

TROPICAL DISEASE, NEO-LAMARCKISM, AND THE EARLY TWENTIETH CENTURY
CAMPAIGNS AGAINST HOOKWORM

Anne Morgan

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In 1902, the New York *Sun* announced that Charles Wardell Stiles had discovered the “germ of laziness” in the South. The culprit was hookworm, an intestinal parasite; the victims, poor Southern whites.¹ Stiles, according to the *Sun*, had determined that “its presence in succeeding generations had resulted in their inferior physical development and mental powers and is the cause of the proverbial laziness of the ‘cracker.’”² Poor whites were not naturally lazy; they were simply diseased, suffering from the effects of an unfavorable environment. The *Sun* article contributed to a growing body of literature dedicated to exonerating poor whites from the charge of permanent and unchanging hereditary degeneracy. Anxieties surrounding white degeneration help explain why the twentieth-century campaigns against hookworm depicted the poor white as the prototypical victim of hookworm disease and the main beneficiary of environmental reform.

Historians of American eugenics have tended to emphasize hereditarian reform, examining how eugenicists drew the line between genetically “fit” and “unfit.” According to this narrative, hereditarian eugenics predominated. Euthenics, on the other hand, “the science of controllable environment,” was marginal to the story of eugenics.³ In *Eugenics: Hereditarian Attitudes in American Thought*, published in 1963, Mark Haller stated that “eugenicists often asserted that eugenics and euthenics should work together for the betterment of man but often added that eugenics, because it resulted in a permanent improvement of the human race, was the

¹ Hookworm is common in regions where two factors are present: tropical or semi-tropical climates and poor sanitation. Infection usually occurs when a person’s skin comes into contact with soil contaminated by human feces. Symptoms of hookworm infection include anemia, fatigue, weight loss, and stunted growth. See Peter J. Hotez et al., “Hookworm Infection,” *New England Journal of Medicine* 351 (2004): 799-807.

² “Germ of Laziness Found? Disease of the Cracker and Some Nations Found,” *Sun*, December 5, 1902.

³ Ellen H. Richards, *Euthenics: The Science of Controllable Environment* (Boston: Whitcomb & Barrows, 1910), <https://archive.org/details/euthenicsscience00richrich/page/n3>.

fundamental reform.”⁴ Later historians have, for the most part, agreed with Haller’s interpretation, noting that “strict hereditarianism” characterized eugenics in the United States.⁵ The bulk of these historians’ writings have focused on the policies inspired by hereditarian eugenics, such as sterilization laws, as well as figures such as Charles Davenport and Harry H. Laughlin, vocal advocates of hereditarian reform.⁶

Kathy J. Cooke has persuasively argued that alternatives to hereditarianism, such as eugenics, have often been given cursory treatment in histories of American eugenics.⁷ As a result, historical accounts of the early twentieth-century campaigns against hookworm have largely overlooked the influence of neo-Lamarckian eugenics.⁸ Neo-Lamarckians, proponents of a theory of evolution associated with French naturalist Jean-Baptiste Lamarck, claimed that the

⁴ Mark Haller, *Eugenics: Hereditarian Attitudes in American Thought* (New Jersey: Rutgers University Press, 1963), 77.

⁵ Alexandra Minna Stern, *Eugenic Nation: Faults and Frontiers of Better Breeding in Modern America* (Berkeley: University of California Press, 2016), 16.

⁶ Pickens, *Eugenics and the Progressives*; Kenneth Ludmerer, *Genetics and American Society: A Historical Appraisal* (Baltimore: Johns Hopkins University Press, 1972); Daniel J. Kevles, *In the Name of Eugenics: Genetics and the Uses of Human Heredity* (New York: Alfred A. Knopf, 1985); William H. Tucker, *The Science and Politics of Racial Research* (Urbana: University of Illinois Press, 1994); Edward J. Larson, *Sex, Race, and Science: Eugenics in the Deep South* (Baltimore: Johns Hopkins University Press, 1995).

⁷ 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): 263.

⁸ For example, John Ettling focused on the influence of Protestant evangelicalism on members of the Rockefeller Sanitary Commission, which led hookworm eradication efforts in the South. Matt Wray described environmental reformers’ defense of poor whites, but did not distinguish between neo-Lamarckian and Mendelian or hereditarian eugenics. Natalie J. Ring and Nicole Trujillo-Pagan briefly mentioned reformers’ commitment to neo-Lamarckism in the Southern and Puerto Rican campaigns, respectively. Jose Amador’s analysis of the Puerto Rican campaign did not include discussion of eugenics’ influence on the campaign. John Ettling, *The Germ of Laziness: Rockefeller Philanthropy and Public Health in the New South* (Cambridge: Harvard University Press, 2000), 222-223; Matt Wray, *Not Quite White: White Trash and the Boundaries of Whiteness* (Durham, North Carolina: Duke University Press, 2006); Natalie J. Ring, *The Problem South: Region, Empire, and the New Liberal State, 1880-1930* (Athens: University of Georgia Press, 2012), 91; Nicole Trujillo-Pagan, *Modern Colonization by Medical Intervention: U. S. Medicine in Puerto Rico* (Boston: Brill, 2013); Jose Amador, “The Pursuit of Health: Colonialism and Hookworm Eradication in Puerto Rico,” in *Medicine and Nation-Building in the Americas, 1890-1940* (Nashville: Vanderbilt University Press, 2015).

inheritance of acquired characteristics was a major mechanism of evolution, allowing organisms to change in response to their environment and then pass on those changes to successive generations.⁹

Historians have also portrayed neo-Lamarckism in the United States as a largely nineteenth-century phenomenon, limited in its scope and longevity.¹⁰ For example, Alexandra Minna Stern has stated that, after the first decade of the twentieth century, support for neo-Lamarckism declined sharply; the outbreak of World War I marked the ascendancy of strict hereditarianism.¹¹ However, during the early twentieth-century hookworm campaigns in Puerto Rico and the U.S. South, progressives and public health advocates continued to support neo-Lamarckian schemes for racial improvement.

Accordingly, this essay makes two main assertions. First, neo-Lamarckism was more prevalent in the early twentieth-century United States than historians have generally recognized. Second, neo-Lamarckian eugenics influenced the twentieth-century hookworm campaigns; proponents viewed environmental reform as a way to achieve racial improvement or avoid racial degeneration. Although strict hereditarianism gained in popularity during the twentieth century, the campaigns against hookworm in Puerto Rico and the Southern states demonstrated that neo-Lamarckism, linked to progressive reform, retained a significant degree of support during the

⁹ Peter J. Bowler, *Evolution: The History of an Idea* (Berkeley: University of California Press, 2009), 236-237. See also Peter J. Bowler, *The Eclipse of Darwinism: Anti-Darwinian Evolution Theories in the Decades Around 1900* (Baltimore: Johns Hopkins University Press, 1983).

¹⁰ By comparison, much of the literature on twentieth-century neo-Lamarckism centers on European and Latin American countries. In France and Brazil, for example, neo-Lamarckism was well-established and maintained a significant degree of support well into the twentieth century. See William H. Schneider, "The Eugenics Movement in France, 1890-1940," in *The Wellborn Science: Eugenics in Germany, France, Brazil, and Russia*, ed. Mark B. Adams (Oxford: Oxford University Press, 1990), 72-73; Nancy Leys Stepan, *The Hour of Eugenics: Race, Gender, and Nation in Latin America* (Ithaca, N.Y.: Cornell University Press, 1996).

¹¹ Stern, *Eugenic Nation*, 16.

first two decades of the twentieth century. Neo-Lamarckian ideas shaped the hookworm campaigns in Puerto Rico and the Southern states, especially the idea of degeneration; however, reformers and public health advocates remained optimistic, arguing that rural whites' degeneration could be reversed by instituting the proper medical and sanitary reforms.

Eugenics and Environmental Reform

Early twentieth-century environmental reform was rooted in the late nineteenth-century ideological conflict between neo-Darwinism and neo-Lamarckism. In the last half of the nineteenth century, the revival of Lamarckism was dubbed "neo-Lamarckism."¹² In the 1880s, August Weismann formulated his germ plasm theory, which held that the transmission of hereditary material, or germ plasm, was the only way in which inheritance could take place. Weismann's "neo-Darwinism" repudiated Lamarckian inheritance.¹³ The rediscovery of Gregor Mendel's laws of heredity in 1900 further discredited neo-Lamarckism.¹⁴ Mendel's laws described the mechanistic inheritance of genes via sexual reproduction, a model of heredity embraced by strict hereditarians in the early twentieth century.

Despite growing support for Mendelian inheritance, progressive reformers, in particular, were attracted to neo-Lamarckism because the theory held out the prospect of achieving concrete reform: curing social ills by modifying or improving the environment.¹⁵ Peter J. Bowler has

¹² Bowler, *Evolution*, 236.

¹³ Bowler, *Evolution*, 251.

¹⁴ Bowler, *Evolution*, 265-266.

¹⁵ For analyses of progressivism's ties to eugenics, see Donald K. Pickens, *Eugenics and the Progressives* (Nashville: Vanderbilt University Press, 1968); Michael Freeden, "Eugenics and Progressive Thought: A Study in Ideological Affinity," *Historical Journal* 22, no. 3 (1979): 645-71; Diane Paul, "Eugenics and the Left," *Journal of the History of Ideas* 45, no. 4 (1984): 567-90. For an account of nineteenth century progressives' neo-Lamarckism,

remarked that neo-Lamarckism was “emotionally compelling” because it rejected Darwinism’s genetic determinism and allowed for individual agency.¹⁶ The association between progressivism and neo-Lamarckism endured beyond the nineteenth century.

Progressives proposed environmental reforms within this context of eugenics and environmental reform. Environmental reformers maintained that medical and sanitary reforms could help avoid racial degeneration or achieve the goal of racial improvement. For example, Irving Fisher’s 1909 *Report on National Vitality, Its Wastes and Conservation* recommended the adoption of a range of hygienic measures in order to forestall racial deterioration.¹⁷ Likewise, Ellen Richards compared eugenics, “race improvement through heredity,” to eugenics, “race improvement through environment.”¹⁸ According to Richards, eugenics was the natural ally of eugenics because both contributed to racial improvement, but the benefits accruing from eugenics were more immediate.¹⁹ If poor whites’ environment could be altered---if hookworm was both preventable and curable---then reformers had good reason to be optimistic about poor whites’ prognosis.

This optimistic outlook differed markedly from hereditarian eugenicists’ pessimistic assessment of poor whites. “Family studies” of poor whites, published in the United States beginning in the late nineteenth century and extending into the twentieth, often emphasized poor

consult Daniel E. Bender, “Perils of Degeneration: Reform, the Savage Immigrant, and the Survival of the Unfit,” *Journal of Social History* 42, no. 1 (2008): 5-29.

¹⁶ Bowler, *Evolution*, 367.

¹⁷ Irving Fisher, *Bulletin of the Committee of One Hundred on National Health: Being a Report on National Vitality, Its Wastes and Conservation* (Washington: Government Printing Office, 1909), 126-129, <https://archive.org/details/cu31924003981374/page/n3>.

¹⁸ Richards, *Eugenics*, viii.

¹⁹ Richards, *Eugenics*, 3.

whites' inferior heredity.²⁰ However, Richard Dugdale, in his 1877 study *The Jukes*, admitted that environmental influences might contribute to poor whites' degraded condition. Dugdale commented on the Jukes' poverty, criminality, and susceptibility to disease.²¹ Nonetheless, he argued, first, that "the tendency of heredity is to produce an environment which perpetuates that heredity"; second, that "environment tends to produce habits which may become hereditary."²² These statements allowed environmental reformers to insist, along with Dugdale, that "the correction is change of environment."²³ Environmental reform would prevent the future inheritance of defects and ameliorate those that had already been inherited. Heredity was not necessarily destiny, at least for poor whites.

Dugdale's study relied on the trope of degeneration to describe poor whites, a locus of anxiety for eugenicists concerned with maintaining racial boundary lines.²⁴ Degeneration theory held that certain populations were subject to decline, especially when conditioned by unfavorable environments. According to Nancy Stepan, nineteenth-century scientists defined degeneration as "decay within the limits set by racial type."²⁵ Certain geographical areas were associated with

²⁰ Nicole Hahn Rafter, *White Trash: The Eugenic Family Studies, 1877-1919* (Boston: Northeastern University Press, 1988), 1.

²¹ Richard Dugdale, *"The Jukes": A Study in Crime, Pauperism, Disease and Heredity; Also Further Studies of Criminals* (New York: G. P. Putnam's Sons, 1877), <https://babel.hathitrust.org/cgi/pt?id=hvd.32044037748365;view=1up;seq=1>.

²² Dugdale, *Jukes*, 65-66.

²³ Dugdale, *Jukes*, 65.

²⁴ For example: Irving Fisher, "The Menace of Racial Deterioration," *Journal of the National Institute of Social Sciences* 1, no. 1 (1915): 37. The concept of "racial poisons" was closely related to neo-Lamarckian eugenics; see J. Ernest Lane, "Racial Poisons: I. Venereal Disease," *Eugenics Review* 1, no. 4 (1910): 254-264; C. W. Saleeby, "Racial Poisons: II. Alcohol," *Eugenics Review* 2, no. 1 (1910): 30-52.

²⁵ Nancy Stepan, "Biological Degeneration: Races and Proper Places," in *Degeneration: The Dark Side of Progress*, edited by J. Edward Chamberlin and Sander L. Gilman (New York: Columbia University Press, 1985), 98.

each racial type; if removed from their “proper places,” these types would become vulnerable to degeneration.²⁶ In 1915, Ellsworth Huntington published *Civilization and Climate*, arguing that rural whites degenerated in tropical climates. The “enervating effect[s]” of these climates led to the creation of a degraded poor white class.²⁷ Whites were more susceptible to tropical diseases such as hookworm, placing them at a distinct disadvantage in the struggle for existence.²⁸

During the early twentieth century, progressive reformers and public health advocates provided a broad base of support for environmental reform. The intellectual climate during this period was amenable to neo-Lamarckian eugenics. This allowed reformers in both the U.S. South and Puerto Rico to argue that poor whites could, in fact, be rehabilitated, cured of their disease and transformed into productive workers and citizens.

Reformers believed that curing poor whites of hookworm would halt the progress of racial degeneration and even reverse its effects. According to Matt Wray, reformers suggested that treating poor Southern whites for hookworm disease initiated a process of whitening, in which poor whites were able to approach an ideal, fuller whiteness.²⁹ Similarly, Nicole Trujillo-Pagan argued that the Puerto Rican hookworm campaign represented “a method to whiten the Puerto Rican population.”³⁰ In late nineteenth-century Puerto Rico, liberal intellectuals such as Francisco del Valle Atilas conceived of the gradual whitening of the island’s population, placing

²⁶ Stepan, “Biological Degeneration,” 99.

²⁷ Ellsworth Huntington, *Civilization and Climate* (New Haven: Yale University Press, 1915), 33.
<https://archive.org/details/civilizationand01huntgoog>.

²⁸ Huntington, *Civilization and Climate*, 37.

²⁹ Wray, *Not Quite*, 122.

³⁰ Trujillo-Pagan, *Modern Colonization*, 174.

particular emphasis on the “purer” whiteness of the *jibaro*, or highland peasant.³¹ The white *jibaro*, like the “cracker,” was the prototypical hookworm victim, as well as a symbol of racial progress.

Hookworm in Puerto Rico: The Jibaros

Colonel Bailey Ashford discovered hookworm in Puerto Rico in 1899. Ashford was an army physician who had accompanied U.S. troops during the invasion and occupation of Puerto Rico. In 1904, the governor of Puerto Rico, William H. Hunt, allocated funds for the creation of the Puerto Rico Anemia Commission. Ashford, Pedro Gutierrez Igaravidez, and W. W. King, all physicians, were its members. The Anemia Commission operated from 1904 to 1905; between 1905 and 1909, the campaign moved under the direction of the Anemia Dispensary Service of the Department of Health, Charities, and Corrections.³²

The Anemia Commission’s official reports took pains to establish the *jibaros*’ whiteness. The commission conceded that many Puerto Ricans were not one hundred percent white.³³ Nonetheless, the commission judged that most of the *jibaros*, direct descendants of the Spanish, “should be considered white,” and as a result, most of the patients examined by the commission were classified as white.³⁴ The *jibaros*, as a distinct racial group, were also associated with a particular geographic area. The commission cited de Valle Atilas, who argued that the *jibaros*

³¹ Ileana M. Rodriguez-Silva, *Silencing Race: Disentangling Blackness, Colonialism, and National Identities in Puerto Rico* (New York: Palgrave Macmillan, 2012), 84.

³² Amador, *Medicine*, 75.

³³ Bailey K. Ashford and Pedro Gutierrez Igaravidez, *Uncinariasis (Hookworm Disease) in Porto Rico: A Medical and an Economic Problem* (Washington: Government Printing Office, 1911), 8, <https://babel.hathitrust.org/cgi/pt?id=coo1.ark:/13960/t55d9cg9f;view=1up;seq=1>.

³⁴ Ashford and Igaravidez, *Uncinariasis*, 8.

“took naturally to the mountains,” while blacks preferred the coasts.³⁵ The Anemia Commission also cited de Valle Atilas regarding the jibaros’ whiteness and inherent susceptibility to anemia.³⁶ In both de Valle Atilas’ writings and the commission’s reports, the type of “el palido,” the pale one, held multiple meanings.³⁷ Pale skin denoted race as well as anemia.

The commission referred to the jibaros as “innocent victims” of hookworm disease, emphasizing their racial heritage and environmental conditioning.³⁸ The commission drew particular attention to the jibaros’ Spanish stock:

We can not believe that vicious idleness comes natural to the Spanish colonist, even in the Tropics, for the very reason that we have seen these descendants at their very worst, after the neglect of four centuries of their mother country, and after the laborious increase of an anemic population in the face of a deadly disease, whose nature was neither known nor studied, work from sunrise to sunset and seek medical attention, not because they felt sick, but because they could no longer work.³⁹

The jibaros, then, did not deserve to be blamed for their condition; it was the result of an inherent susceptibility to the disease.⁴⁰ In order to further establish the jibaros’ status as victims, the commission compared them to poor Southern whites, who were similarly conditioned by an unfavorable environment and whose plight was gaining more publicity. Ashford and Igaravidez asked:

Is it “laziness” or disease that is this very day attracting the attention of the United States to the descendant of the pure-blooded English stock in the Southern Appalachian Range, in the mountains of Carolina and Tennessee, the section of our country where the greatest

³⁵ Ashford and Igaravidez, *Uncinariasis*, 8.

³⁶ Ashford and Igaravidez, *Uncinariasis*, 23.

³⁷ Ashford and Igaravidez, *Uncinariasis*, 11.

³⁸ Ashford and Igaravidez, *Uncinariasis*, 6.

³⁹ Ashford and Igaravidez, *Uncinariasis*, 7.

⁴⁰ Bailey K. Ashford, Pedro Gutierrez Igaravidez, and W. W. King, *Report of the Commission for the Study and Treatment of “Anemia” in Porto Rico* (San Juan: Bureau of Printing and Supplies, 1904), 54-55.

predominance of “pure American blood” occurs, despised by the Negro who calls him “po white trash?”⁴¹

The indignant tone of these passages revealed the Anemia Commission’s dedication to rehabilitating the image of the jibaro.

In fact, the jibaros’ advocates believed that curing the jibaros of hookworm disease would not only combat stereotypes, but also save them from extinction. Members of the Anemia Commission viewed hookworm as an existential threat to the jibaros. Unless the progress of the disease was halted, hookworm would “*continue to reduce the white and mixed inhabitants forming the country class of the island, to a lower and lower grade, mentally, morally, and physically, until the very existence of the class will be threatened.*”⁴² This degenerationist rhetoric highlighted the jibaros’ helplessness in the face of hookworm disease, which the commission blamed for the island’s high mortality rate.⁴³ Hookworm caused “the white and mixed inhabitants” to die in such great numbers because they lacked blacks’ relative immunity. The deaths, as well as the island’s productivity losses, provided a strong incentive for U.S. intervention, as William Howard Taft pointed out.⁴⁴ A newspaper article in the *New York Herald* depicted the disease as a potentially fatal affliction. “Puerto Rico Ravaged by Disease that Threatens to Annihilate Natives,” read the headline; “It is a Hookworm That Robs Inhabitants of

⁴¹ Ashford and Igaravidez, *Uncinariasis*, 7.

⁴² Ashford, Igaravidez, and King, *Report of the Commission*, 88. Authors’ emphasis.

⁴³ Ashford, Igaravidez, and King, *Report of the Commission*, 88.

⁴⁴ William H. Taft, “Some Recent Instances of National Altruism: The Efforts of the United States to Aid the People of Cuba, Puerto Rico, and the Philippines,” *National Geographic Magazine* 18, no. 7 (1907): 433.

Their Vitality.”⁴⁵ These statements added a sense of urgency to the Anemia Commission’s efforts.

The term “vitality” recurs throughout the sources on hookworm in Puerto Rico and the U.S. South, in addition to Fisher’s 1909 *Report on National Vitality*.⁴⁶ In Fisher’s usage, the term acquired the meaning of “racial health.” Loss of vitality was associated with physical deterioration and, eventually, death.

More optimistically, commentators described the almost immediate restoration of the jibaros’ vitality after treatment. Adam C. Haeselbarth recounted the story of one Puerto Rican man, close to death due to the effects of hookworm disease: one week after treatment, “the man was, practically, thoroughly restored to health.”⁴⁷ Haeselbarth predicted that the eradication of hookworm would improve both the jibaros’ health and productivity, increasing the island’s profits.⁴⁸ According to Alton G. Grinnell, the physical changes brought about by treatment paralleled a process of Americanization. His health restored, the Puerto Rican “has good red blood coursing through his veins...he is a staunch American.”⁴⁹

Treatment brought about the jibaros’ mental regeneration as well. The commission noted: “Over all the varied symptoms with which the unfortunate jibaro, infected by uncinaria, is

⁴⁵ L. L. Seaman, “Puerto Rico Ravaged by Disease that Threatens to Annihilate Natives,” *New York Herald*, December 31, 1904.

⁴⁶ For example: Ashford and Igaravidez, *Uncinariasis*, 23 (quoting de Valle Atilas), 225; Rockefeller Sanitary Commission, *Organization*, 13, 18; Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, *Third Annual Report* (Washington, D.C.: Office of the Commission, 1912), 19.

⁴⁷ Adam C. Haeselbarth, “The Porto Rican Government’s Fight with Anemia,” *American Monthly Review of Reviews* 30 (1904): 57.

⁴⁸ Haeselbarth, “Fight with Anemia,” 59.

⁴⁹ Alton G. Grinnell, “The Physical Emancipation of Porto Rico,” *American Review of Reviews* 50, no. 6 (December 1914): 719.

plagued, hangs the pall of a drowsy intellect, of a mind which has received a stunning blow.”⁵⁰ Typical adjectives used by the commission to describe the facial expressions of infected jibaros included “passive,” “apathetic,” “stupid,” “placid,” and “listless.”⁵¹ In other words, the jibaros appeared, at least to outside observers, to have degenerated mentally. But the jibaros were not naturally degenerate; their symptoms of mental degeneracy were acquired from disease. “This is the mental state,” the commission wrote, “of the man whom many an unjust foreigner labels lazy, lacking in initiative, stupid, degenerate, etc.”⁵²

The hookworm campaign in the U.S. South shared a number of similarities with the campaign in Puerto Rico. Reformers and public health advocates highlighted the African origins of hookworm, contrasting blacks’ immunity and whites’ susceptibility to the disease. Both campaigns selected poor whites as the main beneficiaries of environmental reform, emphasizing their European heritage and status as victims. Finally, in both Puerto Rico and the U.S. South, reformers disavowed hereditarianism and endorsed neo-Lamarckian eugenics. They assumed that poor whites were vulnerable to racial degeneration; that hookworm was the cause of their degeneration; and that treatment would reverse its effects.

Rehabilitating Southern Poor Whites

In 1902, Charles Wardell Stiles announced his discovery of a new species of hookworm at the Pan-American Sanitary Conference.⁵³ Stiles’ discovery initiated a crusade against

⁵⁰ Ashford and Igaravidez, *Uncinariasis*, 89.

⁵¹ Ashford and Igaravidez, *Uncinariasis*, 90.

⁵² Ashford and Igaravidez, *Uncinariasis*, 92.

⁵³ “Germ of Laziness,” *Sun*, December 5, 1902.

hookworm in the U.S. South, culminating in the creation of the Rockefeller Sanitary Commission, which operated from 1909 to 1915. The origins of the Rockefeller Sanitary Commission can be traced back to Theodore Roosevelt's Country Life Commission, established in 1908. The Country Life Commission was tasked with investigating living conditions in rural areas of the U.S., as part of a broader movement centered on enacting progressive reforms in the countryside.

The country life movement reflected Progressive Era intersections between public health and eugenics. Participants in the movement framed its mission in eugenic terms, promoting what Barbara A. Kimmelman called a "programme of racial revitalization" in rural areas.⁵⁴ In its 1909 report, the commission noted that recurrent outbreaks of disease, the result of poor sanitation, "hold several million country people in the slavery of continuous ill health."⁵⁵ The commission was concerned with protecting and nourishing "a new and permanent rural civilization," comprised of strong, healthy individuals with "fresh blood, clean bodies, and clear brains."⁵⁶

The Country Life Commission brought together two key figures in the creation of the Rockefeller Sanitary Commission: Walter Hines Page, a member of the Country Life Commission, and Stiles, who was serving as a medical attaché.⁵⁷ After meeting Stiles, Page helped him obtain a million dollar grant from John D. Rockefeller, Sr., for a coordinated

⁵⁴ Barbara A. Kimmelman, "The American Breeders' Association: Genetics and Eugenics in an Agricultural Context, 1903-13," *Social Studies of Science* 13, no. 2 (1983), 186.

⁵⁵ Country Life Commission, *Report of the Country Life Commission* (Washington: Government Printing Office, 1909), 7, <https://babel.hathitrust.org/cgi/pt?id=coo1.ark:/13960/t8pc3jx2t;view=1up;seq=5>.

⁵⁶ Country Life Commission, *Report*, 20.

⁵⁷ Charles Wardell Stiles, "Early History, in Part Esoteric, of the Hookworm (Uncinariasis) Campaign in Our Southern United States," *Journal of Parasitology* 25, no. 4 (1939): 300; Charles Grier Sellers, "Walter Hines Page and the Spirit of the New South," *North Carolina Historical Review* 29, no. 4 (1952): 496.

campaign of disease eradication in the South.⁵⁸ Subsequently, Page became a member of the newly created Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, while Stiles acquired the title of scientific secretary.⁵⁹

The Rockefeller Sanitary Commission's second annual report gives an indication of how neo-Lamarckian ideas influenced members of the commission. Subsection (d) of the commission's brief "survey of foreign countries," titled "retarding effect on education and civilization," delineated the intergenerational effects of hookworm.⁶⁰ Hookworm, the commission concluded, caused racial degeneration: "[Hookworm] works subtly through long periods of time, and its cumulative results---physical, intellectual, economic, and moral---are handed down as an increasing handicap from generation to generation."⁶¹ According to the report, one poor white family had suffered four generations of illiteracy due to the effects of the disease.⁶² The commission observed that the inhabitants of Egypt, India, China, and other countries were subject to a similar "cumulative handicap," which had hindered the development of "civilization" in those areas; however, poor whites were the main focus of the commission and its supporters.⁶³

⁵⁸ Sellers, "Walter Hines Page," 496-497.

⁵⁹ Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, *Organization, Activities, and Results up to December 31, 1910* (Washington, D.C.: Office of the Commission, 1910), 2.

⁶⁰ Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, *Second Annual Report* (Washington, D.C.: Office of the Commission, 1911), 15.

⁶¹ Rockefeller Sanitary Commission, *Second Annual Report*, 15.

⁶² Rockefeller Sanitary Commission, *Second Annual Report*, 15.

⁶³ Rockefeller Sanitary Commission, *Second Annual Report*, 15.

Commenting on the commission's work, scientists and physicians described hookworm's contribution to racial degeneration. Stiles wrote that the "poison" secreted by hookworm resulted in "a lowered mentality, a lowered vitality, and increased mortality."⁶⁴ C. C. Bass noted that hookworm caused "lowered vitality, impaired mental and physical development resulting in reduced production in every line of endeavor, and actually in retardation of civilization."⁶⁵ "One must wonder," Bass wrote,

what stage of advancement and civilization man would have reached by this date had not this veritable monster interfered with the mental and physical development of every generation during the developing and learning period of life. And even now man is pouring daily into the ever empty stomachs of this blood-sucking parasite a veritable river of his lifeblood.⁶⁶

Likewise, C. M. Fauntleroy stated that "hookworm disease bequeaths a pernicious legacy to the infected communities, its work being done in a subtle, insidious manner, weakening the race generation after generation, always tending to produce a condition of physical, intellectual, economic and moral degeneracy."⁶⁷

However, Wickliffe Rose, administrative secretary of the commission, believed that poor whites could be saved from the worst effects of this degeneration.⁶⁸ Rose's language closely resembled the language used to describe the Jukes and other poor white families in the eugenic family studies:

⁶⁴ Charles Wardell Stiles, "Soil Pollution and Hookworm Disease in the South: Their Result and Their Prevention," *Mobile Medical and Surgical Journal* 12 (1908): 194-195.

⁶⁵ C. C. Bass, "Hookworm Disease: A World Disease of Long Duration," *American Journal of Tropical Diseases and Preventive Medicine* 1, no. 10 (1914): 670.

⁶⁶ Bass, "Hookworm Disease," 671.

⁶⁷ C. M. Fauntleroy, "Ankylostomiasis (Or Hookworm Disease)," *American Journal of Tropical Diseases and Preventive Medicine* 1, no. 10 (1914): 698-699, 700.

⁶⁸ Rockefeller Sanitary Commission, *Organization*, 2.

The community has been islanded and this isolation has been both cause and effect in accentuating the cumulative results---physical, intellectual, economic, and moral---which have been handed down from one generation to the next...there has been a lowering of physical vitality; this in turn has brought a lowering of mental vitality; the struggle for existence has grown more hard and hopeless; one result has been a deadening of the moral sense and a loss of self-respect, which shows itself in the moral tone of the community. The result has been an almost complete abandonment of the ordinary decencies of life.⁶⁹

Despite this grim assessment, Rose ended his letter on a hopeful note, envisioning “a new people and a new earth” as a result of the Rockefeller Sanitary Commission’s work.⁷⁰ Clearly, he did not believe that poor whites’ case was hopeless.

Like Rose, other proponents of environmental reform used the language of eugenics, a highly racialized language which emphasized hookworm victims’ physical anomalies and inherited defects. Writing in *McClure’s Magazine*, Marion Hamilton Carter labelled poor whites suffering from hookworm “a Great Abnormal Race of the South.”⁷¹ Carter described hookworm victims as

feeble, slow-moving creatures, most of them, some emaciated, some bloated with dropsy, you recognize them at once by their lusterless eye and a peculiar pallor---‘the Florida complexion’; their skin is like tallow, and you seem to be looking through a semi-transparent upper layer into an ashy or saffron layer beneath it. If you speak to one of these saffron-hued natives, especially to one of the children, you are generally met by a very curious, fish-eyed stare without a gleam of intelligence back of it, and you wait before you get a reply. The reply, when it does come, is very likely a repetition of your own words, and you go off saying ‘Stupid!’ to yourself.⁷²

⁶⁹ Rockefeller Sanitary Commission, *Second Annual Report*, 125-126.

⁷⁰ Rockefeller Sanitary Commission, *Second Annual Report*, 126.

⁷¹ Marion Hamilton Carter, “The Vampire of the South,” *McClure’s Magazine* 33 (1909): 617.

⁷² Carter, “Vampire of the South,” 617.

Carter employed well-worn stereotypes of Southern poor whites' racial distinctness. But she also determined that treating the sick would restore them to health and efficiency.⁷³

Louis Brownlow, writing in the vein of Dugdale and other authors of poor white family studies, described several case studies of poor white families suffering from hookworm, such as the Langford "tribe."⁷⁴ Hookworm was responsible for the deaths of several of the Langfords' children, "the blood blanching and thinning in their veins" as a result of the infection.⁷⁵ The disease had destroyed the family's health as well as its reputation---soon their name, like the Jukes, became synonymous with the phrase "white trash."⁷⁶ It was a "curse," a "slow, blood-sapping disease."⁷⁷ Like Carter's article, Brownlow's included large photographs of sick poor whites. Readers could note their pronounced emaciation, stunted growth, and listless stares.

Still, Brownlow's account was sympathetic, avoiding strict hereditarian explanations for poor whites' degeneracy and remaining open to the possibility of poor whites' regeneration. Even the poor white victims of hookworm disease recognized that the disease they suffered from was not a reflection of their true character: "Jim Langford knew that he had not been born lazy."⁷⁸ Brownlow's article illustrated how poor white families had been lifted up from degeneracy to a state of industry and ambition after treatment. The eleven members of the

⁷³ Carter, "Vampire of the South," 618.

⁷⁴ Louis Brownlow, "The Passing of the 'Po White Trash': The Rockefeller Sanitary Commission's Successful Fight Against Hookworm Disease," *Hampton-Columbian Magazine* 27 (November 1, 1911): 635.

⁷⁵ Brownlow, "Passing," 635.

⁷⁶ Brownlow, "Passing," 636.

⁷⁷ Brownlow, "Passing," 636.

⁷⁸ Brownlow, "Passing," 635.

Langford family were “on the upward grade.”⁷⁹ Brownlow concluded that poor whites’ degeneration was not necessarily permanent.

Carter, Brownlow, and other progressives rejected hereditarian eugenicists’ argument that poor whites’ degeneracy was permanent and unchanging. Instead, they insisted, like Walter Hines Page, that poor whites were degenerate “not by any necessity of heredity or by any wilful defect of character, but because they are sick.”⁸⁰ H. Edwin Lewis, writing in *American Medicine*, claimed that hookworm disease was “a removable cause of our own racial deterioration.”⁸¹ The key word was “removable.”

The “saffron-hued natives” of the South seemed foreign, backwards, but reformers held out hope for their “reclamation.”⁸² As Natalie J. Ring has observed, narratives of Southern regional distinctiveness depicted the tropical South as peripheral and in need of reintegration with the national “core,” akin to colonized nations in the Caribbean and other tropical regions of the world.⁸³ In Alan J. Marcus’s words, poor whites were “the South’s native foreigners.”⁸⁴ Curing poor whites suffering from hookworm disease would make them less foreign and more recognizably American, dispelling fears of continually increasing white degeneration.⁸⁵

⁷⁹ Brownlow, “Passing,” 639.

⁸⁰ Walter Hines Page, “The Hookworm and Civilization,” *World’s Work* 24 (September 1912): 509-510.

⁸¹ H. Edwin. Lewis, “The Prevalence of Uncinariasis in America,” *American Medicine* 15 (1909): 497.

⁸² Page, “Hookworm,” 504.

⁸³ Ring, *Problem South*, 60.

⁸⁴ Alan I. Marcus, “The South’s Native Foreigners: Hookworm as a Factor in Southern Distinctiveness,” in *Disease and Distinctiveness in the American South*, edited by Tom L. Savitt and James Harvey Young (Knoxville: University of Tennessee Press, 1988), 79-99; “Physicians Open a Can of Worms: American Nationality and Hookworm in the United States, 1893-1909,” *American Studies* 30, no. 2 (1989): 103-21.

⁸⁵ Wray, *Not Quite*, 121.

In order to establish that poor whites were worthy of “reclamation,” reformers drew attention to their racial pedigree. Frances Maule Bjorkman noted that poor Southern whites were descended from “pure Anglo-Saxon stock.”⁸⁶ Page stressed that “the Southern white people are of almost pure English stock. It has been hard to understand their backwardness, for they are descended from capable ancestors and inherit a rich land.”⁸⁷ The *Sun* provided an explanation for this “backwardness.” The paper reported that “the strongest man made to live under conditions approximating those, under which the average ‘cracker’ abides would, Dr. Stiles said, soon contract the disease and in a short time reach the same condition of physical and moral stagnation as the poor whites themselves.”⁸⁸ According to Bjorkman, poor whites “had for generations been carrying on a truly heroic struggle that must have conquered a race of athletes.”⁸⁹ Such statements were, in a sense, reassuring, reaffirming whites’ perception of their own racial superiority.

Reformers also emphasized the foreign origins of the disease. According to Carter, blacks were responsible for the depredations of hookworm, since infected slaves had brought the parasite with them to the United States. “It is an imported disease,” she wrote, “and its ‘import tax’ has been literally paid in blood---pure Anglo-Saxon blood.”⁹⁰ Like Carter, Charles T. Nesbitt blamed “alien races,” such as blacks, for the “physical deterioration” of poor whites.⁹¹

⁸⁶ Francis Maule Bjorkman, “The Cure for Two Million Sick,” *World’s Work* 18 (May 1909): 11607.

⁸⁷ Page, “Hookworm and Civilization,” 509.

⁸⁸ “Germ of Laziness,” *Sun*, December 5, 1902.

⁸⁹ Bjorkman, “Two Million Sick,” 11608.

⁹⁰ Carter, “Vampire of the South,” 631.

⁹¹ Charles T. Nesbitt, “The Health Menace of Alien Races,” *World’s Work* 27, no. 1 (November 1913): 74-75.

And reiterating the theme of what Wray termed “interracial pollution,” Stiles blamed blacks for publicly defecating more often than whites.⁹² As a result of blacks’ poor sanitation and poor whites’ inherent susceptibility to tropical diseases, Stiles claimed, “the white race in the South is living under a hygienic handicap which is not paralleled in any other part of the country.”⁹³

In this way, Stiles cast the poor white as a victim. Poor whites, he added, were also underserved by reformers, who focused their attention on other marginalized groups:

What is the country doing for the elevation of the poorer whites of the rural districts of the South?...We have excellent schools and colleges for the whites of the middle and upper classes; we have numerous schools and colleges for the education of the negro; the Indian is the ward of the Government; but just what movement is there directed especially to the elevation of any considerable number of the ‘crackers’ and ‘barrenites’?”⁹⁴

Stiles concluded his impassioned defense of poor whites by condemning those who refused to take their plight seriously. All too often, they were made the butt of jokes, unfairly maligned for their laziness and ignorance.⁹⁵

A form of distinctly neo-Lamarckian eugenics characterized the hookworm campaigns in Puerto Rico and the U.S. South. Progressive reformers and public health advocates in Puerto Rico and the U.S. South used a variety of strategies to portray poor whites as the ideal recipients of environmental reform. Reformers tended to scapegoat non-whites, especially blacks. They also emphasized poor whites’ European heritage and suggested that they could become “whiter”

⁹² Wray, *Not Quite White*, 124.

⁹³ Stiles, “Soil Pollution,” 198-199.

⁹⁴ Stiles, “Soil Pollution,” 199.

⁹⁵ Stiles, “Soil Pollution,” 203.

or more “American” by receiving treatment for hookworm disease. These strategies served to combat hereditarian eugenicists’ pessimism about poor whites’ degeneration.

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