire of Chance: How Probability Changed Science and Everyday Life*, Ideas in Context (Cambridge: Cambridge University Press, 1989), 41–55; Ian Hacking, *The Taming of Chance*, Ideas in Context (Cambridge: Cambridge University Press, 1990), 113, 168–69.

⁷ Theodore M. Porter, *The Rise of Statistical Thinking, 1820-1900* (Princeton, N.J.: Princeton University Press, 1986), 138.

⁸ In the United States, the idea of race suicide was initially formulated out of fear that Asian immigrants would displace Americans. Ross, “The Causes of Race Superiority,” 87–88; The 1882 Chinese Exclusion Act and the American-Japanese Gentleman’s Agreement of 1907 reduced Asian immigration and mitigated some of these tensions. Simultaneously, increased immigration from southern and eastern Europe eventually led Americans to shift their nativism towards immigrants from these areas. Higham, *Strangers in the Land*, 193–95.

⁹ The British fears of differential reproduction were centered primarily on questions of the relative fertilities of the upper and lower classes. Soloway, *Demography and Degeneration*.

decrease in the birth rate resulted in racial degeneration.¹⁰ Kellogg, like many other contemporary eugenicists, was ambivalent about what exactly he meant by “race.”¹¹ Sometimes, he was merely referring to the human race, or Americans in general. However, he also lamented the differential fertility between the “native stock”—that is, Americans tracing their ancestry to Great Britain, France, or Germany—rather than Native Americans or immigrants from other countries.¹² Kellogg’s paradoxical use of race reflects the incomplete construction of an “imagined community” of Americans that redefined citizenship based on both Anglo-Saxon heritage and the assimilation of southern and eastern Europeans into a shared Americanized whiteness taking place at this time, which eugenicists themselves helped to build.¹³

Kellogg’s demographic analyses, however, were elementary. For instance, he suggested at the first Race Betterment Conference that, if recent downward trends in the fertility of the “native” population continued, the “birth-rate will become zero within a century and babies will cease to be born.”¹⁴ James McKeen Cattell predicted a similar childless situation for England, Germany, and France.¹⁵ Edward Murray East referred to those who made such predictions as “croakers” for failing to account for the death rate alongside the birth rate.¹⁶ Rather, for him and a growing cadre of eugenicists in the 1920s, it was necessary to stabilize the birth rate with the death rate to ensure a stationary population. This required the sterilization of individuals in state institutions and the widespread dissemination of birth control information, particularly for those too intelligent to be

¹⁰ Kellogg, “The New Human Race,” 6–7.

¹¹ The family studies that were crucial in promoting eugenics, for example, were based on poor, rural white families. Rafter, *White Trash*.

¹² Kellogg, “Practical Eugenics,” 8–9.

¹³ Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism*, Revised edition (London: Verso, 2016); Dorr, *Segregation’s Science*, 12–13; Stromquist, *Reinventing “the People,”* 132.

¹⁴ Kellogg, “Needed—A New Human Race,” 437.

¹⁵ “Three Nations Face Race Extinction: Births Will Cease in 100 Years If Decrease Continues, Race Experts Are Told,” *New York Times*, January 13, 1914.

¹⁶ Edward Murray East, *Mankind at the Crossroads* (New York: Charles Scribner’s Sons, 1923), 269.

institutionalized and yet not worthy enough to pass their genes on to the next generation—that is, those Henry Goddard identified as “morons.”¹⁷ After World War I, as eugenic hereditarianism aligned itself further with notions of racial purity, other eugenicists drawing on positive eugenic principles, claimed that it was vital for the white population to drastically increase their birth rate.¹⁸ Lothrop Stoddard, in his *The Rising Tide of Color* (1920) mentioned in Chapter 3, stated that there were 550 million white people and 1.15 billion people of color on earth. Dividing people of color into “yellows, browns, blacks, and reds,” he asserted that this group included over 500 million Asians, 450 million “brown” people from Spain to India, 150 million people of African descent, and 40 million Latin Americans. To Stoddard, population pressures forced people of color to encroach on white people’s territories on account of their countries’ populations already being “up to the available limits of subsistence.”¹⁹ The only counters to this were immigration restrictions and encouraging positive eugenics of genetically fit white people. Thus, Stoddard, East, and Kellogg all focused on issues of differential reproduction and advocated various eugenic measures to counteract what they viewed as primary concerns about population growth.

Eugenics was always concerned with both the quality and the quantity of the population within societies. However, for much of the first two decades of the twentieth century, eugenicists overwhelmingly emphasized the importance of quality over sheer quantity. Starting in the 1920s, however, this began to shift. In connection with issues of immigration, the “lost generation” of what many considered to be the most genetically fit Europeans resulting from World War I, attempts from colonized areas to establish their independence following Wilson’s iteration of national self-determination as one of his Fourteen Points, and wider and more reliable sources of

¹⁷ East, *Mankind at the Crossroads*, 316; Goddard, *Feeble-Mindedness*, 4.

¹⁸ Higham, *Strangers in the Land*, 273.

¹⁹ Stoddard, *The Rising Tide of Color against White World-Supremacy*, 6–9.

vital statistics, eugenicists gradually turned their attention to population concerns both domestically and abroad.²⁰ By the 1950s, when eugenics suffered a serious setback due to revelations of Nazi atrocities, some eugenicists shifted to questions of how best to regulate swelling population numbers in countries around the world rather than domestic involuntary sterilization measures (or mass genocide). Along with the medical geneticists discussed in the previous chapter, these population planners formed the second key group to emerge following the fracture of the eugenics movement. Indeed, many of the anxieties expressed in the 1950s and 1960s can be traced to the work of eugenicists twenty or thirty years earlier.

Postwar population planners suggested that population growth was the primary cause for a variety of issues within what they termed the “less developed countries” of the “Third World.” However, in broad terms, these concerns can be placed within two primary categories. First, population planners claimed that rapid population growth produced deleterious effects for the environment. Whether it was the necessary increases in agricultural output to feed everyone, the pollution caused by growing urbanization, or the shrinking of habitable land, these “environmental Malthusians” assumed that population growth was leading to the destruction of entire ecosystems and reducing the “carrying capacity” of the planet.²¹ Second, population planners also argued that as long as the birthrates of countries in the Global South remained high, these countries would be unable to develop economically. Population growth, according to these economic neo-Malthusians, prevented countries from investing in education, utilizing capital efficiently, or producing enough commercial goods to balance food imports. In short, population growth facilitated poverty.

²⁰ Jay M. Winter, “Britain’s ‘Lost Generation’ of the First World War,” *Population Studies* 31, no. 3 (1977): 449–66, <https://doi.org/10.2307/2173368>.

²¹ Thomas Robertson, *The Malthusian Moment: Global Population Growth and the Birth of American Environmentalism*, Studies in Modern Science, Technology, and the Environment (New Brunswick: Rutgers University Press, 2012), 15.

Although post-1945 population planners frequently blurred the lines between environmental and economic neo-Malthusianism, individuals typically emphasized one over the other.

As Alison Bashford has argued, however, both sets of arguments were previously brought together at the 1927 World Population Conference in Geneva. Environmental and economic concerns over population growth were connected through the concept of “optimum population.” According to the agriculturalists, demographers, geographers, and eugenicists at the conference, optimum population was derived from both “standard of living and the capacity of the earth, literally soil, to support people in a given bounded area.”²² The importance of agriculture to economic development ensured that environmental and economic Malthusianism would remain connected. While such ideas provided the theoretical foundation for population planning, the solutions population planners advocated to curb birthrates came from the birth control movement.

Clarence Cook Little, Birth Control, and the World Population Conference

The transition from eugenics to population planning was made easier by the previous alliance between eugenicists and those advocating birth control. Birth control in all its forms, it should be noted, has provided millions of women with the reproductive choice to have children when they want to, a fundamental right to gender equality. However, the expansion of such access was deeply rooted in eugenic ideas about who should or should not reproduce. In the 1920s, some eugenicists endorsed birth control as a means of achieving their goals to limit the reproduction of the genetically unfit. This coincided with the birth control movement’s abandonment of radicalism and socialism and their increasing professionalization.²³ Margaret Sanger, by this time the leader of the movement through the American Birth Control League (ABCL), facilitated the alliance

²² Alison Bashford, “Nation, Empire, Globe: The Spaces of Population Debate in the Interwar Years,” *Comparative Studies in Society and History* 49, no. 1 (January 2007): 181, <https://doi.org/10.1017/S0010417507000448>.

²³ Gordon, *Woman’s Body, Woman’s Right*, 250.

between birth control and eugenics. Although originally promoting birth control as a means of sexually and economically emancipating women, by the 1920s she gradually adopted eugenic arguments for the spread of contraceptive information, and by 1926 insisted that sterilization was necessary for the insane and feeble-minded.²⁴ While eugenicists were still divided on the issue of birth control in the 1920s—many believed that only the intelligent were mentally capable enough to use birth control, which would further lower their proportion of births compared to the unintelligent and result in dysgenic effects—Sanger gained support from individuals like Guy Irving Birch (who would eventually lead the American Eugenics Society) and C. C. Little.²⁵

By the time he arrived in Ann Arbor in 1925, Little was an avid supporter of both eugenics and birth control. While confining his discussion of these topics to public addresses, rather than published works, Little stressed that birth control and eugenics were both aimed at ensuring that parents wanted every child that was born. In his inaugural address, he stated that “the uncontrolled and unintelligent addition of more people to a surfeited world” is “quite as great a sin as murder of these children by slow means.” Little suggested that the best way to accomplish this was through proper family limitation.²⁶ Addressing public health officers and nurses at a conference in Lansing, Little reiterated this theme, arguing birth control information was essential for people in poverty. He also added that parents who produced “unhappy, unfortunate children” should be sterilized.²⁷ That said, he generally considered compulsory sterilization as a last resort. Despite its inclusion in Michigan’s sterilization law discussed in Chapter 4, he was adamantly opposed to the use of x-

²⁴ Bonnie Mass, *Population Target: The Political Economy of Population Control in Latin America* (Toronto: Latin American Working Group, 1976), 27–29; Margaret Sanger, “The Function of Sterilization,” *Birth Control Review*, October 1926, 299.

²⁵ Matthew Connelly, *Fatal Misconception: The Struggle to Control World Population* (Cambridge: Belknap Press of Harvard University Press, 2010), 53.

²⁶ C. C. Little, “Inaugural Address of the President of the University of Michigan,” *School and Society* 22, no. 567 (November 7, 1925): 14–15.

²⁷ C. C. Little, “The Educator’s Responsibility,” *Birth Control Review*, January 1926, 20.

rays to sterilize people, for it could injure surrounding tissues.²⁸ He also regarded sterilization as a “crude implement,” and, comparing it to the 18th Amendment, called it a form of “biological prohibition.”²⁹ Rather, he considered voluntary sterilization and the spread of birth control information to be far more important means of accomplishing eugenic goals.³⁰

While his primary argument for advocating birth control was to prevent the production of unwanted children, an underlying theme within Little’s eugenic views was his contention that the dissemination of contraceptive information would diminish overpopulation. He was a neo-Malthusian in the sense that he believed that all species, including humans, had the tendency to overproduce.³¹ Overpopulation was already a pressing issue to Little, because humanity’s “physical and instinctive appetites” had “far outrun its ability for mental and spiritual digestion.”³² Instead of relying solely on the “biological prohibition” of sterilization, Little believed that birth control allowed individuals to practice “biological temperance.” Although he felt that birth control information was limited to those with the means to procure it, Little did not suggest that they should stop using contraception to increase their birthrate.³³ Rather, he argued for repealing the Comstock Laws banning the dissemination of contraceptive information so that physicians may freely provide contraceptive services to their patients in order to reduce the number of defective

²⁸ Clarence Cook Little to Ella D. Walker, November 5, 1925, Box 3, Folder 24, Correspondence: Wa-Waz, C.C. Little Papers, Bentley Historical Library, University of Michigan.

²⁹ C. C. Little, “Unnatural Selection and Its Resulting Obligations,” *Birth Control Review*, August 1926, 243.

³⁰ Clarence Cook Little to Mary Sumner Boyd, October 27, 1927, Box 7, Folder 6, C.C. Little Papers, Bentley Historical Library, University of Michigan.

³¹ Little, “Unnatural Selection and Its Resulting Obligations,” 243.

³² Little, “Inaugural Address of the President of the University of Michigan,” 14–15.

³³ Clarence Cook Little to Leon F. Whitney, December 7, 1925, Box 3, Folder 25, Correspondence: Wb-Wh, C.C. Little Papers, Bentley Historical Library, University of Michigan.

children being born.³⁴ Furthermore, access to birth control would reduce the likelihood that the poor would resort to abortions, which he and the ABCL were vehemently opposed to.³⁵

Although he, like Margaret Sanger, concentrated his efforts on providing greater access to contraception to the poor, C. C. Little was much more moderate in his eugenic and genetic views than some of the earlier eugenicists. As stated above, while he believed sterilization was a crucial measure for certain individuals, he did not view it as the only or even primary solution to limit the production of genetically unfit children. Moreover, Little was not a classist in the way most of the earlier eugenicists, especially those in Britain, were, for he did not necessarily equate material wealth with innate genetic ability. Nor did he suggest that income and the possession of materials were the only criteria for understanding wealth; instead, he demarcated one as rich or poor from what he believed was a biological point of view. If they were “rich in health and vigor and human happiness,” it did not matter if one lived in a log cabin or was a millionaire.³⁶ Little also argued that birth control clinics in poor, urban areas would do the most good not because they were poor but rather because they were the most populous areas. Consequently, they would reach more individuals whose “ignorance and primitive instincts” prevent them from practicing birth control without their aid.³⁷ By placing such clinics in the vicinity of large populations, they would curb both overcrowding and infant mortality.³⁸ That way, parents would be more likely to have the children they want and reduce the number of children they did not.

³⁴ Clarence Cook Little to Paul Turner, March 24, 1926, Box 3, Folder 20, Correspondence: Ta-Tz, C.C. Little Papers, Bentley Historical Library, University of Michigan.

³⁵ Clarence Cook Little to Dr. W. T. Garretson, March 31, 1926, Box 4, Folder 2, Correspondence: American Birth Control League, C.C. Little Papers, Bentley Historical Library, University of Michigan.

³⁶ Clarence Cook Little to H. F. Yungbluth, April 15, 1926, Box 4, Folder 2, Correspondence: American Birth Control League, C.C. Little Papers, Bentley Historical Library, University of Michigan.

³⁷ Clarence Cook Little to Elmer W. Mulford, April 20, 1926, Box 3, Folder 1, Correspondence: Moa-Mz, C.C. Little Papers, Bentley Historical Library, University of Michigan.

³⁸ Clarence Cook Little to C. H. Burton, April 21, 1926, Box 4, Folder 2, Correspondence: American Birth Control League, C.C. Little Papers, Bentley Historical Library, University of Michigan.

Little's pronouncements on birth control, made immediately after becoming president of the University of Michigan, were far more controversial at the time than his views on eugenics. As one *Detroit Free Press* article reacting to Little's statements stated, "regardless of opinion on dumbbells [those with below average intelligence], everybody likes babies."³⁹ The League of Catholic Women sent resolutions to the UM Board of Regents condemning his Lansing speech, while Rev. John McClorey of the University of Detroit called birth control a "pig philosophy" and suggested that if it were commonplace in nineteenth-century Kentucky, Abraham Lincoln would never have been born.⁴⁰ While the Board of Regents backed Little, following the response to his speeches he felt that he was unable to help the Detroit Birth Control League, an affiliate of the ABCL, in any official capacity.⁴¹ However, despite such setbacks, Little was able to promote birth control through his position at the American Eugenics Society and the World Population Conference in 1927.

Following the Second International Congress on Eugenics held at the American Natural History Museum in New York in 1921, Irving Fisher and Dr. Jon Alfred Mjøen of Norway organized the Ad Interim Committee, which eventually became the American Eugenics Society (AES). Little, who was Secretary of the Congress, was one of the original members of the AES. From the beginning, he approved birth control as a means of furthering eugenic goals, despite hesitation from other members. In developing the "ultimate program" that would "set the curves along which the eugenics movement should proceed," the AES included investigating the effects of birth control "from the standpoint of eugenics, as distinct from that of feminism, humanitarianism, or

³⁹ Bart A. Lynch, "Muzzling Dr. Little Popular Pastime That Fails to Work," *Detroit Free Press*, January 3, 1926, Sunday edition, 4.

⁴⁰ "Criticize Little for Recent Talk," *Flint Journal*, November 30, 1925, Box 4, Folder 2, Correspondence: American Birth Control League, C.C. Little Papers, Bentley Historical Library, University of Michigan; "Birth Control Scored by Rev. John McClorey," *Detroit Free Press*, November 24, 1925, 2.

⁴¹ Clarence Cook Little to C. A. Morris, December 23, 1925, Box 3, Folder 1, Correspondence: Moa-Mz, C.C. Little Papers, Bentley Historical Library, University of Michigan.

ethics.” Although much of their focus was on educating the public on eugenic matters, their legislative program called for analyzing “laws removing or reducing the present restrictions on information and materials for the prevention of conception.”⁴² By 1927, the AES state legislative program beckoned eugenicists’ to help pass laws authorizing “physicians to prescribe contraceptive materials or devices to their married parents.”⁴³ Although it never came to fruition, Little endorsed the idea of combining *Eugenical News*, the AES’s publication, with the ABCL’s *Birth Control Review*.⁴⁴ Thus, throughout his time in Ann Arbor, he solidified the alliance between eugenicists and birth-controllers.

Little also helped forge the connections between eugenics, contraception, and overpopulation. He was a member of the Advisory Council for the World Population Conference, along with Edward East, Raymond Pearl, John Maynard Keynes, and the Italian demographer Corrado Gini. Originally titled the “International Neo-Malthusian and Birth Control Conference,” it was changed to the World Population Conference to lend greater scientific credibility to it.⁴⁵ Sanger, despite being the primary organizer of the conference, agreed to withdraw her name from the conference program; she also removed Judge Harry Olson as one of the American delegates at the request of Raymond Pearl, over Little’s protests.⁴⁶ She ensured that the conference maintained a balance

⁴² “The American Eugenics Society” (American Eugenics Society, 1927), 2–6, Box 7, Folder 8, Correspondence: American Eugenics Society, C.C. Little Papers, Bentley Historical Library, University of Michigan.

⁴³ Roswell Hill Johnson, “Revised American Eugenics Society Legislative Program” (Pamphlet, New Haven, CT, December 7, 1927), 2, Box 7, Folder 8, Correspondence: American Eugenics Society, C.C. Little Papers, Bentley Historical Library, University of Michigan.

⁴⁴ The two within the AES who disapproved most were Charles Davenport and Irving Fisher. Leon F. Whitney to Clarence Cook Little, April 3, 1928, Box 7, Folder 8, Correspondence: American Eugenics Society, C.C. Little Papers, Bentley Historical Library, University of Michigan; Clarence Cook Little to Leon F. Whitney, April 16, 1928, Box 7, Folder 8, Correspondence: American Eugenics Society, C.C. Little Papers, Bentley Historical Library, University of Michigan; Leon F. Whitney to Clarence Cook Little, April 18, 1928, Box 7, Folder 8, Correspondence: American Eugenics Society, C.C. Little Papers, Bentley Historical Library, University of Michigan.

⁴⁵ Otto L. Mohr to Julian Huxley, March 12, 1927, Box 6, Folder 26, Correspondence: World Population Conference, C.C. Little Papers, Bentley Historical Library, University of Michigan.

⁴⁶ Gordon, *Woman’s Body, Woman’s Right*, 285; Raymond Pearl to Juliet Barrett Rublee, April 16, 1927, Box 6, Folder 26, Correspondence: World Population Conference, C.C. Little Papers, Bentley Historical Library, University of Michigan; Clarence Cook Little to Juliet Barrett Rublee, April 22, 1927, Box 6, Folder 26, Correspondence: World

between eugenicists and birth-controllers, as well as contributions from economists, sociologists, and biologists.⁴⁷ Thus, through such efforts, concerns over the quality as well as the quantity of the population were fused together in connection with the distribution of contraceptive information and services around the world.

The World Population Conference represented the amalgamation of eugenics and neo-Malthusianism. According to their pamphlet, the purpose of the conference was to discuss issues of population “in a thoroughly scientific spirit” and be an extension of the ideas of both Thomas Malthus and Sir Francis Galton.⁴⁸ Its announcement stated that while “the earth, and every geographical division of it, is strictly limited in size and in ability to support human populations,” population numbers continued to rise. According to the organizers, this would “alter profoundly our present civilization, and perhaps ultimately wreck it.”⁴⁹ The conference, then, was an effort to bring biologists, demographers, and economists together to deliberate population matters. Foremost among these was the concept of optimum population.

Henry Pratt Fairchild, a sociologist from New York University who eventually helped develop Planned Parenthood, presented his theory on optimum population that interlaced problems of population growth, agriculture, and economic development.⁵⁰ Fairchild, like later population planners, derived his ideas from simple mathematical formulas. By quantifying their ideas, these population planners portrayed their population theories in a manner that reduced the visibility of

Population Conference, C.C. Little Papers, Bentley Historical Library, University of Michigan; Clarence Cook Little to Juliet Barrett Rublee, April 1, 1927, Box 6, Folder 26, Correspondence: World Population Conference, C.C. Little Papers, Bentley Historical Library, University of Michigan.

⁴⁷ Margaret Sanger to Clarence Cook Little, March 16, 1927, Box 6, Folder 26, Correspondence: World Population Conference, C.C. Little Papers, Bentley Historical Library, University of Michigan.

⁴⁸ “World Population Conference Pamphlet,” n.d., Box 6, Folder 26, Correspondence: World Population Conference, C.C. Little Papers, Bentley Historical Library, University of Michigan.

⁴⁹ Margaret Sanger, ed., *Proceedings of the World Population Conference* (London: Edward Arnold & Co., 1927), 5.

⁵⁰ Henry Pratt Fairchild, “Optimum Population,” in *Proceedings of the World Population Conference*, ed. Margaret Sanger (London: Edward Arnold & Co., 1927), 72–85.

their biases and implied objectivity.⁵¹ These formulas served to create a “cognitive structure” that made the relationships between population numbers, economic advancement, and arable land seem more simple than they really were, for they condensed significant amounts of data into a few key variables.⁵² According to Fairchild, four variables defined an optimum population: the current population, the total amount of arable land, the “stage of the arts” (roughly defined as the capability to extract resources), and the standard of living (which he defined as what we would now call disposable income) of the group.⁵³ To him, land and stage of the arts were roughly constant variables; therefore, population directly affected the standard of living. When a population grew too large relative to its productive land and stage of the arts, the standard of living would necessarily decrease. If a group had large tracts of land and high stage of the arts, they could theoretically be underpopulated.⁵⁴ However, Fairchild believed that underpopulation was a rare phenomenon. The most notable example was in the “appropriation” of the Americas “by the white race.” By 1927, he reasoned that the United States was just starting to cross its optimum population and become overpopulated.⁵⁵

⁵¹ Theodore M. Porter, *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*, History and Philosophy of Science (Princeton, N.J.: Princeton University Press, 1996), 74.

⁵² I have borrowed this term from William Alonso and Paul Starr, who define cognitive structures as the rules, methods, and procedures to create knowledge out of data. William Alonso and Paul Starr, eds., *The Politics of Numbers*, The Population of the United States in the 1980s (New York: Russell Sage Foundation, 1987), 8.

⁵³ It should be noted that not everyone agreed with this purely economic definition of standard of living. Warren Thompson called such a definition “arbitrary,” while Alfredo Niceforo attributed the growing population in Italy to a better standard of living, by which he meant improved health services. Alfredo Niceforo, “The Development of the Population in Italy,” in *Proceedings of the World Population Conference*, ed. Margaret Sanger (London: Edward Arnold & Co., 1927), 65; Edward Murray East, “Food and Population,” in *Proceedings of the World Population Conference*, ed. Margaret Sanger (London: Edward Arnold & Co., 1927), 100–101.

⁵⁴ According to James Glover, Fairchild was incorrect in supposing a linear relationship between the four variables, such that $aA + lL + pP + sS = o$ (A = stage of the arts; L = land; P = population; S = standard of living; and O = optimum population. He considered it a functional relationship, such that it would be $F[A.L.P.S.] = o$. Following their ideas, however, it seems more likely to be a quadratic equation, such that $f[p] = 1 + Ap + Sp^2$, in order to get an inverted-u shape diagram representing the optimum population according to current population and standard of living. East, “Food and Population,” 98–99.

⁵⁵ Fairchild, “Optimum Population,” 79–80.

This concept of optimum population was important for demographers, economists, and eugenicists trying to grasp the implications of population growth. By linking what was the proper number of people to both economic well-being and technological development, it bolstered the idea that overpopulation may be a cause rather than an effect of poverty. Moreover, it suggested that each nation, due to differences in their standard of living and available soil, had different population goals to achieve its equilibrium.⁵⁶ Consequently, they viewed poorer nations such as India as overpopulated on account of their low standard of living and industrialization.⁵⁷ Jean Bourdon justified the colonization of spaces with available land (largely Africa) by those who made efficient use of their own and were nevertheless overpopulated, such as Japan and, to a lesser extent, Russia.⁵⁸ Such ideas were instrumental in rationalizing the need for “population control” measures in the second half of the century.

Differential fertility connected the concept of optimum population to eugenics and birth control. The rapid proliferation of the lower classes remained a problem to eugenicists like Alexander Carr-Saunders. The difference between them and those fearing race suicide twenty years earlier was that they had demonstrated that this was due to the “deliberate family limitation” of the upper classes, rather than the hyperfecundity of those with lower standards of living. The only way to diminish the gap in differential fertility was to provide greater access to contraceptive methods to the masses.⁵⁹ Although Raymond Pearl explained his logistic curve model as the “characteristic mode” of population growth, thus rendering eugenic interventions into differential fertility useless, the only other participant that agreed with him at the conference was the UM statistician James W.

⁵⁶ Bashford, “Nation, Empire, Globe,” 181.

⁵⁷ R. K. Das, “Population and Food Supply in India,” in *Proceedings of the World Population Conference*, ed. Margaret Sanger (London: Edward Arnold & Co., 1927), 116–17.

⁵⁸ Jean Bourdon, “Is the Increase in the Population a Real Danger for the Food Supply of the World?,” in *Proceedings of the World Population Conference*, ed. Margaret Sanger (London: Edward Arnold & Co., 1927), 113.

⁵⁹ Alexander M. Carr-Saunders, “Differential Fertility,” in *Proceedings of the World Population Conference*, ed. Margaret Sanger (London: Edward Arnold & Co., 1927), 130–43.

Glover.⁶⁰ In the discussion that followed Pearl's presentation, J. B. S. Haldane, Ronald Fisher, and Julian Huxley doubted the validity of Pearl's claims, partly on account of his assertion that only natality, mortality, and population density were required to explain population trends. Glover, whose work with insurance companies allowed him to examine population trends over longer periods of time, was more inclined to agree with Pearl.⁶¹ In the session that C. C. Little chaired on the effects of fertility and sterility on the population, F. A. E. Crew, professor of genetics at the University of Edinburgh, argued that all forms of controlling fertility, such as the manipulation of "sociologico-religious factors" as well as contraception, abortion, and infanticide, needed to be considered in relation to how they would direct the future evolution of mankind.⁶² Different reproductive rates were thus still framed within a eugenics framework concerned with the quality of the population.

Moreover, the optimum population concept allowed the effects and analysis of different fertility rates to be compared across countries. While statisticians had always used rather arbitrary classifications to group people to compare their fertility, it was primarily limited to separations within countries based on class (in Great Britain) or domestic and international comparisons based on race (in the United States). However, by 1927, it did not matter how they classified groups. According to Carr-Saunders, the categorizing of people into groups had "no relevance to the study of differential fertility." The only thing that mattered were the results.⁶³ Although many still

⁶⁰ According to Pearl's logistic curve, population initially will grow slowly, followed by a period of rapid growth. When the population density reaches a critical point, population growth then begins to decline. Raymond Pearl, "Biology of Population Growth," in *Proceedings of the World Population Conference*, ed. Margaret Sanger (London: Edward Arnold & Co., 1927), 25.

⁶¹ Pearl, "Biology of Population Growth," 39–58; The United States Federal Government employed Glover as an expert special agent of the Census Bureau to edit life tables for the 1890, 1900, and 1910 censuses. Louis C. Karpinski, "James W. Glover," *Science* 94, no. 2433 (August 15, 1941): 156–57, <https://doi.org/10.1126/science.94.2433.156>; James W. Glover, *Mathematics of Annuities and Insurance* (Ann Arbor, MI: Edwards Brothers, 1905).

⁶² F. A. E. Crew, "Concerning Fertility and Sterility in Relation to Population," in *Proceedings of the World Population Conference*, ed. Margaret Sanger (London: Edward Arnold & Co., 1927), 231.

⁶³ Carr-Saunders, "Differential Fertility," 130.

considered the data too unreliable to compare cross-country fertility rates, the idea to do so was already present at the World Population Conference.⁶⁴

The connections made between population and standard of living at the 1927 conference also reflected a new shift within eugenic discourse. As both geneticists and anthropologists increasingly attacked the hereditarianism of eugenics, eugenicists' notions of the "unfit" moved from the genetically unfit to the economically unfit.⁶⁵ Paradoxically, just as scientific racism based on genetics was "retreating," the proportion of African Americans being sterilized in the United States was growing.⁶⁶ Rather than justifying operations or advocating birth control for Black women because they were genetically inferior, eugenicists claimed restrictions on their reproduction was necessary because they were either culturally or economically unable to provide children with a quality upbringing.⁶⁷ By the postwar period, birth control performed dual roles: domestically, it promoted the "rational" planning of a stable family; internationally, it represented a technological fix to control rapid population growth.⁶⁸ Involuntary sterilization, both at home and abroad, was for those deemed incapable of properly using birth control, which disproportionately targeted poor women of color.

Environmental Neo-Malthusianism After the Second World War

Aside from colonized territories, concerns about the fertility rates and populations of most non-industrialized countries did not emerge as an international issue until the 1950s. While this

⁶⁴ For an example, see Julian Huxley's discussion in Alexander M. Carr-Saunders et al., "Discussion: Differential Fertility," in *Proceedings of the World Population Conference*, ed. Margaret Sanger (London: Edward Arnold & Co., 1927), 191.

⁶⁵ George Stocking, *Race, Culture, and Evolution: Essays in the History of Anthropology* (Chicago: University of Chicago Press, 1982), 195–233; Haller, *Eugenics*, 7; Ian Robert Dowbiggin, *The Sterilization Movement and Global Fertility in the Twentieth Century* (Oxford: Oxford University Press, 2008), 30.

⁶⁶ Barkan, *The Retreat of Scientific Racism*; Ladd-Taylor, *Fixing the Poor*, 7–8.

⁶⁷ Dorothy E. Roberts, *Killing the Black Body: Race, Reproduction, and the Meaning of Liberty*, 1st ed (New York: Vintage books, 1997), 70–71; Schoen, *Choice & Coercion*, 97.

⁶⁸ John Sharpless, "World Population Growth, Family Planning, and American Foreign Policy," *Journal of Policy History* 7, no. 1 (January 1995): 76–77, <https://doi.org/10.1017/S0898030600004152>.

lag was partly due to the lack of available data, it was also because of both the war effort and the absence of institutions promoting population concerns.⁶⁹ Agencies within the United Nations such as the World Health Organization (WHO), the Food and Agriculture Organization, and the United Nations Educational, Scientific, and Cultural Organization (UNESCO), all addressed the issue of overpopulation in the aftermath of World War II. The British developmental biologist Julian Huxley, as the head of UNESCO, viewed population control as a means of rebranding and globalizing eugenics.⁷⁰ This was also facilitated by the publication in 1948 of two books stressing environmental Malthusianism, the ecologist William Vogt's *Road to Survival* and conservationist Henry Fairfield Osborn, Jr.'s *Our Plundered Planet*.

The arguments in Vogt's and Osborn's books were remarkably similar. Both emphasized the ecological relationships in the environment and their destruction through industrialized, growth-based economies.⁷¹ Each warned of impending food shortages by demonstrating that population growth was decreasing the amount of arable land available per person, which would consequently decrease standards of living around the world.⁷² Both emphasized the doubling rate of the world's population and how that rate was rapidly increasing.⁷³ The books even had similar structures: they devoted about half of each to ecological dynamics and the effects of human activity on these dynamics, while the other half surveyed each continent and revealed where there was overpopulation. Both also represented a transition among conservationists—which in the United

⁶⁹ For examples of concerns about birth rates in European colonies, see Ann Stoler, "Making Empire Respectable: The Politics of Race and Sexual Morality in 20th-Century Colonial Cultures," in *The Imperial Monkey Business: Racial Supremacy in Social Darwinist Theory and Colonial Practice*, ed. Jan Breman (Amsterdam: VU Univ. Press, 1990), 61; Tilley, *Africa as a Living Laboratory: Empire, Development, and the Problem of Scientific Knowledge, 1870-1950*, 237; Chloe Campbell, *Race and Empire: Eugenics in Colonial Kenya*, Studies in Imperialism (Manchester: Manchester University Press, 2007), 46.

⁷⁰ Connelly, *Fatal Misconception*, 126–27; Meloni, *Political Biology*, 143.

⁷¹ Robertson, *The Malthusian Moment*, 47.

⁷² Henry Fairfield Osborn, Jr., *Our Plundered Planet* (Boston, MA: Little, Brown and Company, 1948), 37; William Vogt, *Road to Survival* (New York: William Sloane Associates, Inc., 1948), 71.

⁷³ Osborn, Jr., *Our Plundered Planet*, 39–40; Vogt, *Road to Survival*, 61.

States had longstanding connections to eugenics, especially through Madison Grant and Henry Fairfield Osborn, Sr.—towards questions of overpopulation, overconsumption, and environmental sustainability, while highlighting the interconnections between human activities and the environment in which those activities occur.⁷⁴

In contrast to Osborn, who distanced his ideas from his father and other eugenicists by stressing the biological universality of all humans, Vogt noted the potentially eugenic benefits of reducing global population.⁷⁵ He claimed the subsidization of cattle farmers was worse than providing state support for the Jukes and Kallikaks, because the environmental destruction they caused was worse than any social disorder created from pauperism.⁷⁶ Vogt supported the American essayist H. L. Mencken’s proposal for “sterilization bonuses”—small one-time payments to induce people to undergo sterilization operations—because it would “appeal primarily to the world’s shiftless,” who, whether through their “genetic or social inheritance, would tend to perpetuate the feckless.”⁷⁷ He further suggested that the US should be global leaders in providing contraceptive information to populations around the world, make food and economic aid contingent on the recipient country enacting population control policies, and funding research towards developing cheaper and more reliable methods of contraception.⁷⁸ Similar to eugenicists earlier in the century, Vogt feared the spread of modern medicine around the world, for it allowed greater numbers of people to survive, especially in places like Puerto Rico.⁷⁹ He also relied on a simple mathematical formula to explain his ideas. While noting that it was a generalization taking into account several variables, Vogt offered the “bio-equation” of $C = B:E$ —with C representing the “carrying capac-

⁷⁴ Robertson, *The Malthusian Moment*, 47; Spiro, *Defending the Master Race*.

⁷⁵ Osborn, Jr., *Our Plundered Planet*, 24–26.

⁷⁶ Vogt, *Road to Survival*, 145.

⁷⁷ H. L. Mencken, “Utopia by Sterilization,” *The American Mercury* 41 (August 1937): 399–408.

⁷⁸ Vogt, *Road to Survival*, 279–83.

⁷⁹ Vogt, *Road to Survival*, 48.

ity” of the earth; B denoting the “biotic potential” or quantity and quality of vegetation the land can produce; and E standing for “environmental resistance,” defined as the natural and manmade limitations on the environment, including population—as a way to “clear our thinking and regulate the forces that bemuse our political leaders.”⁸⁰ According to Vogt, population growth inevitably increased environmental resistance. This lowered the carrying capacity of the earth, resulting in declines in education, health, cultural development, and social order and stability.⁸¹

Both Osborn’s and Vogt’s views help reveal issues that would emerge later from critiques of population control. Osborn, in stressing the biological unity of mankind, including its tendency to reproduce faster than agricultural expansion would allow, minimized the importance of historically rooted social and economic differences between countries, including the role of colonialism, racism, and classism on underdevelopment.⁸² Moreover, his and Vogt’s emphasis on the problems of overpopulation in countries inhabited by people of color were soon situated within racialized social structures through American non-governmental organizations (NGOs).⁸³ Despite Osborn highlighting the biological sameness of all humans, his arguments justified the population control measures population planners eventually implemented throughout the “Third World,” which were undoubtedly discriminatory in practice.

Vogt, on the other hand, acknowledged that colonialism influenced conditions in places such as India and Puerto Rico and believed most individuals were intelligent enough to use contraception effectively. However, he also stated that “Mother India is the victim of her own awful fecundity” and its people were “steeped in superstition, ignorance, poverty, and disease.”⁸⁴

⁸⁰ Vogt, *Road to Survival*, 16–22.

⁸¹ Although Vogt wrote the equation as a ratio, his description suggests that the more appropriate notation would be $C = B/E$. Vogt, *Road to Survival*, 280.

⁸² Robertson, *The Malthusian Moment*, 55.

⁸³ Alonso and Starr, *The Politics of Numbers*, 8; Eduardo Bonilla-Silva, “Rethinking Racism: Toward a Structural Interpretation,” *American Sociological Review* 62, no. 3 (1997): 465–80, <https://doi.org/10.2307/2657316>.

⁸⁴ Vogt, *Road to Survival*, 227.

Furthermore, Vogt adhered to the belief—common among early-twentieth century trade unionists and economists—that Asian standards of living were inherently lower than those in the United States, thus partly justifying American overconsumption.⁸⁵ He stressed that population was the root of most social and political issues. Overpopulation, according to Vogt, hindered economic development and was a prelude to territorial expansion. Curbing population growth, therefore, was essential to American interests and national security. A technological solution to overpopulation such as better contraceptive methods promoted such goals without altering the economic and political position of the US in the postwar period.⁸⁶ While he emphasized that contraceptive practice should only be done on a voluntary basis, his support for incentivized sterilization programs suggests he viewed voluntarism and coercion as dichotomous situations, rather than a spectrum of choice or nonchoice that is influenced through a multitude of social, cultural, and economic factors.⁸⁷ Vogt's program of providing cheaper contraceptive measures, creating demand for them through education and incentivization, and linking food aid to population control targets became much of the foreign policy agenda on population for the next thirty years.⁸⁸

Occurring alongside this environmental neo-Malthusian approach to global population was the emergence of demographers attempting to understand trends in population growth. Based on European data, in 1945 demographers proposed the “demographic transition” theory, which, at its core, stated that as mortality rates fall in a society, its population will grow due to a time lag between mortality declines and a concomitant decrease in fertility.⁸⁹ Although they initially con-

⁸⁵ Samuel Gompers and Herman Gutstadt, *Meat vs. Rice: American Manhood against Asiatic Coolieism, Which Shall Survive?*, Reprint edition (San Francisco: Asiatic Exclusion League, 1908), 11–21; Ross, “The Causes of Race Superiority,” 87.

⁸⁶ Thomas M. Shapiro, *Population Control Politics: Women, Sterilization, and Reproductive Choice*, Health, Society, and Policy (Philadelphia: Temple University Press, 1985), 25.

⁸⁷ For a discussion on the voluntarism-coercion spectrum, see Paul, *The Politics of Heredity*, 95.

⁸⁸ Connelly, *Fatal Misconception*, 130.

⁸⁹ Kingsley Davis, “The World Demographic Transition,” *The Annals of the American Academy of Political and Social Science* 237, no. 1 (1945): 1–11.

nected demographic transition to the modernization process that emerged from the industrial revolution, demographers discovered that the improved sanitary conditions of former colonies, such as India, Taiwan, and Korea, also initiated this transition.⁹⁰ Data from interwar Japan implied further fertility and mortality declines did not require an increase in the standard of living. Accordingly, economic progress was no longer considered requisite to completing the demographic transition; instead, demographers like Kingsley Davis and Frank Notestein suggested that reproductive behavior could be changed without a simultaneous change in its social or economic structures.⁹¹ Japan's postwar Eugenic Protection Bill further expanded sterilization operations begun in 1940 and provided greater access to abortion, which confirmed these findings.⁹²

In the late-1940s and 1950s, Lee Dice at the University of Michigan was also interested in overpopulation. While he reiterated many of the same themes as the environmental Malthusians, he also incorporated ideas from population genetics. In 1947, he wrote that as the earth's natural resources were dwindling, population numbers continued to expand, thereby increasing competition among humans. According to Dice, such competition via overpopulation threatened democracy by limiting educational opportunities and increasing internal disorders. The only solution, according to him, was the spread of birth control methods. At the time, he still believed the spread of birth control would have dysgenic consequences on account of the loss of "the better heredity of the population." Moreover, while he thought increased sterilization of defectives and preventing marriages between those earning less than a minimum wage were "desirable," he felt they were "wholly inadequate to accomplish the hoped-for results."⁹³

⁹⁰ Hodges, "South Asia's Eugenic Past," 235.

⁹¹ Connelly, *Fatal Misconception*, 137–38.

⁹² Dowbiggin, *The Sterilization Movement and Global Fertility in the Twentieth Century*, 85; Astghik Hovhannisyan, "Preventing the Birth of 'Inferior Offspring': Eugenic Sterilizations in Postwar Japan," *Japan Forum*, April 1, 2020, 6, <https://doi.org/10.1080/09555803.2020.1731570>.

⁹³ Lee R. Dice, review of *Human Breeding and Survival: Population Roads to Peace or War*, by Guy Irving Burch and Elmer Pendell, *The American Naturalist* 81, no. 801 (1947): 461–62.

Over the next decade, Dice expanded on these ideas. Like Vogt and Osborn, he stressed the effects of human activities on their ecosystems and that the rate of population growth presented a potentially serious harm to those ecosystems. Based on a 1% growth rate in global population, he surmised that 21 million individuals were born each year and that the available resources of the world would soon be unable to provide for them all.⁹⁴ Similar to Fairchild, he argued that every region has its own maximum population density based on its cultural development and standard of living and that, according to this model, few places on the planet were underpopulated. He further claimed overpopulation was the cause of poor housing conditions, low levels of education, famine, social unrest, and war.⁹⁵ Citing the low fertility rates in the United States during the depression years and their decline as countries modernize, Dice concluded that the notion that “poverty promotes fertility” was a fallacy; rather, it was the birthrate that determined poverty.⁹⁶ Thus, he asserted that one of the primary functions of government, including American foreign policy, was to “discover and organize appropriate regulatory mechanisms” to balance births with deaths.⁹⁷

Dice, in contrast to Osborn and Vogt, situated his ideas within a framework much more oriented to genetics and evolution. For instance, he attributed high birth rates to cultural adaptations that balanced them with high death rates. With the control of diseases, however, this balance was disrupted.⁹⁸ Nevertheless, Dice still saw natural selection as an important contributor to human physiology and behavior. For instance, he suggested that Black men were better suited to the grueling temperatures in the foundries of Detroit’s auto factories because they were better adapted

⁹⁴ Dice, *Man’s Nature and Nature’s Man*, 39.

⁹⁵ Dice, *Man’s Nature and Nature’s Man*, 120–26.

⁹⁶ Lee R. Dice, “Ecology and Overpopulation,” *The Scientific Monthly* 84, no. 4 (April 1957): 168.

⁹⁷ Dice, *Man’s Nature and Nature’s Man*, 112.

⁹⁸ Dice, “Ecology and Overpopulation,” 169.

to hot environments. His concern with differences in hereditary ability and fertility among classes, common among the previous generation of eugenicists, spurred him to conduct the Hereditary Abilities Study discussed in the previous chapter. Such apprehensions over differential fertilities included the fear that “the more prudent” will leave fewer offspring in the next generation than “the imprudent and socially irresponsible elements of society.”⁹⁹ While Dice remained a committed eugenicist, such explicitly eugenic arguments on differential reproduction were becoming increasingly rare.

The Population Control Movement

By the mid-1950s, when Dice presented his arguments on overpopulation, the population control movement was beginning to emerge. In 1952, shortly after moving its headquarters from Detroit to New York City, the Ford Foundation offered a grant to the Population Reference Bureau, followed two years later by a \$600,000 grant to John D. Rockefeller III’s Population Council.¹⁰⁰ The Ford Foundation, along with the Rockefeller Foundation, the International Planned Parenthood Federation, and the Hugh Moore Fund, formed the backbone of the population control establishment.¹⁰¹ While it privately maintained that the spread of birth control would benefit the world eugenically, its public positions distanced population control from eugenics.¹⁰² As Population Council member and Henry Osborn’s cousin Frederick Osborn stated, “there are means of selection which do not require that we humiliate one half of the individuals who comprise the human race by telling them that they are not as fit as the other half to procreate the next genera-

⁹⁹ Dice, *Man’s Nature and Nature’s Man*, 62–67.

¹⁰⁰ Connelly, *Fatal Misconception*, 169; John C. Caldwell and Pat Caldwell, *Limiting Population Growth and the Ford Foundation Contribution* (London: F. Pinter, 1986), 1.

¹⁰¹ Mass, *Population Target*, 36.

¹⁰² Connelly, *Fatal Misconception*, 163–65.

tion.”¹⁰³ Such “means of selection,” it was hoped, would be facilitated by greater global access to birth control.

In 1961, Ronald Freedman, a sociologist specializing in fertility studies, received a \$500,000 grant for seven years from the Ford Foundation to conduct demographic research in the Global South and train graduate students.¹⁰⁴ Freedman, in contrast to many of the influential population control advocates, was a social demographer. Thus, his methodology and theories about population planning differed in many ways from the environmental and economic neo-Malthusians. He is particularly credited as being one of the first to utilize the sample survey in investigations on fertility.¹⁰⁵ While he was interested in such questions as varying efficacies of contraceptive use among different socioeconomic strata of the population, Freedman recognized that social and cultural norms can affect the success of different contraceptive methods. Rather than merely speculating on what variables were significant, as he claimed many previous researchers did, Freedman insisted on working backward from fertility data to uncover what caused parents to have the number of children that they did.¹⁰⁶

His early work in the 1950s at the UM Survey Research Center was primarily on contraception and fertility within the United States. He initiated the Detroit Area Study in 1952, an annual sample survey in which first-year graduate students constructed interview questions, conducted interviews, and coded the data based on the research interests of the lead faculty investigator.¹⁰⁷ While it contributed to 100 articles, 40 dissertations, and a dozen books within 25 years, students

¹⁰³ Frederick Osborn, “Galton and Mid-Century Eugenics,” *The Eugenics Review* 48, no. 1 (April 1956): 17.

¹⁰⁴ Caldwell and Caldwell, *Limiting Population Growth and the Ford Foundation Contribution*, 55.

¹⁰⁵ John B. Casterline, “Freedman, Ronald,” in *Encyclopedia of Population*, ed. Paul Demeny and Geoffrey McNicoll, vol. 1 (New York, NY: Macmillan Reference USA, 2003), 438–39.

¹⁰⁶ Ronald Freedman, “The Sociology of Human Fertility: A Trend Report and Bibliography,” *Current Sociology* 11, no. 2 (June 1, 1962): 38–41, <https://doi.org/10.1177/001139216201100202>.

¹⁰⁷ Ronald Freedman, “The Detroit Area Study: A Training and Research Laboratory in the Community,” *American Journal of Sociology* 59, no. 1 (July 1953): 30–33.

complained about the time involved and the minimal input they had on projects primarily benefiting the faculty.¹⁰⁸ In its first year of operation, Freedman obtained data showing that 89% of Detroiters believed 2-4 children were the ideal number to have, although only 75% of those with less than seven years of schooling stated this to be the ideal range. There was also evidence of a slightly higher ideal average family size among lower-income families.¹⁰⁹ Two years later, in an expanded survey, Freedman found the opposite effect: ideal family sizes were now directly correlated to socioeconomic status indicators. This study suggested that African American families stated lower ideal family sizes than whites, that differences between Catholics and Protestants in ideal families were based on whether they attended church frequently, and that a significant number of lower income families considered less than two children an ideal family size.¹¹⁰

In 1955, Freedman initiated the Study of the Growth on American Families (GAF), the first national fertility survey conducted in the United States.¹¹¹ Funded by the Rockefeller Foundation and conducted in collaboration with Pascal Whelpton from the Scripps Foundation for Research in Population Problems, the GAF interviewed 2,713 married white women aged 18-39 around the country about their marital history, pregnancy history, attitudes and practices on family limitation, how many children they expected, and socioeconomic and cultural questions such as income, occupation, and education. Despite fears that women would be unwilling to answer such private questions, only 12 interviewees refused.¹¹² Researchers found that “the majority of couples

¹⁰⁸ Howard Schuman, “The Detroit Area Study after Twenty-Five Years,” *The American Sociologist* 12, no. 3 (1977): 134–35.

¹⁰⁹ Ronald Freedman and Harry Sharp, “Correlates of Values about Ideal Family Size in the Detroit Metropolitan Area,” *Population Studies* 8, no. 1 (July 1954): 37–39, <https://doi.org/10.2307/2172562>.

¹¹⁰ Ronald Freedman, David Goldberg, and Harry Sharp, “‘Ideals’ about Family Size in the Detroit Metropolitan Area: 1954,” *The Milbank Memorial Fund Quarterly* 33, no. 2 (April 1955): 188–90, <https://doi.org/10.2307/3348399>.

¹¹¹ Casterline, “Freedman, Ronald,” 439.

¹¹² P. K. Whelpton and Ronald Freedman, “A Study of the Growth of American Families,” *American Journal of Sociology* 61, no. 6 (1956): 600–601.

in all important socioeconomic strata have tried to regulate conception.”¹¹³ The only exceptions were wives with a grade school education who married husbands earning less than \$3,000 per year, in which 40% attempted to restrict the size of their families.¹¹⁴ They also discovered that most wives approved of the general idea of family limitation and gave four main reasons for doing so: (1) so that parents had the financial resources to raise their children adequately; (2) to protect the mother’s health; (3) so mothers could spend an appropriate amount of time with all her children; and (4) that families were “happier” when children are planned.¹¹⁵ According to the survey, 75% of wives expected between 2-4 children, and 40% those expecting more stated they would like to have fewer.¹¹⁶ Thus, in the United States, between two and four children was the cultural norm; women believed this was an appropriate number of children based on financial, health, and familial reasons; and all but the poorest and least educated enacted measures to ensure that this was the number of children they had.

The Taiwan Family Planning Program

One of the key lessons Freedman learned from the GAF was that family planning was effectively diffusing throughout the United States through the spread of common values about family size and the means to achieve them.¹¹⁷ To test the general validity of this theory, he and the Population Studies Center collaborated with the Maternal and Child Health Association, the Taiwan Provincial Health Department, and the Taiwan Population Studies Center to enact and analyze a family planning program in the city of Taichung in 1963. Interviewing 2,432 married women, they found that most Taiwanese women wanted a moderate number of children and sons, that most

¹¹³ Ronald Freedman, Pascal K. Whelpton, and Arthur A. Campbell, *Family Planning, Sterility and Population Growth*, McGraw-Hill Series in Sociology (New York: McGraw-Hill Book Company, Inc., 1959), 103.

¹¹⁴ Freedman, Whelpton, and Campbell, *Family Planning, Sterility and Population Growth*, 128.

¹¹⁵ Freedman, Whelpton, and Campbell, *Family Planning, Sterility and Population Growth*, 155–68.

¹¹⁶ Freedman, Whelpton, and Campbell, *Family Planning, Sterility and Population Growth*, 217.

¹¹⁷ Ronald Freedman, “The Planned Family and American Population Growth,” *The Antioch Review* 17, no. 1 (1957): 34–35, <https://doi.org/10.2307/4609930>.

approved the idea of family limitation and were interested in learning how to do so, and that a significant minority of the more “modernized” women had attempted family limitation in some way or another.¹¹⁸ These results led to the expansion of the family planning program throughout the entire island in 1964 in an attempt to reduce the province’s growth rate from 3% to 2% per annum by 1971, culminating in what Freedman considered a model program for other countries.¹¹⁹

The initial success of the program was largely due to what Freedman called “demographic pressures.” That is, women aged 30-39 who already had the number of children they wanted were the first to voluntarily receive information on how to limit the size of their families and implement it, hence their being termed “acceptors.” Contrary to expectations, they demonstrated that reaching these women significantly reduced the total birth rate in the country. While previous acceptance of family limitation was related to “modernization”—that is, socioeconomic status, education level, and participation in a market economy—the program facilitated the distribution of information and contraceptive methods to women of all classes and education levels. Moreover, over time, acceptance of family planning information and practices diffused to younger women and those with fewer children, not from the program itself per se, but from the belief that their friends, relatives, and neighbors were also accepting birth control.¹²⁰ As a result, contraceptive use among wives ages 22-39 rose from 24% in 1965 to 63% in 1976.¹²¹ In 1983, Taiwan had a net reproduction rate of 1.0, suggesting replacement-level fertility.¹²² Thus, in many ways, Taiwan represented

¹¹⁸ Ronald Freedman and John Y. Takeshita, “Studies of Fertility and Family Limitation in Taiwan,” *Eugenics Quarterly* 12, no. 4 (December 1, 1965): 234, <https://doi.org/10.1080/19485565.1965.9987634>.

¹¹⁹ Ronald Freedman and John Y. Takeshita, *Family Planning in Taiwan: An Experiment in Social Change* (Princeton: Princeton University Press, 1969), 3; Robert G. Potter, Ronald Freedman, and Lien-Ping Chow, “Taiwan’s Family Planning Program,” *Science* 160, no. 3830 (May 24, 1968): 848, <https://doi.org/10.1126/science.160.3830.848>.

¹²⁰ Freedman and Takeshita, *Family Planning in Taiwan*, 354–57.

¹²¹ G. Cernada et al., “Taiwan’s Population and Family Planning Efforts: An Historical Perspective,” *International Quarterly of Community Health Education* 27, no. 2 (2007 2006): 112.

¹²² Ronald Freedman, “Policy Options after the Demographic Transition: The Case of Taiwan,” *Population and Development Review* 12, no. 1 (March 1986): 77, <https://doi.org/10.2307/1973352>.

one of the few success stories of the population control movement, especially in contrast to earlier efforts in newly independent India. While in both Taiwan and India women's roles as producers of children were hypervisible, Asha Nadkarni suggests that the invisibility of women's agricultural labor and the necessity of a large family for such work made India's family planning program ineffective.¹²³ The Taiwanese program, in contrast, did not immediately target women in rural areas or the agricultural sector.

The Taiwanese family planning program undoubtedly offered birth control methods for women who wished to limit the number of children they had and therefore provided women with more control and independence in their lives. That stated, it would be incorrect to suggest that the provincial health department implemented the program with the intent of granting women greater reproductive autonomy. Those at the UM Population Studies Center were firmly convinced that population planning was a way of alleviating the problem of rapid population growth in less-industrialized nations. As Freedman wrote at the beginning of his and John Takeshita's monograph on the Taichung project:

that a 'population problem' exists in many countries, and for the world as a whole, is now widely accepted in principle by an increasing number of the world's statesmen and intellectuals. We have moved on to another stage which requires detailed studies of what is done, how, and when.¹²⁴

To Freedman, Taichung represented, as the title of their work suggests, an "experiment in social change" to reduce fertility levels in overpopulated countries. Moreover, the methods employed in Taichung to interview women and track fertility results in effect created a modern surveillance system to observe its inhabitants. They mapped 36,000 households, tracked married women throughout the city, and had field workers interview them inside their homes when possible. Much

¹²³ Nadkarni, *Eugenic Feminism*, 136–51.

¹²⁴ Freedman and Takeshita, *Family Planning in Taiwan*, 3.

like the earlier, albeit less successful, study in the Khanna villages in the state of Punjab, India, researchers could pick a family from a map and retrieve files showing the mother's menstrual cycle, how frequently she had sex with her husband, if she had any abortions or miscarriages, and if she was trying to get pregnant. Rather than a model for providing birth control to women who desired it, the Taiwan program represented "a model for how to control whole nations."¹²⁵

Furthermore, from the beginning, the family planning program emphasized providing intrauterine devices (IUDs) over any other available contraceptive method. As part of their pilot projects funded by the Population Council, Freedman and his group found IUDs to be "highly acceptable both to the medical staff and to the population being served."¹²⁶ The Population Council already started to disseminate the Lippes Loop internationally and spent \$2.5 million to manufacture and distribute it by 1968.¹²⁷ Despite the fact that programs evaluating the side effects of IUD use were still ongoing, population planners promoted IUDs in non-industrialized nations because "no contraceptive could be cheaper, and also, once the damn thing is in the patient cannot change her mind."¹²⁸ As Betsy Hartmann has argued, the "overriding goal" in developing and distributing the IUD was in preventing pregnancies, resulting in a concomitant neglect of potential health risks.¹²⁹ The Maternal and Child Health Association established a goal of inserting 600,000 IUDs into Taiwanese women from 1964-1969.¹³⁰ Rather than develop public health infrastructure to increase contraceptive services, they created an incentive system for lay workers to recruit indi-

¹²⁵ Connelly, *Fatal Misconception*, 171–73, 206; For information on the Khanna Study, see Rosanna Ledbetter, "Thirty Years of Family Planning in India," *Asian Survey* 24, no. 7 (1984): 752, <https://doi.org/10.2307/2644186>.

¹²⁶ Freedman and Takeshita, *Family Planning in Taiwan*, 13.

¹²⁷ Connelly, *Fatal Misconception*, 205.

¹²⁸ Sheldon Jerome Segal, Anna L. Southam, and Kathleen Shafer, *Intra-Uterine Contraception: Proceedings of the Second International Conference, October 2-3, 1964, New York City, Sponsored by the Population Council* (Excerpta Medica Foundation, 1965), 217.

¹²⁹ Betsy Hartmann, *Reproductive Rights and Wrongs: The Global Politics of Population Control* (Chicago: Haymarket Books, 2016), 207.

¹³⁰ Potter, Freedman, and Chow, "Taiwan's Family Planning Program," 848.

viduals to get an IUD inserted and assigned field workers quotas for the number of women they brought in every month. The quota system made referral data unreliable once they discovered that doctors gave field workers credit for cases to ensure they reached their targets.¹³¹ It also allegedly resulted in girls as young as 13 being inserted with IUDs.¹³² From February to June 1963, field-workers visited 12,000 homes and held 500 neighborhood meetings throughout Taichung.¹³³

Taichung, and to a lesser extent Taiwan in general, became a place where family planners simultaneously administered and researched IUDs for their efficacy. While Freedman claimed that the principal purpose of their “Medical Follow-Up” studies on the IUDs was “to check on whether medical complications developed,” based on the studies that emerged from the data, it is clear that they prioritized information “on how long the IUD was retained, on reasons for termination, on complaints and other problems, and on fertility and family planning practice after termination.”¹³⁴ The concern for medical complications was less on the health of the women with IUDs than on how many removed their devices because of medical reasons. Since removal brought with it the increased chance of further pregnancies, they deemed it “essential to know the proportion of acceptors still wearing the device at specified intervals after insertion.”¹³⁵ Although they requested women to come back 6, 12, and 24 months after getting an IUD inserted, much of their data relied

¹³¹ Freedman and Takeshita, *Family Planning in Taiwan*, 316–17.

¹³² Connelly, *Fatal Misconception*, 219.

¹³³ Bernard Berelson and Ronald Freedman, “A Study in Fertility Control,” *Scientific American* 210, no. 5 (May 1964): 33.

¹³⁴ Freedman and Takeshita, *Family Planning in Taiwan*, 15.

¹³⁵ Robert G. Potter, “Taiwan: IUD Effectiveness in the Taichung Medical Follow-up Study,” *Studies in Family Planning* 1, no. 18 (1967): 13, <https://doi.org/10.2307/1965068>.

on field worker interviews for the 70% of women who failed to return to the clinics.¹³⁶ There was therefore an "absence of medical reports on the nature and severity of the side effects" of IUDs.¹³⁷

Researchers at the Population Studies Center noted that complications accounted for over 75% of early removals, but in their analyses they failed to evaluate the proportions of women who suffered specific side effects, instead grouping them together under the category of "medical reasons," which was further grouped into the general category of "removals" in contrast to expulsions and pregnancies for terminating IUD use.¹³⁸ Thus, any attempt to uncover medical complications involved with IUDs was subsumed to understanding why women were no longer using the devices. In analyzing the data, UM researchers alleged that many of the medical reasons women gave for removing IUDs were for "minor side effects," such as bleeding, headaches, or backaches, that the "large majority" of these were not serious "from a medical point of view" and that "an unknown but substantial proportion" of complaints were psychological rather than legitimate.¹³⁹ They never examined if Taiwanese women with IUDs were later diagnosed with pelvic inflammatory disease, the most common long-term effect of IUDs, which led to the Food and Drug Administration mandating warning labels on all devices in the late 1970s.¹⁴⁰ A 1970 study on "medical correlates" associated with medically-related reasons for removing a device only looked at women's health conditions *before* they had an IUD inserted.¹⁴¹ It, too, was focused on identifying what caused women to discontinue IUD use. It was not until 1973, over a decade after the program

¹³⁶ J. Y. Peng, L. P. Chow, and Leslie Corsa, "Taiwan: Medical Correlates of Termination of Use of Intrauterine Devices," *Studies in Family Planning* 1, no. 60 (1970): 24, <https://doi.org/10.2307/1964999>.

¹³⁷ Albert I. Hermalin and Lien-Pin Chow, "Motivational Factors in IUD Termination: Data from the Second Taiwan IUD Follow-Up Survey," *Journal of Biosocial Science* 3, no. 4 (October 1971): 364, <https://doi.org/10.1017/S0021932000008166>.

¹³⁸ Potter, "Taiwan," 15.

¹³⁹ Freedman and Takeshita, *Family Planning in Taiwan*, 241–42.

¹⁴⁰ Hartmann, *Reproductive Rights and Wrongs*, 203; Jane E. Hutchings et al., "The IUD After 20 Years: A Review of Worldwide Experience," *International Family Planning Perspectives* 11, no. 3 (1985): 79, <https://doi.org/10.2307/2947998>.

¹⁴¹ Peng, Chow, and Corsa, "Taiwan."

was initiated, that researchers finally admitted that their prior work “only referred briefly to the rate of removal for medical reasons.” When researchers finally conducted medical analyses, they found that 63% of women experienced discomfort after the first insertion and 75% of women who reported bleeding in the first week had the device removed within three months. They recommended that, “to improve the retention rate of the IUD,” further research should be “directed either toward minimizing the risk of bleeding following insertion or toward better treatment of patients when such symptoms are encountered.”¹⁴²

Moreover, their concern with the pregnancy rates of women with IUDs inserted did not extend to concerns over ectopic pregnancy. First-generation IUDs, such as the Dalkon Shield and Lippes Loop, had ectopic pregnancy risk figures four times greater (with one-year pregnancy rates of 1.8-5.6 per 100 women) than second-generation IUDs like the Copper-7 and Copper-T devices.¹⁴³ This was especially problematic since over two-thirds of Taiwanese women between 1962 and 1966 received the Lippes Loop A device, which was smaller than later Loop models and further increased the risk of pregnancy. Researchers found that the pregnancy rate was 5.6 per 100 women in Taichung for the first year after insertion and jumped to nearly 10 per 100 in the second year.¹⁴⁴ This represented nearly 20% of all IUD terminations in the first year after it was inserted and over 25% of terminations in the second.¹⁴⁵ Based on published figures claiming 260,000 IUDs were inserted by 1966, this suggests that approximately 350 ectopic pregnancies occurred because of IUDs in the early years of the Taiwan family planning program.¹⁴⁶

¹⁴² J. Y. Peng et al., “Postinsertion Medical Symptoms and Removal of the IUD in the Taiwan IUD Follow-up Study,” *Studies in Family Planning* 4, no. 1 (1973): 16–22, <https://doi.org/10.2307/1964711>.

¹⁴³ Michael Burke, “The Intrauterine Device and Ectopic Pregnancy,” *British Medical Journal* 1, no. 6054 (January 15, 1977): 169.

¹⁴⁴ Peng, Chow, and Corsa, “Taiwan,” 25; Potter, “Taiwan,” 13–15.

¹⁴⁵ Roger C. Avery, “Patterns and Implications of Long-Term IUD Use in Taichung, Taiwan,” *Studies in Family Planning* 4, no. 6 (1973): 141, <https://doi.org/10.2307/1964795>.

¹⁴⁶ Potter, Freedman, and Chow, “Taiwan’s Family Planning Program,” 848; Burke, “The Intrauterine Device and Ectopic Pregnancy,” 169.

Researchers at the Population Studies Center, nevertheless, called the IUD program a success. Despite 51% of users removing the IUD within two years of insertion—whether due to medical or personal reasons—they argued that “no other contraceptive has even as good a record as the IUD for continued use over a period of a year or two in a mass program in a developing country.”¹⁴⁷ Likely because it was the only contraceptive offered in the early years, the IUD program results closely resembled those of the broader family planning program. Women 30 years and older with 3 or 4 living children were the first groups to use the IUDs, which reduced their fertility by 80%. Moreover, IUD use was diffusing downward to younger women and those with fewer children. Just as important to the population planners was the finding that women of lower educational status used IUDs more frequently than those of higher education. To them, women with less education constituted “the majority in areas where the need for family planning is most pressing” as well as those who were less likely to take other forms of contraceptives such as hormonal pills.¹⁴⁸ The IUD, then, could significantly help population programs.

Taiwan, however, was a favorable situation for population planners, since fertility levels started to decline in 1958, before the family planning program was initiated.¹⁴⁹ The demographic transition, therefore, was already occurring. Freedman and his colleagues responded by arguing that the program was nevertheless successful because it accelerated the rate at which people accepted contraception. Importantly, this was facilitated by “reaching those who want no more children, rather than trying to change values about family size.” They recognized that changing such values about how many children couples want would require “structural changes in the roles

¹⁴⁷ Freedman and Takeshita, *Family Planning in Taiwan*, 242.

¹⁴⁸ L. P. Chow, M. C. Chang, and T. H. Liu, “Taiwan: Demographic Impact of an IUD Program,” *Studies in Family Planning* 1, no. 45 (1969): 6, <https://doi.org/10.2307/1965002>.

¹⁴⁹ Ronald Freedman, John Y. Takeshita, and T. H. Sun, “Fertility and Family Planning in Taiwan: A Case Study of the Demographic Transition,” *American Journal of Sociology* 70, no. 1 (July 1964): 17.

of the family, of women, and of children that are desirable but are outside of the purview of the family planning programs.” Based on their experience, they made a number of policy recommendations for other family planning programs: programs should be directed to couples that do not want any more children; they should focus their efforts in a few key areas instead of the entire population; continued birth control use was more important than reliance on a single contraceptive method; and countries trying to greatly reduce their birthrates “should consider policies to change the social and economic conditions which affect birth control practices and fertility levels” alongside the family planning program.¹⁵⁰

Family Planning in Pakistan and India

Such recommendations were not followed, however, in Pakistan. Leslie Corsa Jr., prior to assuming his position as head of the Center for Population Planning at UM—a sister institution to the Population Studies Center placed within the Department for Population Planning—was in Pakistan as a consultant for the Population Council, which received \$1,524,000 from the Ford Foundation to offer advice on family planning.¹⁵¹ Under President Ayub Khan, Pakistan was the second nation to introduce population control as an official part of government policy in 1960, including setting a budget of 9 million rupees for family planning as part of the second Five-Year Plan. In 1963, Corsa was in Pakistan to help Swedish medical teams who were part of a grant to study the use of Margulies spirals and Lippes loops among Pakistani women.¹⁵² However, the family planning program in Pakistan experienced a lack of personnel and facilities from the start. By the end of 1962, they had only trained 313 individuals for perform family planning services,

¹⁵⁰ Freedman and Takeshita, *Family Planning in Taiwan*, 364–71.

¹⁵¹ Leslie Corsa to Gunnar af Geijerstam, May 8, 1965, Box 1, Correspondence, K. Gunnar af Geijerstam, Sweden, 1963-1971, Leslie Corsa Papers, Bentley Historical Library, University of Michigan; W. Parker Mauldin, “Pakistan’s Family Planning Program” (The Population Council, January 31, 1963), 1–2, Box 1, Correspondence, John D. Rockefeller III, Leslie Corsa Papers, Bentley Historical Library, University of Michigan.

¹⁵² Connelly, *Fatal Misconception*, 185.

one-tenth of the proposed goal.¹⁵³ In 1963, Rockefeller wrote a memo to President Khan suggesting that they should increase the family planning budget to 30.5 million rupees.¹⁵⁴ By 1965, about 1,500 Pakistani women were inserted with IUDs. Although Corsa received accounts of women suffering severe bleeding and dissatisfaction with the coil, he reported that Pakistani women had similar pregnancy, expulsion, and removal rates as women in the United States, which contributed to the Pakistani government's endorsement of the IUD as the "major method for future use in its national program."¹⁵⁵ The Pakistan family planning program, however, still suffered from the lack of personnel and medical services, and the program failed to reduce fertility in any significant way.¹⁵⁶ When Zia-ul-Haq staged a successful coup in 1977, the government suspended their population program.¹⁵⁷ However, Bangladesh, which won its independence from Pakistan in 1972, continued to enact population policies with the help of bilateral and multinational funding.¹⁵⁸

Despite the failures of a neighboring country, the Lippes Loop was made the primary contraceptive method of the India family planning program in the mid-1960s. By this time, the US Federal Government was convinced that overpopulation was the cause of poverty and instability in the Third World. Following the passage of the Food for Peace Act in 1966 and Lyndon Johnson's growing commitment to utilizing population control as part of American foreign policy, the United States Agency for International Development (USAID) became one of the key govern-

¹⁵³ Leslie Corsa, "Family Planning in Pakistan," *American Journal of Public Health and the Nations Health* 55, no. 3 (March 1, 1965): 401, <https://doi.org/10.2105/AJPH.55.3.400>.

¹⁵⁴ John D. Rockefeller III, "Draft of Proposed Memo to President" (March 6, 1963), 4, Box 1, Correspondence, John D. Rockefeller III, Leslie Corsa Papers, Bentley Historical Library, University of Michigan.

¹⁵⁵ Corsa, "Family Planning in Pakistan," 403; Gunnar af Geijerstam to Leslie Corsa, March 29, 1964, Box 1, Correspondence, K. Gunnar af Geijerstam, Sweden, 1963-1971, Leslie Corsa Papers, Bentley Historical Library, University of Michigan.

¹⁵⁶ Hartmann, *Reproductive Rights and Wrongs*, 63.

¹⁵⁷ Connelly, *Fatal Misconception*, 336.

¹⁵⁸ See Betsy Hartmann's chapter on Bangladesh in Hartmann, *Reproductive Rights and Wrongs*, 209–28.

mental agencies promoting population control.¹⁵⁹ Senator Ernest Gruening’s 1965 committee hearings on the “Population Crisis” placed further pressure on the government to respond and included testimonies from many NGO heads leading family planning programs around the world as well as university researchers such as Leslie Corsa.¹⁶⁰ These NGOs, alongside USAID, the UN, and the World Bank, compelled Indian leaders to accept an IUD program by threatening to withhold American food exports. The Population Council shipped over one million IUDs to India without telling them that they were not sterilized.¹⁶¹ In promoting the campaign to use the devices, medical personnel in India often did not inform women of potential side effects, nor did they perform medical examinations prior to insertion. According to the Indian Health Secretary, the loop campaign was performed “under pressure of our foreign advisers ... without thinking of the effects it would have on women.” The results were disastrous; while women initially accepted the IUD in large numbers, thousands developed adverse side effects and infections.¹⁶²

Then, in 1968, Stanford biologist Paul Ehrlich published *The Population Bomb*, which brought the issue of overpopulation to the masses. Much like earlier environmental neo-Malthusian works, Ehrlich stressed the effects of rapid population growth on the environment and the limited food resources available to feed every human being. It emphasized that the time it took for a country’s population to double in size, known as the “doubling rate,” was between 20-35 years in “underdeveloped countries,” compared to every 50-200 years for developed nations.¹⁶³ He noted

¹⁵⁹ “Food for Peace Act of 1966,” Pub. L. No. 89–808, 80 Stat. H. R. 14929 1526 (1966); Lyndon Johnson, “Statement by the President upon Signing the Food for Peace Act of 1966” (Washington, D.C., November 12, 1966); Mass, *Population Target*, 50.

¹⁶⁰ Corsa, leading a committee on population for the American Public Health Association, expressed that the APHA supported initiating population programs at home and around the world in the name of public health. Leslie Corsa, “Population Crisis, Part 2-B,” § Senate Subcommittee on Foreign Aid Expenditures (1965); Robertson, *The Malthusian Moment*, 86–87.

¹⁶¹ Connelly, *Fatal Misconception*, 214–17.

¹⁶² Quoted in Hartmann, *Reproductive Rights and Wrongs*, 206.

¹⁶³ Paul R. Ehrlich, *The Population Bomb* (New York: Ballantine Books, 1968), 22–24.

how the decline of death rates without concomitant decreases in birth rates caused the current situation, how the amount of arable land available to grow food was decreasing, and how population control measures were the only available solution.

Where Ehrlich differed from his predecessors, however, was in his alarmist approach. He prophesied worldwide famines within a decade, blamed urbanization for “rising crime rates, disaffection of youth, and increased drug use,” and recommended putting sterilizing agents in water and food supplies.¹⁶⁴ He offered three scenarios for the next fifty years, two of which led to wars with China over food shortages and ended with nuclear destruction. The third, which he described as a “cheerful scenario,” claimed that the United States should cease all food exports and let 500 million people starve to death to ensure American global supremacy.¹⁶⁵ Nevertheless, Ehrlich was taken seriously and the book sold over two million copies.¹⁶⁶ On the “Tonight Show” with Johnny Carson, he publicized an early form of his $I = (PAT)$ equation, which suggests that the human impact (I) on an environment equals the product of its population size (P), their affluence (A), and their technological destruction of the environment (T).¹⁶⁷ Millions read his work, which called Sripati Chandrasekhar’s proposal to sterilize every Indian male with three or more children “coercion for a good cause.”¹⁶⁸

Following the failure of the IUD campaign in India, government leaders shifted their strategy to an incentivized vasectomy program. Starting in the mid-1960s, as part of their “target oriented and time bound approach,” they provided monetary incentives for people to get sterilized

¹⁶⁴ Ehrlich, *The Population Bomb*, 44–45, 63–64, 135.

¹⁶⁵ Ehrlich, *The Population Bomb*, 72–80.

¹⁶⁶ Paul R Ehrlich and Anne H Ehrlich, “The Population Bomb Revisited,” *The Journal of Sustainable Development* 1, no. 3 (2009): 63.

¹⁶⁷ The earlier form, $D = N \times I$, only considered the number (N) of people and the impact (I) each had on the environment. Neal Koblitz, “Mathematics as Propaganda,” in *Mathematics Tomorrow*, ed. Lynn Arthur Steen (New York, NY: Springer New York, 1981), 111, https://doi.org/10.1007/978-1-4613-8127-3_12.

¹⁶⁸ Ehrlich, *The Population Bomb*, 166.

as well as for nongovernmental individuals to recruit them into the program. The primary focus was to popularize sterilization as a birth control option, and the initial results were promising from the perspective of population control.¹⁶⁹ In 1970 and 1971, the District Family Planning Bureau of the Ernakulam District of Kerala State held two “vasectomy camps.” Paying four to five times the usual incentives, they sterilized 15,000 males in November-December 1970. In July of the next year, they performed nearly 63,000 vasectomies and over 500 tubectomies, equaling the official total number of eugenic sterilizations in the United States.¹⁷⁰ The large incentives, according to Ernakulam’s district collector, played a vital role in convincing poor agricultural laborers to agree to an operation.¹⁷¹ District leaders introduced similar camps in 25 additional states in the country.

The introduction of incentives as an official part of government policy on family planning sparked controversies over whether the operations were truly voluntary. Those who aligned with the goals of limiting population growth argued that, even though an estimated 25% of all operations violated Indian law because the wife’s signature was forged, the economic benefits of the program far outweighed the costs of any alleged coercion. By placing a monetary value on annual adult consumption and value of labor, some population controllers conducted cost-benefit analyses to justify coercive policies as economically prudent.¹⁷² Others, like Everett Rogers, then at Michigan State University, simply ignored “the ethical correctness of incentives” in publications, choosing instead to determine how their personal theories (diffusion theory in Rogers’s case) fit within

¹⁶⁹ Marika Vicziany, “Coercion in a Soft State: The Family-Planning Program of India: Part 1: The Myth of Voluntarism,” *Pacific Affairs* 55, no. 3 (Fall 1982): 383–84, <https://doi.org/10.2307/2757117>.

¹⁷⁰ Lutz Kaelber, “Eugenics: Compulsory Sterilization in 50 American States,” accessed November 30, 2018, https://www.uvm.edu/~lkaelber/eugenics/?avad=160597_c13a6ce89.

¹⁷¹ S. Krishnakumar, “Kerala’s Pioneering Experiment in Massive Vasectomy Camps,” *Studies in Family Planning* 3, no. 8 (1972): 177–85, <https://doi.org/10.2307/1964755>.

¹⁷² Robert Repetto, “India: A Case Study of the Madras Vasectomy Program,” *Studies in Family Planning* 1, no. 31 (1968): 8–16, <https://doi.org/10.2307/1965308>.

the socioeconomic data on who was being sterilized.¹⁷³ Critics, however, noted how the vasectomy programs targeted disproportionately poor and illiterate Indians. Nearly 75% of those operated on earned less than 100 rupees a month; in places like Gorakhpur, where they earned even less, they were given more than double their average monthly earnings to undergo the operation.¹⁷⁴ Paying people on commission to recruit people for sterilizations, meanwhile, led to charges of dishonest recruiting strategies.¹⁷⁵

Any concerns over the possible compulsion involved with the use of incentives, however, were soon subsumed by the outright coercion and mass sterilization that took place during Indira Gandhi's Emergency Rule. From June 1975 to March 1977, Gandhi's son Sanjay assigned sterilization quotas to each state far greater than previous years. Facing economic turmoil because of a shortened rainy season, rising inflation, and climbing oil prices due to the OPEC embargo, Sanjay viewed the reduction of population growth as a way to stabilize the economy.¹⁷⁶ States denied government employees benefits, such as maternity leave or promotions, if they had two children and were not sterilized.¹⁷⁷ Couples with three children who did not get sterilized faced fines or imprisonment, food rations were withheld, and in some instances police forcibly grabbed men from the streets to get the operation.¹⁷⁸ Under the Emergency dictatorship, sterilization numbers soared: over eight million Indians were sterilized in a single year.¹⁷⁹ Although some press reports

¹⁷³ Despite Rogers' diffusion theory arguing that innovations diffused through populations in a top-down approach, in a manner very similar to the demographic transition theory, he nevertheless suggested that diffusion theory could be applied to the Indian vasectomy program. Everett M. Rogers, "Incentives in the Diffusion of Family Planning Innovations," *Studies in Family Planning* 2, no. 12 (December 1971): 241, <https://doi.org/10.2307/1965079>.

¹⁷⁴ Marika Vicziany, "Coercion in a Soft State: The Family-Planning Program of India: Part 2: The Sources of Coercion," *Pacific Affairs* 55, no. 4 (Winter 1982): 563, <https://doi.org/10.2307/2756842>.

¹⁷⁵ Vicziany, "Coercion in a Soft State, Part 1," 394.

¹⁷⁶ Gupte, "India: 'The Emergency' and the Politics of Mass Sterilization," *Education About Asia* 22, no. 3 (Winter 2017): 40–41.

¹⁷⁷ Ledbetter, "Thirty Years of Family Planning in India," 747–49.

¹⁷⁸ Hartmann, *Reproductive Rights and Wrongs*, 237.

¹⁷⁹ Connelly, *Fatal Misconception*, 279.

applauded the measures for showing that India was finally “getting tough” on their population problem, following the 1977 Indian elections, the sterilization campaign was credited as the primary cause for Indira Gandhi’s massive defeat.¹⁸⁰

Resistance to Population Control

Population control advocates suffered another setback in 1974 at the UN World Population Conference in Bucharest. As the focal point of World Population Year, they viewed the conference as an event that would bring together all the previous work to curb population growth in the Global South and provide the UN with a greater role in such efforts.¹⁸¹ They were surprised, however, when a coalition of nations from Central and South America, Africa, and Eastern Europe rejected their World Population Plan of Action (WPPA), which was meant to guide population policies for the next decade and heavily emphasized population control measures.¹⁸² In the first two days of the conference, over 200 amendments to the WPPA were introduced that primarily aimed to eliminate the neo-Malthusian elements within the plan and recognize that population planning was but one aspect of social and economic development. Delegates from these countries wanted the WPPA to also incorporate elements of the New International Economic Order, which was adopted earlier in the year at the UN General Assembly and called for greater equity through redistribution around the world.¹⁸³ US delegates were the most ardent opponents of these amendments, and they tried directing conversations back to technical issues related to population growth and suggested proposals for redistribution of resources and capital be addressed to organizations such as the

¹⁸⁰ “India Gets Tough on Family Size,” *Detroit Free Press*, September 26, 1976; “Voters of India Begin a Return to Democracy,” *Detroit Free Press*, March 22, 1977.

¹⁸¹ Jason L. Finkle and Barbara B. Crane, “The Politics of Bucharest: Population, Development, and the New International Economic Order,” *Population and Development Review* 1, no. 1 (1975): 89, <https://doi.org/10.2307/1972272>.

¹⁸² Sharpless, “World Population Growth, Family Planning, and American Foreign Policy,” 90–91.

¹⁸³ Michael Carder and Robert Park, “Bombast in Bucharest: Report on the World Population Conference,” *Science for the People*, January 1975, 19.

World Bank or Economic and Social Council where they held greater influence.¹⁸⁴ The compromised WPPA shifted its focus from how to “affect population variables” to how to “coordinate population trends and the trends of social and economic development,” although it failed to include any adoption of the New International Economic Order.¹⁸⁵ While population planners lamented that the conference failed to promote “a firm position on the exigencies of the world population situation,” they nevertheless considered it successful by educating the world on population problems and “creating awareness of the salience of population change for development and political relations.”¹⁸⁶

Finally, during the 1970s, it was revealed through several lawsuits that poor women of color were being targeted for sterilizations within the United States. Like the arguments made abroad that curbing population growth would facilitate economic development, population control advocates claimed that restricting reproduction among poor women would lift them out of poverty. Social workers, nurses, and physicians emphasized connections between welfare dependency, sexual licentiousness, and low intelligence that were analogous to the claims of eugenicists fifty years earlier.¹⁸⁷ Groups like the Association for Voluntary Sterilization, which the eugenicist Marian Olden created in 1937, shifted their arguments in the postwar period to promote sterilization as a tool to help middle-class Americans successfully plan their families and prevent criminals and low-income families from having more children. Similarly, second-wave feminists pushed for the expansion of access to contraceptive technologies, including voluntary sterilization.¹⁸⁸ Thus, in the United States, contraceptives technologies were technologies of liberation for some and oppression

¹⁸⁴ Finkle and Crane, “The Politics of Bucharest,” 104.

¹⁸⁵ Finkle and Crane, “The Politics of Bucharest,” 88.

¹⁸⁶ W. Parker Mauldin et al., “A Report on Bucharest: The World Population Conference and the Population Tribune, August 1974,” *Studies in Family Planning* 5, no. 12 (1974): 357, <https://doi.org/10.2307/1965198>.

¹⁸⁷ Ladd-Taylor, *Fixing the Poor*, 224.

¹⁸⁸ Kluchin, *Fit to Be Tied: Sterilization and Reproductive Rights in America, 1950-1980*, 5.

for others. For those in the middle- and upper-class, they provided women with a means of reproductive autonomy and sexual freedom. Through arguments on the “culture of poverty,” however, social policies regulated the reproduction of poor women in ways that paralleled the eugenics movement.¹⁸⁹

While ensconced in class rhetoric, such ideas undeniably had racial implications, especially as these developments occurred when Jim Crow denied many Black women any chance of social or economic mobility. In North Carolina, institutional efforts to sterilize institutionalized patients continued well into the 1940s, with few patients giving consent.¹⁹⁰ Social workers were also granted the power to initiate sterilization petitions, which further connected sterilizing poor women to the economic interests of the state.¹⁹¹ Moreover, as Lyndon Johnson’s War on Poverty allowed African Americans greater access to social welfare, white Americans increasingly linked Black women with welfare dependency.¹⁹² In a paper celebrating the extension of family planning services to the poor, Leslie Corsa noted that white Americans used contraception at starkly greater rates than African Americans, but when differences in educational status and income are considered, these discrepancies disappear.¹⁹³ The Aid to Families with Dependent Children program, in particular, was criticized for discouraging work and encouraging women to be “welfare queens,” or having children for more welfare payments.¹⁹⁴ In 1970, Congress enacted Title X, which provided family planning services through the Department of Health, Education, and Welfare (HEW) and subsidized sterilization operations through Medicaid and the Indian Health Service

¹⁸⁹ Schoen, *Choice & Coercion*, 108.

¹⁹⁰ Moya Woodside, *Sterilization in North Carolina: A Sociological and Psychological Study* (Chapel Hill, NC: The University of North Carolina Press, 1950).

¹⁹¹ Schoen, *Choice & Coercion*, 82–83.

¹⁹² Roberts, *Killing the Black Body*, 207.

¹⁹³ Leslie Corsa, “United States: Public Policy and Programs in Family Planning,” *Studies in Family Planning* 1, no. 27 (1968): 1–4, <https://doi.org/10.2307/1964752>.

¹⁹⁴ Jill Quadagno, *The Color of Welfare: How Racism Undermined the War on Poverty* (New York: Oxford University Press, 1994), 117.

(IHS).¹⁹⁵ Thus, sterilizations of poor women of color greatly increased in the 1970s. In Michigan, hospitals often prevented poor and minority women from obtaining a voluntary sterilization “unless they have had quite a few more children than they really wanted.” At the same time, women coming in to get an abortion were told that they were required to also be sterilized.¹⁹⁶ Rather than supporting voluntary planned parenthood, such physicians enforced what they believed to be proper parenthood.

In 1973, the Southern Poverty Law Center filed a class action lawsuit in federal court and publicized the existence of sterilization abuse throughout the South. In *Relf v. Weinberger*, a district court heard the story of how 14-year-old Minnie Lee Relf and 12-year-old Mary Alice Relf were sterilized under false pretenses. A family planning nurse from the Montgomery Community Action Committee came to their house and gave their mother Mrs. Minnie Relf forms to sign. Assuming they were going to put her daughters in the same experimental drug program for Depo-Provera (an injectable hormonal contraceptive) as their elder sister Katie, she signed with an X on the consent form, not realizing she consented to her daughters being sterilized.¹⁹⁷ Judge Gerhard Gesell found the HEW regulations for providing federal funds for sterilizations with improper consent procedures to be unreasonable and called for all consent forms to have clear directions on the top of the page that individuals can withdraw consent.¹⁹⁸ The HEW responded with new regulations preventing anyone under 21 or mentally incompetent from being sterilized, along with new consent forms that adhered to the ruling. Nevertheless, in 1975 the HEW paid for 100,000 sterilizations, about 10% of all sterilizations that year.¹⁹⁹ Moreover, a Government and Accounting

¹⁹⁵ “Family Planning Services and Population Research Act,” Pub. L. No. 91–572, 84 Stat. 1504 (1970).

¹⁹⁶ Johan W. Eliot, “Definition and Scope of Family Planning Services in Michigan” (Ann Arbor, MI, n.d.), Box 3, Department of Population Planning, General Files, 1972-1973 (#2), Leslie Corsa Papers, Bentley Historical Library, University of Michigan.

¹⁹⁷ Dorr, “Protection or Control? Women’s Health, Sterilization Abuse, and *Relf v. Weinberger*,” 161.

¹⁹⁸ *Relf v. Weinberger*, No. 372 F. Supp. (United States District Court March 15, 1974).

¹⁹⁹ “U.S. Tightens Rules for Sterilization of Poor Women,” *Detroit Free Press*, November 8, 1978.

Office (GAO) report revealed that the IHS violated the new consent form procedures and continued to sterilize Native American women under 21 years old. However, they failed to interview any Native American women who were sterilized and therefore could not verify the level of coercion involved in the program.²⁰⁰ Nevertheless, the GAO determined that 3,406 women were sterilized at four of the 12 IHS hospitals in a span of 46 months. At a time when there were only an estimated 100,000 American Indian women of childbearing age remaining, such numbers were especially significant.²⁰¹ According to various studies, between 1970 and 1976 the IHS sterilized between 25%-50% of all indigenous women in their reproductive years.²⁰² Following this, ten sterilized Mexican American women filed a suit against Los Angeles County Hospital obstetricians in 1978. In contrast to African Americans who were targeted due to links between reproduction and welfare dependency, these women were working-class immigrant and migrant workers who were subjected to hospital quotas for tubal ligation operations.²⁰³ They testified in *Madrigal v. Quilligan* that minutes after delivering a baby, physicians either pressured them into signing consent forms written in English or sterilized them without their consent. Although the judge ruled in favor of the defendants and blamed the events the plaintiffs suffered to cultural differences, the case did result in the creation of bilingual consent forms.²⁰⁴

Despite these revelations, the discovery of coercive sterilization, both at home and abroad, did little to change the population control establishment. In a 1979 textbook for those interested in population planning, for instance, Leslie Corsa claimed that incentives cannot be coercive; rather, he suggested that when incentives are “sizable enough to significantly affect the birth rate,” they

²⁰⁰ Elmer B. Staats, “Investigation of Allegations Concerning Indian Health Service” (Washington, D.C.: U. S. Government Accountability Office, November 4, 1976), <https://www.gao.gov/products/hrd-77-3>.

²⁰¹ Sally J. Torpy, “Native American Women and Coerced Sterilization,” *American Indian Culture and Research Journal* 24, no. 2 (2000): 7.

²⁰² Lawrence, “The Indian Health Service and the Sterilization of Native American Women,” 410.

²⁰³ Stern, *Eugenic Nation*, 202–5.

²⁰⁴ Stern, “Sterilized in the Name of Public Health,” 1132–35.

also serve as an effective means of redistributing income and help modernize the poor.²⁰⁵ He also presented a new equation to explain the relationship between population and resources. According to Corsa, the change in the total consumption, needs, and demands of resources (T) was the product of the per capita quantity of any good, resource or service (C) and the population (P). This model stressed that as the populations grew and became more affluent, they created a “multiplier effect” on the total consumption of resources.²⁰⁶ Thus, to Corsa, the possibility of a country modernizing while maintaining a high birthrate was either impossible or the greatest threat to natural resources.

What changed American fears of overpopulation and the use of family planning was the ascendancy of Ronald Reagan and the New Right. At the 1984 World Population Conference in Mexico City, American delegates issued the formal policy statement that “population growth is, of itself, a neutral phenomenon.”²⁰⁷ More important to American involvement in foreign population policies was the decision to withhold funds for family planning services that directly supported abortion.²⁰⁸ According to Matthew Connelly, “the Mexico City conference marked the moment when population growth was no longer treated as a global problem.”²⁰⁹ An additional factor was the public response to the International Planned Parenthood Federation, the United Nations Fund for Population Activities (UNFPA), and USAID’s connections to China’s one-child policies.²¹⁰ By the early 1980s, reports detailed how women with three children were being sterilized or the government would confiscate their property, as well as allegations that pregnant Chinese women

²⁰⁵ Leslie Corsa and Deborah Oakley, *Population Planning* (Ann Arbor: University of Michigan Press, 1979), 379–83.

²⁰⁶ The notation for the equation is $T = C \times P$. Corsa and Oakley, *Population Planning*, 40–42.

²⁰⁷ The White House Office of Policy Development, “US Policy Statement for the International Conference on Population,” *Population and Development Review* 10, no. 3 (September 1984): 577, <https://doi.org/10.2307/1973537>.

²⁰⁸ Jason L. Finkle and Barbara B. Crane, “Ideology and Politics at Mexico City: The United States at the 1984 International Conference on Population,” *Population and Development Review* 11, no. 1 (1985): 2, <https://doi.org/10.2307/1973376>.

²⁰⁹ Connelly, *Fatal Misconception*, 355.

²¹⁰ Jacqueline R. Kasun, *The War against Population: The Economics and Ideology of World Population Control*, 2nd ed. (San Francisco: Ignatius Press, 1999), 90.

were brought to clinics and forced to have abortions.²¹¹ In 1983, the UNFPA awarded Indira Gandhi and Qian Xinzong, China's family planning minister, awards for their "outstanding contribution to the awareness of population questions."²¹² Three years later, following calls from Senators such as Jeremiah Denton Jr., Reagan defunded the UNFPA because of its involvement in China's one-child policy.²¹³ At the 1994 UN conference on population and development in Cairo, feminists reframed the WPPA to focus on reproductive health services as opposed to population or family planning. Although coercive population policies remained, such as the mass sterilization of indigenous women in Peru and China's continued program, the conference nevertheless signified the end of an American-driven population control movement rooted in economic or environmental neo-Malthusianism.²¹⁴

When James Neel first suggested that couples the world over should limit themselves to having only two children in 1973, it was at a time when many Americans feared the threat of overpopulation from both environmentalist and economic perspectives. When he made the same argument twenty years later in his semiautobiographical book, such concerns were already on the decline.²¹⁵ After scientists criticized his proposal, Neel backtracked and stated that "increased literacy for women and improved socioeconomic conditions" are equally important to curbing population growth.²¹⁶ Indeed, the failures of the population planners have proven that merely providing the technological means to limit population growth is not enough. Aside from the blatantly coercive tactics used in some instances, the only variable that has been found to consist-

²¹¹ Christopher Wren, "China's Birth Goals Meet Regional Resistance," *New York Times*, May 15, 1982, sec. 1.

²¹² Bernard D. Nossiter, "Population Prizes from U.N. Assailed," *New York Times*, July 24, 1983.

²¹³ "Coercing Abortions: Werner Fornos, the IPPF, the UNFPA, China, and AID," *Congressional Record* 131, no. 42 (April 4, 1985): 7658–65; Dowbiggin, *The Sterilization Movement and Global Fertility in the Twentieth Century*, 210.

²¹⁴ Hartmann, *Reproductive Rights and Wrongs*, xii–xiii.

²¹⁵ Neel, *Physician to the Gene Pool*, 391.

²¹⁶ James V. Neel, "Further on Population Control," *Journal of Heredity* 88, no. 6 (November 1, 1997): 560, <https://doi.org/10.1093/oxfordjournals.jhered.a023161>.

ently correlate with lower fertility is higher education for women.²¹⁷ However, the advancement of women, whether by providing greater educational opportunities, reproductive autonomy, or economic security, was always considered “outside the purview of the family planning programs.”²¹⁸ As Ronald Freedman stated before the Population Council in 1958: “the crucial research question is: what minimum change in the social environment is necessary to make a perceptible change in motivation toward fertility?”²¹⁹ Despite claims that reducing population growth would aid economic and social development, that was never the goal of population control. Much like Thomas Malthus, the neo-Malthusians used the concept of population growth as a way of maintaining the present capitalist order throughout the Cold War.²²⁰ In providing substantial funds to countries in need of it, the population planners “set most of the rules,” often in favor of “short-term political and military interests.”²²¹

In the literature on postwar eugenics and population planning, any discussion on the role of technology almost solely focuses on the development of contraceptives, for obvious and valid reasons. However, an equally important, if less immediately obvious technology is the quantification involved in family planning programs and discussions on overpopulation. In the latter, the persuasiveness of easily understandable equations allowed population planners to explain their ideas in a simple and seemingly quantitative way with Malthus providing the template. His suggestion that population grew geometrically while agricultural productivity increased arithmetically was a truism among the eugenicists concerned with global population growth. They, in turn, added variables to account for standard of living and cultural development. After these were criti-

²¹⁷ Connelly, *Fatal Misconception*, 23.

²¹⁸ Freedman and Takeshita, *Family Planning in Taiwan*, 364.

²¹⁹ Quoted in Connelly, *Fatal Misconception*, 262.

²²⁰ Ross, *The Malthus Factor*, 16.

²²¹ Corsa and Oakley, *Population Planning*, 211–12.

cized, population planners incorporated the role of technology and total consumption. Although different authors provided alternative formulas, they all suggested that as populations grew, resources would become scarcer and hinder economic development. Despite each variable in their models containing incredible amounts of data, much of which they could not measure nor compute, it pointed to what they considered a logical conclusion about the detrimental role of population. Total resource consumption may not be quantifiable, but it was nevertheless converted into “units” to make a seemingly plausible argument.²²²

Simultaneously, the recently professionalized demographers relied on quantification as a means of establishing social trust through their seemingly objective findings.²²³ From the initial surveys to the analysis of results, the Taiwanese family planning program was a process of establishing control over all married women in Taichung through tabulation. In time, however, such quantification resulted in an incredible depersonalization of the individuals targeted for population control measures. To population planners:

Third World women are mainly numbers in computer printouts, unidentified ‘targets,’ ‘clients,’ or ‘acceptors’ in the technical journals adorning the office shelves. Their fate figures only in demographic calculations of ‘births averted’ and ‘couple-years of protection.’²²⁴

Secondary accounts of the mass sterilizations during Indira Gandhi’s Emergency Rule frequently mention the “distance” between the Indian government and the low-income villagers that were targeted.²²⁵ While undoubtedly this was the result of race, class, and caste, I would also argue that it was exacerbated by an insistence on the pursuit of numbers, specifically quotas, that was initiated

²²² Even measurable numbers, such as population, were converted into “units” to show the dangers of a 50% increase in population. Corsa and Oakley, *Population Planning*, 40–42.

²²³ Porter, *Trust in Numbers*.

²²⁴ Hartmann, *Reproductive Rights and Wrongs*, 56.

²²⁵ Gyan Prakash, “Bodies and Bulldozers,” in *Emergency Chronicles* (Princeton University Press, 2019), 271, <https://doi.org/10.1515/9780691190006-009>.

by Americans. To economists and demographers, the vasectomy programs were justified by ignoring ethical questions and emphasizing cost-benefit analyses that put a monetary number on each prevented birth.

For eugenicists, population control provided a unique opportunity for them to turn away from earlier ideas that were increasingly disreputable. Several eugenicists, including Julian Huxley and Lee Dice, focused on the “population problem” in the immediate postwar era. The arguments made by the “reform eugenicists” that emerged in the 1930s and 1940s, who recognized that environmental factors played a role in the development of phenotypic traits, gradually shifted into claims from population control advocates that those in a “culture of poverty” should be refrained from reproducing.²²⁶ Although population planners did not make their arguments based on genetics as did earlier eugenicists, their policies and goals were quite similar. Their eugenic program was based less on “biological motivations” than on “social motivations,” yet the policies still aimed at restricting reproductive rights for those deemed inferior.²²⁷ Simultaneously, while middle-class women fought and eventually won the right to control their contraceptive use in the United States, poor women of color, both domestically and abroad, were not as successful. Rather, mostly white male professionals still controlled and regulated their reproduction, often without their consent and occasionally through outright coercion.

²²⁶ Oscar Lewis, *Five Families: Mexican Case Studies in the Culture of Poverty* (New York: Basic Books, 1959).

²²⁷ Roll-Hansen, “Some Thoughts on Genetics and Politics,” 168–69.

Conclusion: Is Eugenics Safely in the Past?

Starting in the 1970s, the eugenic ideology started to lose influence. In Michigan, the Mental Health Code of 1974 that repealed the state's involuntary sterilization law reflects the weakening of its political applications.¹ Along with the successes of second-wave feminists and the challenges from several minority groups to coercive sterilization, as discussed in the last chapter, the term *eugenics* was redefined. We can attribute this in part to these sociopolitical developments; however, this reconceptualization of eugenics was also a response to claims like those in Arthur Jensen's 123-page 1969 diatribe in the *Harvard Educational Review* suggesting that educational programs such as Head Start would inevitably fail because racial differences in intelligence were hereditary.² Several scholars criticized Jensen's claims by emphasizing the links between intelligence testing, eugenics, scientific racism, and Nazism.³ The most damning evidence came when Leon Kamin exposed Sir Cyril Burt's fabricated data on the heritability of intelligence from monozygotic twins growing up in separate families, a methodology Francis Galton had initiated as a way to investigate the role of genetics in the development of phenotypes.⁴ These attacks resulted in a "contraction" in the meaning of eugenics. As Diane Paul has stated, "by the mid-1970s 'eugenics' had once again become a term of abuse," in which it was almost exclusively associated with compulsory sterilization programs.⁵ Some of the earliest histories on eugenics, which emerged during this period, reinforced this pattern. Historians like Daniel Kevles, Mark

¹ "Mental Health Code," Pub. L. No. 258, 330 (1974).

² Arthur Jensen, "How Much Can We Boost IQ and Scholastic Achievement," *Harvard Educational Review* 39, no. 1 (Winter 1969): 1–123, <https://doi.org/10.17763/haer.39.1.13u15956627424k7>.

³ Jeffrey M. Blum, *Pseudoscience and Mental Ability: The Origins and Fallacies of the IQ Controversy* (New York: Monthly Review Press, 1978); Allan Chase, *The Legacy of Malthus: The Social Costs of the New Scientific Racism*, 1st ed (New York: Knopf, 1977), xix; Stephen Jay Gould, *The Mismeasure of Man*, Second ed. (New York: Norton, 1996), 46–54.

⁴ Leon J. Kamin, *The Science and Politics of I.Q.*, Complex Human Behavior (Potomac, MD: L. Erlbaum Associates, 1974), 34–52; Reed, "A Short History of Genetic Counseling," 332–33.

⁵ Paul, *The Politics of Heredity*, 135.

Haller, and Kenneth Ludmerer rendered eugenics a “pseudoscience” based on a flawed understanding of Mendelism due to racist and classist prejudices. It was repudiated through the advancement of genetic science in the 1930s and 1940s and the revelation of the holocaust. Those who remained committed to the eugenic ideology after World War II had transformed eugenics into something less biased, less conservative, and more scientific.⁶ While elements of this interpretation are undoubtedly true, it nevertheless serves to periodize eugenics as a pre-1945 social movement.

However, remnants of the eugenic ideology are still present today. One of the more notorious examples of this was Charles Murray and Richard Herrnstein’s *The Bell Curve*, which suggested that racial differences in IQ scores were hereditary, that subsidies encourage women with low IQ scores to have more children than those with high IQ scores, and that the government should repeal policies providing these subsidies.⁷ Like the Jensen article 25 years earlier, their book created a firestorm that further reinforced the connections between intelligence testing, eugenics, and racism at the expense of a broader understanding of eugenics.⁸

More recently, public fears of a resurgence of eugenics have followed the development and proliferation of the gene-editing technology CRISPR-Cas9. This process consists of employing a synthetic guide RNA (gRNA) to guide an endonuclease or cutting protein (typically Cas9) to a particular strand of DNA, where it initiates the cell’s own DNA repair mechanisms. If no additional

⁶ Ludmerer, *Genetics and American Society*, 48, 125–26, 174–78; Kevles, *In the Name of Eugenics*, 164–75, 193; Haller, *Eugenics*, 6–7.

⁷ Herrnstein and Murray’s proposal to remove policies they alleged affected birth rates separates them from eugenicists. In a way, their libertarianism is more analogous to social Darwinism than to eugenics. Richard J. Herrnstein and Charles A. Murray, *The Bell Curve: Intelligence and Class Structure in American Life* (New York: Free Press, 1994), 118, 548.

⁸ Steven Fraser, *The Bell Curve Wars: Race, Intelligence, and the Future of America* (New York: Basic Books, 1995); Russell Jacoby, Naomi Glauberman, and Richard J. Herrnstein, eds., *The Bell Curve Debate: History, Documents, Opinions*, 1st ed (New York: Times Books, 1995); Peter Schrag, “The ‘Bell Curve’ Carries Us Back to Eugenics,” *Baltimore Sun*, October 27, 1994, <https://www.baltimoresun.com/news/bs-xpm-1994-10-27-1994300048-story.html>.

steps were taken, this would result in non-homologous ends joining, in which random insertions or deletions of DNA would occur at the repair site. However, researchers typically provide a homologous piece of DNA as a repair template. It is this final step that allows for precise genome editing.⁹ Similar to its predecessor, recombinant DNA, which proceeds along similar lines except it requires the introduction of DNA from a different species into the organism and is therefore less efficient, the development of this technology has increased public fears of genetically engineering and designing humans.¹⁰ Such anxieties were exacerbated when the Chinese biophysicist He Jiankui edited the *CCR5* gene of two embryonic twins, causing several researchers and UNESCO to demand a global moratorium on human germline editing.¹¹ That said, the International Bioethics Committee of UNESCO sought to emphasize the difference between such technology and former eugenic practices, stating:

The goal of enhancing individuals and the human species by engineering the genes related to some characteristics and traits is not to be confused with the barbarous projects of eugenics that planned the simple elimination of human beings considered as “imperfect” on an ideological basis.¹²

Thus, UNESCO limited their definition of eugenics to the “barbarous projects” of the Nazis. In so doing, it fails to consider how, were they alive today, John Harvey Kellogg and Victor Clarence Vaughan would stand on this issue. It is likely they would have approved of CRISPR used for genetic enhancement and curing genetic disease.¹³ Some individuals, meanwhile, have

⁹ Melody Redman et al., “What Is CRISPR/Cas9?,” *Archives of Disease in Childhood. Education and Practice Edition* 101, no. 4 (August 2016): 213–15, <https://doi.org/10.1136/archdischild-2016-310459>.

¹⁰ Daniel J. Kevles, “If You Could Design Your Baby’s Genes, Would You?,” *Politico Magazine*, December 9, 2015, <https://www.politico.com/magazine/story/2015/12/crispr-gene-editing-213425>.

¹¹ Somatic gene therapy, it should be noted, has no such restrictions. Eric S. Lander et al., “Adopt a Moratorium on Heritable Genome Editing,” *Nature* 567, no. 7747 (March 2019): 165, <https://doi.org/10.1038/d41586-019-00726-5>; International Bioethics Committee, “Report of the IBC on Updating Its Reflection on the Human Genome and Human Rights” (UNESCO, 2015), <https://unesdoc.unesco.org/ark:/48223/pf0000233258>.

¹² International Bioethics Committee, “Report of the IBC on Updating Its Reflection on the Human Genome and Human Rights,” 27.

¹³ Comfort made a similar argument when he stated that “genome medicine, then, is realizing the pipe dreams of medically oriented eugenicists in the Progressive era.” Comfort, *The Science of Human Perfection*, 243.

called for a “liberal” or “moderate” eugenics.¹⁴ Such iterations typically endorse an individual-choice model of genetic enhancement, where parents have free choice in how they want to enhance their children. However, these groups also frequently frame the concerns of disability rights activists as partisan and therefore invalid.¹⁵ In their attempts to be taken seriously in the realm of academic debate, they thus seek to exclude those who have the most to lose with a resurgence of a eugenic ideology.

Furthermore, eugenics in its older sense is currently prevalent. Coercive sterilization programs continue to occur in several parts of the world and are justified on family planning and eugenic grounds. Alberto Fujimori, with funding from the United States and the UN, initiated a mass population control campaign in Peru from 1995 to 2000 that resulted in the sterilization of over 270,000 women, most of them poor and indigenous.¹⁶ Keiko Fujimori, Alberto’s daughter and First Lady of Peru during the sterilization campaign, suggested during her 2021 presidential campaign that she would pardon her father were she elected.¹⁷ Starting in 1971, the former Czechoslovakia instituted a population policy to “encourage the sterilisation of Romani women and women with disabilities placed in mental institutions in order to control their birth-rate.” Although the Czech government abolished the official state policy in 1993, sterilizations continued until at least 2007. Government officials acknowledged “individual failures” and expressed regret that coercive sterilizations took place, but they denied that it was a systemic practice and did not

¹⁴ Michael J. Selgelid, “Moderate Eugenics and Human Enhancement,” *Medicine, Health Care, and Philosophy; Dordrecht* 17, no. 1 (2014): 3–12; Nicholas Agar, “Liberal Eugenics,” *Public Affairs Quarterly* 12, no. 2 (1998): 137–55.

¹⁵ Walter Veit et al., “Can ‘Eugenics’ Be Defended?,” *Monash Bioethics Review*, May 25, 2021, 6–7, <https://doi.org/10.1007/s40592-021-00129-1>.

¹⁶ Calvin Sims, “Using Gifts as Bait, Peru Sterilizes Poor Women,” *The New York Times*, February 15, 1998, sec. World.

¹⁷ Simeon Tegel, “Peru Forced Sterilisations Case: ‘They Could Get Away with It,’” *Al Jazeera*, May 19, 2021, <https://www.aljazeera.com/news/2021/5/19/peru-forced-sterilisations-case-fears-they-could-get-away-with>.

set up a compensatory system to provide victims with reparations.¹⁸ Roma women reported that social workers lied about the permanency of the operation, doctors asked them to sign papers during or immediately after giving birth, and surgeons performed the operation during Cesarian sections or laparoscopies for ectopic pregnancies.¹⁹ In 2012, the Africa Gender and Media Initiative published a report detailing the experiences of forty HIV-positive women who were coercively or forcibly sterilized in Kenya. Similar to the experiences of the Roma women, physicians deliberately misinformed women living with HIV by telling them the procedure was required for medical treatment and performed operations during other surgeries.²⁰ Researchers found similar programs targeting women living with HIV for coercive sterilizations in 26 additional countries from 2009 to 2015, demonstrating a systemic problem.²¹ Thus, eugenic practices are still occurring around the world, at the same time that Americans try to distance themselves from their own eugenic past.

In Michigan, the eugenic goal of regulating the reproduction of those considered unfit still occasionally emerges. Lower court judges appear to have been the primary advocates of eugenic policies for the last forty years. In 1984, the Michigan Court of Appeals overturned a Kalamazoo County Circuit Court ruling that made Depo-Provera, an injectable hormonal contraceptive, part of the sentencing for a male charged with criminal sexual conduct. Circuit Judge Borsos sentenced the defendant to five years' probation, fined him \$25,000, and mandated that he undergo "chemical castration" by means of Depo-Provera.²² In his preamble to the sentence, Borsos claimed that

¹⁸ European Roma Rights Centre Concerning the Czech Republic, "Coercive Sterilisation of Romani Women" (Czech Republic: Committee on the Elimination of all Forms of Discrimination Against Women, February 23, 2016), 3–4.

¹⁹ Renate van der Zee, "Roma Women Share Stories of Forced Sterilisation," *Al Jazeera*, July 19, 2016, <https://www.aljazeera.com/features/2016/7/19/roma-women-share-stories-of-forced-sterilisation>.

²⁰ Faith Kasiva, "Robbed of Choice" (Nairobi, Kenya: Africa Gender and Media Initiative, August 22, 2012), v–vii, <https://gem.or.ke/robbed-of-choice/>.

²¹ Sam Rowlands and Jean-Jacques Amy, "Non-Consensual Sterilization of Women Living with HIV," *International Journal of STD & AIDS* 29, no. 9 (August 1, 2018): 917–24, <https://doi.org/10.1177/0956462418758116>.

²² *People v. Gauntlett*, No. 352 N.W.2d 310 (Michigan Court of Appeals May 17, 1984).

recent scientific advances proved that “some men are truly over-sexed” because of an oversupply of “male hormones,” and that Depo-Provera would counteract such hormonal imbalances.²³ A similar situation played out fifteen years later in *People v. Walsh*. Barry County Circuit Court judge James Fisher determined that he had the authority to sterilize Ruth Walsh, a single, pregnant mother of three, who was charged with child abuse following the death of her infant son.²⁴ Again, the appellate court overturned a circuit court ruling that required the defendant to use either Depo-Provera or Norplant—a subdermal contraceptive developed in 1991 that can prevent pregnancies for up to five years—for the entire probationary period.²⁵ In Michigan, the appellate court has been crucial in protecting the reproductive autonomy of its citizens.

However, in the case of Lora Faye Wirsing, the state Supreme Court overruled the appellate court. In 1986, Donna and Richard Wirsing petitioned the Genesee County Probate Court to authorize a tubal ligation for their then-23-year-old daughter Lora, who they claimed had “the mental age of a 4-year-old.”²⁶ After the probate judge authorized the procedure, the Michigan Protection and Advocacy Service intervened and appealed it. The appellate court once again reversed a lower court’s decision, ruling that the probate court lacked explicit jurisdiction or power to authorize sterilizations.²⁷ In 1998, however, the Michigan Supreme Court granted the probate courts authority to approve sterilization operations. They argued that their decision was based on the “concept of voluntary sterilization” and maintained that the appellate court failed to distinguish between voluntary and “forced eugenic sterilization.”²⁸ Because it was determined that Lora Wirsing had “an Intelligence Quotient in the upper 20s or lower 30s,” had “no ability to care for a

²³ *People v. Gauntlett* at 740–41.

²⁴ “Sterilization of Woman Considered,” *The Detroit News*, February 23, 1997, 3B.

²⁵ *People v. Walsh*, No. 593 N.W.2d 558 (Michigan Court of Appeals April 30, 1999).

²⁶ Tamara Lush, “Decision for Sterilization Becomes 12-Year Fight,” *USA Today*, April 24, 1998, sec. News, 10A.

²⁷ *In re Wirsing* (on remand), No. 214 Mich. App. (Michigan Court of Appeals October 24, 1995).

²⁸ *In re Wirsing*, No. 456 Mich. (Michigan Supreme Court February 3, 1998).

child,” and possessed “no ability to make an informed consent to intercourse,” the court asserted that her guardian’s decision to petition for her sterilization was voluntary.²⁹ Despite a physician in the evidentiary hearing testifying that Lora’s chances of getting pregnant were “very, very, very, very small” due to an irregular ovulation cycle, the fear that there was *any* chance of a pregnancy convinced her parents to ensure it did not happen.³⁰

Another example is a case of 2003, when Lapeer County Judge Michael Higgins asked Renee Gamez, who was arrested for driving under the influence of heroin with her two daughters in the backseat, to provide the court with “verifiable evidence that she is using birth control.”³¹ Despite Gamez’s explanation that she experienced medical complications when she previously used birth control, Higgins maintained that her drug abuse resulted in an increased risk of any further children developing “special needs.”³² Brian Dickerson, writing on the Gamez case for the *Detroit Free Press*, agreed with Judge Higgins. He believed it was reasonable “for the state to ask whether a mother who admits neglecting her existing children should be free to produce more prospective victims without legal consequences.”³³ He also suggested that, while few publicly express such views, many privately sympathize with them. Byron Korschuh, the prosecuting attorney in the case, asserted that “everyone” would like to tell parents who use drugs: “You’ve got to stop having babies!”³⁴ Whether it is because of prior drug use, physical or mental disabilities,

²⁹ In re Wirsing, 456 Mich. at 469–71.

³⁰ Calvin A. Luker et al., “In the Matter of Wirsing v. Michigan Protection and Advocacy Service Distinguished Brief,” *Thomas M. Cooley Law Review* 16, no. 3 (1999): 538.

³¹ David Zeman, “Birth Control Order Is Fought Woman Says Her Rights Were Violated by Judge,” *Detroit Free Press*, July 9, 2003, sec. News, B.1.

³² American Civil Liberties Union, “Judge Imposes Birth Control to Prevent Michigan Woman from Having More Children” (Press Release, July 8, 2003), <https://www.aclu.org/press-releases/judge-imposes-birth-control-prevent-michigan-woman-having-more-children>.

³³ Brian Dickerson, “Reproductive Freedom Isn’t an Absolute,” *Detroit Free Press*, July 11, 2003, sec. News, B.1.

³⁴ Brian Dickerson, “Birth-Control Ruling Raises Tough Issues,” *Detroit Free Press*, July 16, 2003, sec. News, B.1.

or poor parenting, the impulse to restrict the reproduction of individuals who fail to conform to normative behaviors remains strong.

At the same time, the state is reluctant to confront its eugenic past. In 1999, Fred Aslin sued the state for violating his and his eight brothers and sisters' civil rights when physicians at the Lapeer Home and Training School sterilized them. According to Aslin, institutional workers declared each of them to be "feebleminded morons." A lawyer was never present in their probate petition hearing, so they were represented by guardians whom they never met.³⁵ Fred served and was wounded in the Korean War, while his brother Ted was a licensed foster parent to 100 children.³⁶ Another of Fred's brothers, John, believes state hospital workers targeted them for the operations due to their mixed Ottawa and Chippewa ancestry.³⁷ While the director of Michigan's Department of Community Health, James Haveman, wrote a personal letter of apology, an Ingham County Circuit Court Judge dismissed Aslin's lawsuit because it exceeded the statute of limitations.³⁸ Following formal apologies in 2002 from governors of five states for their role in forcibly sterilizing thousands of individuals, historian Alexandra Minna Stern called on then-governor Jennifer Granholm to do the same in Michigan.³⁹ However, neither Granholm or any of her successors have done so, nor have they established a reparations program for victims who are still alive, as California did last year.⁴⁰

³⁵ Jack Lessenberry, "Scarred by Sterilization," *Washington Post*, March 9, 2000.

³⁶ Claudia Center et al., "The Garrett History Brief," *Journal of Disability Policy Studies* 12, no. 2 (September 1, 2001): 77 n.41, <https://doi.org/10.1177/104420730101200203>.

³⁷ Jack Lessenberry, "Michigan Man a Victim of Forced Sterilization," *Toledo Blade*, August 9, 1998, sec. B, 5.

³⁸ Jack Lessenberry, "The Unkindest Cut of All," *Detroit Metro Times*, January 12, 2000, <https://www.metrotimes.com/detroit/the-unkindest-cut-of-all/Content?oid=2191350>; Mike Householder, "Sterilization Suit Dismissed," *Associated Press*, March 10, 2000.

³⁹ Alexandra Minna Stern, "Michigan Should Apologize for Forced Sterilizations," *Detroit News*, August 3, 2003, sec. Outlook, 9A.

⁴⁰ Robin Foster, "California to Pay Reparations to Victims of Forced Sterilization," *US News & World Report*, July 8, 2021, sec. Health News, [//www.usnews.com/news/health-news/articles/2021-07-08/california-to-pay-reparations-to-victims-of-forced-sterilization](https://www.usnews.com/news/health-news/articles/2021-07-08/california-to-pay-reparations-to-victims-of-forced-sterilization).

Attempts to confront the state's eugenic past have instead remained at a much more local level. Following student protests and recommendations from an Advisory Committee on University History investigation, the University of Michigan Board of Regents voted to remove Clarence Cook Little's name from the school's science building in 2018.⁴¹ Students and faculty praised the decision to no longer commemorate Little, but they felt that administrators did not do enough to confront his historical legacy or the university's role in promoting eugenics.⁴² Only rarely have its connections to public health concerns been explored. Further, public discussions during such events frequently demarcate eugenics as roughly equivalent to genetic determinism.⁴³ This restricts the public's understanding of eugenics and its ties to racist, sexist, and ableist dimensions. While many eugenicists, particularly in the United States, were indeed hereditarians, many others were not and did not hold such beliefs.

As discussed in Chapters 1 and 2, many eugenicists in the early-twentieth century were not proponents of genetic determinism nor of Mendelism. When they first adopted eugenic proposals, psychiatrists' conception of heredity was based on the theory of constitutional diathesis and Morelian degeneracy. Although they gradually adopted Mendelian genetics to explain the etiology of certain mental illnesses, they started sterilizing patients in significant numbers in the 1930s as much for economic and demographic reasons as genetic. To cope with increasingly long waitlists for potential patients, repeated failures of curative medicine, and the inability of the state to provide more funds to expand facilities during the Great Depression, superintendents began sterilizing patients so they could be paroled.

⁴¹ Lauren Love, "U-M to Remove Little, Winchell Names from Campus Facilities," *The University Record*, March 29, 2018, sec. Public Affairs, <https://record.umich.edu/articles/u-m-remove-little-winchell-names-campus-facilities/>.

⁴² Natasha Peitruschka, "The Name Remains: Students, Faculty Respond to the CC Little Transit Station's Cultural Namesake," *The Michigan Daily*, April 5, 2018, <https://www.michigandaily.com/section/administration/name-remains-students-faculty-respond-cc-little-transit-station%E2%80%99s-cultural>.

⁴³ Peggy Korpela, "Questioning C.C. Little's Legacy," *The Michigan Daily*, April 17, 2016, sec. Op-Ed, <https://www.michigandaily.com/section/viewpoints/op-ed-cc-little-naming-buildings-eugenics>.

John Harvey Kellogg further contradicts the notion that eugenics was based strictly on the belief that genes controlled the behavioral and mental characteristics of individuals. His program of race betterment combined euthenics and eugenics through a neo-Lamarckian framework that suggested that environmental reforms could improve the hereditary constitution of the race. He was not a fringe actor in the eugenics movement. Indeed, he was arguably the most important eugenics advocate in Michigan, and he worked with Mendelians like Victor Vaughan to connect eugenics to public health reforms. The Race Betterment Conferences his Race Betterment Foundation developed were instrumental in educating much of the country about the ideas, aims, and goals of eugenics. These programs were a mixture of hard and soft hereditarianism that reflected Kellogg's own views about the necessary reforms to improve society.

This does not negate the fact that there was a general "hardening" of hereditarian ideas among eugenicists, particularly in the 1920s. In that decade, the Michigan Supreme Court accepted eugenicists' views that feeble-mindedness was an inherited trait and posed a threat to society. They adopted progressive notions of increased governmental intervention and a greater reliance on technical experts to form solutions to social problems and legal questions. These developments resulted in the decision in *Smith v. Wayne Probate Judge* that accepted the constitutionality of sterilization legislation. Yet, this was also precisely when geneticists started criticizing the simplistic ideas of "mainline" eugenicists such as Charles Davenport and Harry Laughlin. Anthropologists attacked the racist components of eugenics throughout the 1930s, which were further repudiated in the wake of inhumane Nazi policies.

These developments, however, did not culminate in the complete rejection of the eugenic ideology. As discussed in Chapters 5 and 6, eugenics survived, albeit in "mutated" forms, in the guise of medical genetics and population control. The prior dual concerns over the quality and the

quantity of the population among a heterogeneous group of professionals split into two groups. Individuals who explicitly supported eugenic goals developed various institutions starting in the 1940s to investigate ways to best address their concerns. For Lee Dice, this was the creation of the Heredity Clinic and the Institute of Human Biology to investigate further the hereditary nature of disease. While his immediate anxieties were about the genetics of mental illnesses, James Neel emphasized exploring the inheritance of physical disorders that were amenable to analysis with the more advanced techniques, technologies, and theories available at the time. Although he opposed eugenics, Neel's contributions to the genetics of hemoglobinopathies indirectly influenced genetic screening programs that, when initiated on an involuntary basis with minimal community participation, resulted in the targeting and discrimination of minorities based on allegedly "racial diseases." Due to fears of overpopulation, Neel also eventually argued in favor of limiting every couple to having only two children.

Eugenicists were always concerned with demography. In the first-third of the twentieth century, they worried about both the quality and the quantity of the population. Starting in the 1920s and extending into the 1940s, however, many ecologists, vital statisticians, and demographers who supported eugenic ideas emphasized the quantitative over qualitative aspects of eugenics. While there was significant blending between them, population control advocates can be separated into two broad categories: those who feared that population growth threatened the ecological balance of the global environment and those who stressed that population growth threatened economic development and political stability. Although they asked different questions and came from separate academic disciplines, they nevertheless supported the same political schemes to curb what they considered an imminent crisis: the limitation of fertility around the world to constrain population expansion.

The Taiwan family planning program that the Michigan Population Studies Center helped initiate and monitor was one of the few instances where supporters of population control could declare their policies a success. There were several reasons why the Taiwanese program worked where others did not, including easy access to medical facilities and personnel, a population that was already reducing its fertility rate, and population planners' initially offering contraceptive information and services to women who wanted it. In other countries, including the United States, population controllers focused on who they believed were the "problem" populations: poor and frequently minority women with more than two children. Although they did not argue for reproductive control from a genetic perspective, they nevertheless established connections between fertility and poverty that reinvigorated the racial and class biases of eugenicists suggested fifty years earlier. Their goal was always to reduce population numbers, not provide women safe ways to control their fertility. Like the eugenicists of previous generations, they connected social and economic issues of modernization to the regulation of reproduction. Both eugenicists and population planners offered technological solutions to fix these issues. Both groups justified their positions by claiming objective neutrality and technical expertise.

What has fundamentally changed in the past fifty years that will likely prevent eugenics from ever gaining as much popularity as it had in the first half of the twentieth century, is a different conceptualization of reproductive rights. As stated in the introduction, one of the shared beliefs of all eugenicists was the rejection of individual rights in favor of policies they perceived to be beneficial for the greater collective. Thus, eugenics flourished during the Progressive era, which repudiated the laissez-faire ideas of the Gilded Age and addressed social concerns by allowing the government to establish more control over individuals' lives. Their greatest success was in convincing the public that the control of people's reproduction was a valid exercise of government

intervention. Following the fight of second-wave feminists to gain autonomy over reproduction, however, most people now view couples' reproductive choices as individual matters. Some commentators have suggested that, rather than the return of state-administered coercive policies, the "new eugenics" will emerge from "the back door" of the private sector as a result of thousands of individuals choosing to undergo DNA testing, amniocentesis with abortion, and potentially germline editing.⁴⁴

This may indeed trigger a new eugenics, if we understand eugenics to be "the science of human improvement through better breeding."⁴⁵ However, according to the framework I have put forward, these developments would not necessarily be eugenic. We must remain vigilant about ensuring that individuals' reproductive choices are not obstructed. This includes providing couples with all the available information they need to make their own informed choices and ensuring this information is presented in a way that does not stigmatize disabilities, for an impingement on the right of reproductive autonomy would potentially be a first step towards a return of eugenics.⁴⁶ If that were to occur, the technologies currently available would lead to the formation of eugenic programs that even John Harvey Kellogg, Victor Vaughan, and Clarence Cook Little could only have dreamed of.

⁴⁴ John Entine, "DNA Screening Is Part of the New Eugenics—and That's Okay," *Genetic Literacy Project* (blog), July 8, 2013, <https://geneticliteracyproject.org/2013/07/08/dna-screening-is-part-of-the-new-eugenics-and-thats-okay/>; Troy Duster, *Backdoor to Eugenics* (New York: Routledge, 1990).

⁴⁵ Nathaniel Comfort, "Is Individuality the Savior of Eugenics?," *Scientific American Blog Network* (blog), August 23, 2013, <https://blogs.scientificamerican.com/guest-blog/is-individuality-the-savior-of-eugenics/>; The quote used by Comfort is from Charles Davenport's first book on eugenics. Davenport, *Eugenics*.

⁴⁶ Holtzman, "Eugenics and Genetic Testing," 407–9.

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ABSTRACT**A PROGRAM OF RACE BETTERMENT: THE EMERGECE AND EVOLUTION OF
EUGENIC IDEAS IN MICHIGAN**

by

BRANDEN MCEUEN**May 2022****Advisor:** Dr. William Lynch**Major:** History**Degree:** Doctor of Philosophy

Contemporary concerns with technologies like CRISPR and the proliferation of state laws restricting abortion have led people to wonder if we are witnessing a return of eugenics. I analyze the development and evolution of eugenic ideas and policies throughout the 20th century, using the state of Michigan as a frame of reference. In examining the eugenic theories and policies psychiatrists and physicians endorsed, I demonstrate that eugenics was a key component of preventive public medicine in the first two decades of the 20th century. I show how they educated the public on eugenics based on both environmentalist and hereditarian ideas and stressed that the suppression of individual rights to reproductive autonomy were necessary to improve the general welfare of society, an argument that influenced American jurists to endorse sterilization as a justifiable police power measure. I then reveal how these core principles remained embedded in both medical genetics and population control. Although medical geneticists shunned research on the inheritance of social behaviors, they remained committed to applying preventive genetic medicine for genetic physical and mental diseases and counseling individuals to not have children based on their genes. Population planners feared the catastrophic consequences of overpopulation and suppressed poor women's right to reproductive autonomy around the world to address what

they believed were crucial issues of resource depletion, economic development, and political stability during the Cold War. I conclude by looking at how eugenic ideas continue to suppress the reproductive rights of individuals while Michigan leaders have failed to adequately address the state's eugenic past. Although contemporary notions of individualism in relation to reproduction prevent a resurgence of eugenics like that in the first half of the 20th century, current attempts to restrict reproductive rights are a cause for concern, and addressing our eugenic past is crucial to ensuring these rights are not violated.

AUTOBIOGRAPHICAL STATEMENT

Branden McEuen obtained his Doctor of Philosophy of History in 2022 from Wayne State University after acquiring his Bachelor of Arts in History from Metropolitan State University in 2014. He is a historian of science who focuses on the history of eugenics as a way of understanding the role of science in society. He is interested in the links between quantification, objectivity, and how scientific claims of objectivity delegitimize other forms of knowledge in policymaking. He has taught a course on United States history since 1945 for four years at Wayne State, presented at the History of Science Society's Annual Conference, and presented at the first H-Eugenics Twitter Conference. He is a member of the History of Science Society, the Society for the History of Technology, and serves as a board member for the Canton, Michigan Historical Society. He lives in Canton, Michigan, with his wife Lindsey, his son Logan, and his two dogs Pepper and Dexter.