



**Southern Maladies: Politics and Public Health in the Pre-Civil Rights South,
1902-1950.**

by Daniel Davis Sledge

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SOUTHERN MALADIES: POLITICS AND PUBLIC HEALTH IN THE PRE-CIVIL
RIGHTS SOUTH, 1902-1950.

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SOUTHERN MALADIES: POLITICS AND PUBLIC HEALTH IN THE PRE-CIVIL
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This dissertation explores the development of systems of public health in the American South. It argues that debilitating diseases, including hookworm, pellagra, and malaria, played an important role in southern economic underdevelopment at the beginning of the twentieth century. Between 1930 and 1930, however, a workable system of public health, based on cooperation between the federal government, private philanthropy, emerged in the southern United States. Initially spurred by war, federal intervention was continued as a result of bureaucratic entrepreneurship. In 1935, the system of federal-state-county cooperation developed in the South was nationalized as Title VI of the Social Security Act, providing the framework for our contemporary system of public health. By the end of World War II, hookworm, pellagra, and malaria had largely been eliminated in the southern United States. This dissertation argues that public health workers, largely unconstrained by accountability to national-level governing institutions, created networks of public and private cooperation, which were formalized into institutional arrangements for confronting the region's pressing public health concerns. Public health workers convinced local elites to support public health programs by relying on arguments grounded in local understandings of race, disease, and economic development. Emerging networks of local support and political legitimacy were further underpinned by the genuine threats posed by disease and the demonstrated competence and capacity of the Rockefeller Foundation and the United

States Public Health Service. Local support and political legitimacy, generated by entrepreneurial public health workers at the ground level, was translated into national-level legitimacy in the aftermath of two focusing events, the 1927 flood of the Mississippi River and the 1930-1931 southern drought. Although the contemporary “Sunbelt” is unimaginable without the elimination of sharecropping and racial segregation and the advent of air-conditioning, it is equally unimaginable without the elimination of hookworm, pellagra, and malaria. Just as outside intervention played a crucial role in the elimination of the South’s debilitating diseases, this dissertation argues, the region’s paradoxical needs for both outside assistance and local autonomy to preserve white supremacy and segregation played a central role in defining the contours of public health throughout the nation.

BIOGRAPHICAL SKETCH

Daniel Davis Sledge was born in San Antonio, Texas in 1981. The son of Carolyn and George Sledge, he grew up in Indianapolis, Indiana, where he attended North Central High School. He received his B.A. from Indiana University, with a major in Political Science and a minor in History, in 2003. After briefly working as a substitute teacher in Monroe County, Indiana, he attended Cornell from 2004 through 2010, receiving his M.A. in Government in 2008 and PhD in Government in 2010. Sledge has two younger brothers, Matthew and David.

I dedicate this dissertation to my family

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INTRODUCTION

At the beginning of the twentieth century, the southern United States resembled, in many respects, the contemporary Third World.¹ Set beside rapid industrialization in the North and the nation's dynamic westward expansion, the South's relative stagnation was unmistakable.² In the South Atlantic and East South Central Census divisions, "per capita income was less than 50 percent of the national standard."³ While immigrants streamed into northern cities, only around 2 percent of the South's population was foreign born in 1910.⁴ Illiteracy, meanwhile, was widespread: 16.6% of southerners over the age of ten were illiterate in 1910, compared with only 4.5% of those living in the rest of the United States.⁵ Northern capitalists invested in the development of southern mining, steel production, and other industries, but "inflows of northern capital were not associated with permanent migration of people." As a consequence, "most southern industries continued to rely on imported

¹ Throughout, the "southern United States" refers to the eleven states of the former Confederacy plus Kentucky and Oklahoma, which was admitted to the Union in 1907. Though definitions of the South are contested (in part due to its incongruous social, political, and geographic borders), this definition encompasses four significant criteria: a high degree of mono-crop agriculture (cotton, tobacco, or sugar), Democratic Party dominance of politics during the first half of the 20th Century, *de jure* racial segregation, and a broadly similar disease burden (including hookworm, pellagra, and malaria).

² Important discussions of southern economic underdevelopment may be found in Roger L. Ransom and Richard Sutch, *One Kind of Freedom: The Economic Consequences of Emancipation*, 2nd ed. (New York: Cambridge University Press, 2001); Gavin Wright, *Old South, New South: Revolutions in the Southern Economy since the Civil War* (Baton Rouge: Louisiana State University Press, 1996). For an analysis of the role of southern sectionalism and economic underdevelopment in American political development, see Richard Franklin Bense, *The Political Economy of American Industrialization, 1877-1900* (New York: Cambridge University Press, 2000); ———, *Sectionalism and American Political Development, 1880-1980* (Madison: The University of Wisconsin Press, 1984). An excellent discussion of southern economic thought, dealing with the region's relative underdevelopment and its relationship to the northern economy, may be found in Joseph J. Persky, *The Burden of Dependency: Colonial Themes in Southern Economic Thought* (Baltimore: The Johns Hopkins University Press, 1992).

³ Sutch, *One Kind of Freedom*, p. 174.

⁴ Wright, *Old South, New South: Revolutions in the Southern Economy since the Civil War*, p. 77.

⁵ Calculated from *1910 Census of Population and Housing*, (Minneapolis, MN: University of Minnesota, Minnesota Population Center. National Geographic Information System: Pre-release Version 0.1, 2004).

machinery that embodied an imported technology adapted to northern, not southern, conditions.”⁶

Although largely unrecognized at the time, debilitating diseases, including hookworm, pellagra, and malaria, played an important role in southern economic underdevelopment.⁷ Throughout the region, the southern “trilogy of lazy diseases” hindered the development of human capital, curtailed agricultural and industrial productivity, and deterred outside investment and migration.⁸ As I hope to show, the manner in which the southern United States was ultimately freed from these diseases has significant implications for our understanding of American political development and the origin and contours of federal intervention in public health. Deeply intertwined with southern social and economic conditions, hookworm, pellagra, and malaria were eliminated as significant regional public health threats in the face of ongoing poverty, malnutrition, and substandard housing. It was not prosperity or social change that brought the end of disease, but state intervention, in the form of a network of county health departments backed by the federal government.

⁶ ———, *Old South, New South: Revolutions in the Southern Economy since the Civil War*, p. 173. A variety of factors, including differences in the composition of iron ore in southern Appalachia compared to northern iron ore, meant that local technological adaptations would have been necessary for the output of the southern steel industry, centered in Birmingham, to have rivaled Pittsburgh’s. See ———, *Old South, New South: Revolutions in the Southern Economy since the Civil War*, p. 170-71.

⁷ A growing literature has emphasized the role of disease in hindering economic development in the contemporary Third World. The work of Jeffrey Sachs on this issue, and on the potential for growth that might be unleashed if debilitating diseases were eradicated, has been particularly influential. See Jeffrey D. Sachs, *The End of Poverty: Economic Possibilities for Our Time* (New York: The Penguin Press, 2005); Jeffrey Sachs and Pia Malaney, "The Economic and Social Burden of Malaria," *Nature* 415(2002); Jeffrey D. Sachs John Luke Gallup, and Andrew D. Mellinger, "Geography and Economic Development," *International Regional Science Review* 22, no. 2 (1999).

⁸ The phrase “southern trilogy of lazy diseases” is from George B. Tindall, *The Emergence of the New South, 1913-1945*, ed. Wendell Holmes Stephenson, vol. X, *A History of the South* (Baton Rouge: Louisiana State University Press and the Littlefield Fund Southern History of the University of Texas, 1967).

BUREAUCRATIC ENTREPRENEURSHIP, WAR, AND TRAGEDY

The development of this network and elimination of the South's debilitating disease burden was far from an inevitable occurrence. At its heart were the efforts of a small group of entrepreneurial bureaucrats, employed by the United States Public Health Service and, particularly during the early years, by the Rockefeller Foundation. Operating largely without direction or oversight from Congress or the President, federal public health workers developed networks of local support and political legitimacy for state intervention in public health throughout the South. They generated workable public health techniques within the context of the southern social, political, and economic *status quo* and relied on local elites and institutions to facilitate the diffusion of these techniques throughout the region. The fundamental components of the South's public health revolution were assembled between World War I and 1930, during a period in which public health was viewed largely as a police power, left to the states under the 10th Amendment to the Constitution.

Often, the lines between public and private authority and national and local authority were blurred. Beginning in the 1910s, the Rockefeller Foundation paid individuals to develop and operate county health boards, to work in state hygienic laboratories, and to carry out research projects throughout the South. Though their salaries came from the Rockefeller Foundation, these public health workers were made agents of state boards of health. Following in the Rockefeller Foundation's footsteps and concerned with not overstepping its constitutional bounds, the Public Health Service both assigned officers to work as county health officers, deputized by state authorities, and recruited local physicians to serve as county health officers. These physicians were appointed to positions in the Public Health Service at nominal salaries, ensuring the transfer of information between local and national authorities.

Two focusing events, World War I and the 1927 flood of the Mississippi River, gave federal public health workers the opportunity to extend their reach into local public health efforts. Federal intervention in southern public health during World War I was viewed as a military necessity: the national government needed to protect soldiers being housed and trained in the region from the debilitating effects of malaria and other southern diseases. Intended to be a short-term endeavor, this wartime intervention proved the catalyst for the development of extensive federal involvement in public health at the local level.⁹

After forming relationships with local elites and successfully combating malaria and other diseases during the course of the war, federal public health workers pushed for Congress to extend the role of the Public Health Service into a cooperative peacetime program for developing local public health infrastructure. When Congress declined to pass the Public Health Service's proposed grant-in-aid bill, officers from the Public Health Service decided to employ an existing line of funding, designated for ill-defined "surveys and demonstrations" in rural sanitation, to continue their cooperative arrangements with local governments into the post-World War I years.

As an example of bureaucratic entrepreneurship, the actions of the federal public health workers who forged the network of relationships between local governments and the national Public Health Service in the years following World War I are both particularly striking and consequential. On their own initiative, they created

⁹ Classic statements of the argument that "wars make states and states make wars" are made in Charles Tilly, *Coercion, Capital, and European States, Ad 990-1992* (Cambridge, MA: B. Blackwell, 1992); ———, "War Making and State Making as Organized Crime," in *Bringing the State Back In*, ed. Dietrich Rueschemeyer Peter Evans, and Theda Skocpol (New York: Cambridge University Press, 1985). On the role of war and other external and international factors in shaping the American state, see Ira Katznelson and Martin Shefter, ed. *Shaped by War and Trade: International Influences on American Political Development* (Princeton: Princeton University Press, 2002).

a system that became the basis for both the transformation of both the southern disease environment and the role of the federal government in public health.¹⁰

The consolidation and expansion of federal intervention in southern public health occurred in the aftermath of the catastrophic 1927 flood of the lower Mississippi Valley.¹¹ Where federal action a decade before had been prompted by the need to ensure the availability of manpower during wartime, the expanded effort after 1927 was a result of the confluence of humanitarian concerns on the part of national-level officials and the availability of an apparent policy solution. Acting swiftly and adeptly, Public Health Service officers were able to persuade high-ranking Executive Branch officials and members of Congress that the expansion of the county health program they had been working on since World War I represented an appropriate means for confronting the public health problems that resulted from the flood.¹² Techniques that the PHS had been developing to deal with the region's debilitating diseases were implemented throughout the flood area and the role of the federal

¹⁰ For conflicting interpretations of the role of bureaucratic entrepreneurship in policy development and the role of congressional oversight in limiting bureaucratic autonomy, see Daniel P. Carpenter, *The Forging of Bureaucratic Autonomy: Reputations, Networks, and Policy Innovation in Executive Agencies, 1862-1928* (Princeton: Princeton University Press, 2001); Roger Noll, Matthew McCubbins, and Barry Weingast, "Administrative Procedures as Instruments of Policy Control," *Journal of Law, Economics, and Organization* 3(1987); Matthew McCubbins and Thomas Schwartz, "Congressional Oversight Overlooked: Police Patrols Versus Fire Alarms," *American Journal of Political Science* 28(1984). While Carpenter argues that bureaucratic entrepreneurs can forge autonomy from Congress under certain conditions, Noll, Weingast and McCubbins and McCubbins and Schwartz have emphasized the controls available to Congress in limiting bureaucratic discretion. My analysis of the development of institutions of public health is closer to that of Carpenter.

¹¹ The importance of emergency situations or tragedies, such as natural disasters, in creating windows of opportunity for new government policies has long been recognized in the literature on agenda-setting. See Frank R. Baumgartner and Bryan D. Jones, *Agendas and Instability in American Politics* (Chicago: University of Chicago Press, 1993); John Kingdon, *Agendas, Alternatives, and Public Policies* (New York: Harper Collins, 1984); Daniel Carpenter and Gisela Sin, "Policy Tragedy and the Emergence of Regulation: The Food, Drug, and Cosmetic Act of 1938," *Studies in American Political Development* 21(2007).

¹² Members of Congress were largely unaware of the Public Health Service's "rural cooperative" program during the immediate post-World War I years. The members who paid special attention to it were representatives of southern districts and states whose constituencies were directly affected by it. Ultimately, much the pressure for them to embrace the program came from below, in the form of expressions of support from county commissioners, judges, health officers, and other southerners who had first-hand experience with federal public health interventions. See below, Chapters 3 and 4.

government in local public health efforts was greatly increased. Further expanded following the 1930 southern drought and incorporated into the 1935 Social Security Act, the system of federal-state-county cooperation that developed in the years following World War I ultimately became the basis for federal intervention in and coordination of local public health efforts throughout the nation.

POLITICAL ECONOMY, DISEASE, AND PUBLIC HEALTH

As in the contemporary Third World, the South's debilitating diseases were both the cause and consequence of poverty and economic underdevelopment. Half a century before the Rockefeller Foundation became the first outside organization to attempt to improve the health of rural southerners, investment in the Confederate war effort had destroyed much of the region's banking system. Meanwhile, the capitalization requirements of the National Banking Act, passed during the Civil War, helped to ensure that few new banks were chartered during the ensuing decades.¹³ The abolition of slavery, the basis of antebellum credit markets, required the development of new forms of agricultural credit in the South.¹⁴ As Gavin Wright has argued, the "movability of slaves and the well-developed slave markets made them highly attractive as collateral for loans, even at long distance." Land, the region's most tangible resource, "did not have these properties; prudent nineteenth-century bankers did not consider real estate to be an acceptable backing for loans, and indeed such loans were prohibited under the National Bank System."¹⁵

Within a short period of time, landlords and furnishing merchants came to dominate local credit markets, accepting a lien on the upcoming crop as security for

¹³ Bense, *Political Economy of American Industrialization*, p. 95, 97.

¹⁴ Wright, *Old South, New South: Revolutions in the Southern Economy since the Civil War*, p. 87.

¹⁵ *Ibid.*, 88-89.

extending credit for seed and household supplies.¹⁶ As essentially monopoly lenders engaged in a risky trade, landlords and merchants exercised a great deal of influence over what crops tenant farmers planted, often demanding that they plant cotton or other cash crops, such as tobacco, which were viewed as a solid investments. Upcountry farmers, along with farmers in southeastern regions where the soil had previously been considered exhausted, were increasingly drawn into the cotton economy.¹⁷ Fluctuations in cotton prices, along with high rates of interest, meant that southern tenant farmers were often unable to accumulate savings or even break even at the end of the year.¹⁸

As farmers concentrated more and more on cash crops for export, southerners became increasingly dependent on food imports, particularly corn, from outside the region. Between 1850 and 1890, grain production *per capita* in the South dropped approximately 50%. During the same period, head of cattle *per capita* dropped to 42.4% of the antebellum level and swine ownership dropped to only 34.5% of the 1850 level.¹⁹ Along with its impact on self-sufficiency and food availability, the demand that farmers focus on planting cotton led to regional overproduction, which, in turn, helped to fuel southern poverty.

The history of southern disease broadly tracks that of the southern political economy. Unlike hookworm and pellagra, which were only discovered in the United States during the first decade of the 20th century, the presence of malaria in the South

¹⁶ See Sutch, *One Kind of Freedom*, "The Emergence of the Merchants' Territorial Monopoly," p. 126-48; Wright, *Old South, New South: Revolutions in the Southern Economy since the Civil War*, p. 97-98.

¹⁷ On the geographical expansion of cotton production, see Steven Hahn, "The Transformation of the Countryside," in *The Roots of Southern Populism: Yeoman Farmers and the Transformation of the Georgia Upcountry, 1850-1890* (New York: Oxford University Press, 1983); Wright, *Old South, New South: Revolutions in the Southern Economy since the Civil War*, p. 34-36.

¹⁸ Sutch, *One Kind of Freedom*, p. 169.

¹⁹ *Ibid.*, p. 152.

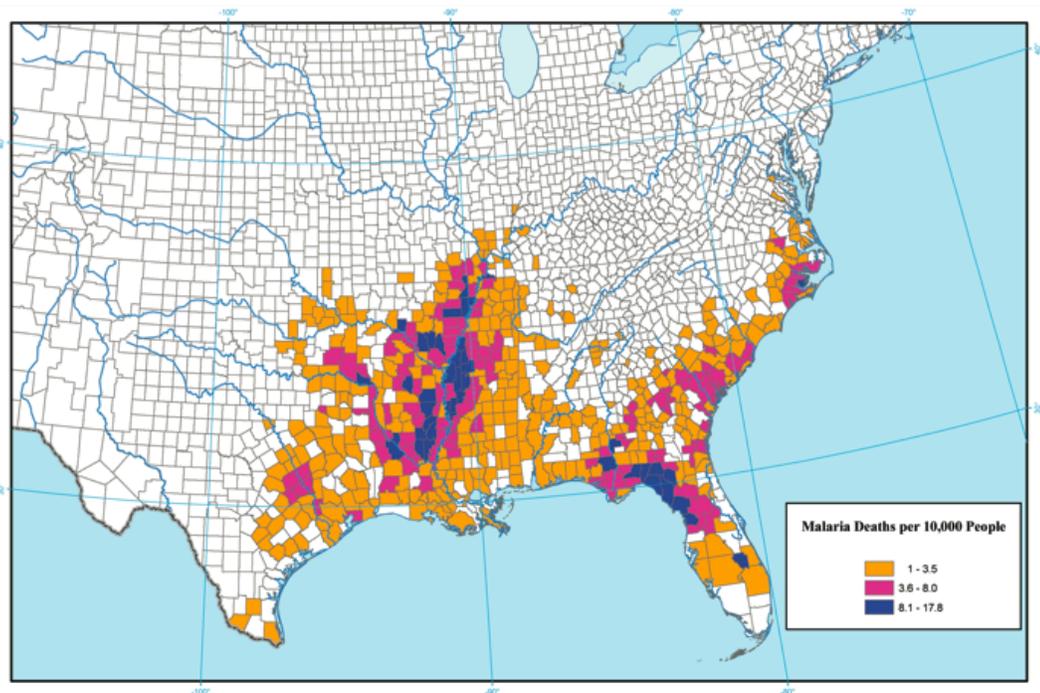


Figure 1. The Distribution of Malaria as Indicated By Mortality Reports, 1919-1921. Source: Adapted from Maxcy, “Distribution of Malaria,” 1923.

had long been known. Since the colonial period, the disease had served to deter migration into the region; as in the Caribbean, malaria had been used to justify the importation of West African slaves, who were less affected by the disease than Americans of European descent and could be forced to work regardless of the disease environment. Often present at the frontiers of white settlement in the United States, malaria had, outside of a lingering pocket in California’s Central Valley, long since receded from most of the North and West.

The disease was particularly prevalent in the coastal plain and in the Mississippi Valley. As Public Health Service epidemiologist Kenneth Maxcy later noted, the conditions surrounding cotton cultivation often fostered endemic malaria: “where the type of agriculture is intensive, requiring many hand laborers, as in the raising of cotton, where the houses are close together and located in the rich ‘bottom lands’ near *Anopheles*’ breeding places, conditions are favorable for the development

of a malaria problem. In the South there is a striking connection between malaria and the raising of cotton.”²⁰ Describing a typical endemic focus in Alabama, Maxcy wrote that the black tenants of local cotton plantations were “poorly housed, poorly clothed, poorly fed, living in unscreened houses, self-medicated with inadequate ‘chill tonics,’ and made miserable by the hordes of mosquitoes which swarm in from the nearby swamps at sundown each evening.” No end appeared in sight: “Every year brings its tolls of deaths resulting directly or indirectly from the ravages of neglected malaria. The negroes accept ‘chills’ as a necessary evil and pay it scant attention. The plantation owners passively acquiesce in this shameful human and economic waste.”²¹

Unrecognized in the South until 1902, the discovery of endemic hookworm further reinforced the region’s sickly reputation. At home in warm, loose, and sandy soil, hookworm had been brought to the United States by infected West African slaves. The parasite spread easily in the rural South as a result of the absence of sanitary privies and tendency of many poor southerners to go shoeless. In southern Appalachia, where miners came into frequent contact with dirt under less than sanitary conditions, the disease also spread easily. Deposited in the soil by human feces, the hookworm enters the body through the feet or hands and, in time, makes its way to the intestines. If enough worms are present, hookworm sufferers experience chronic blood loss, leading to iron-deficiency anemia. Their skin “becomes waxy and acquires a sickly yellowish color,” while they often experience pain in their joints and lower extremities, “headache, fatigue, and impotence.”²²

²⁰ Kenneth F. Maxcy, "Epidemiological Principles Affecting the Distribution of Malaria in Southern United States," *Public Health Reports* 39, no. 20 (1924): p. 1117.

²¹ *Ibid.*: p. 1119.

²² Simon Brooker Peter J Hotez, Jeffrey M Bethony, Maria Elena Bottazzi, et al., "Current Concepts: Hookworm Disease," *The New England Journal of Medicine* 351, no. 8 (2004): p. 802.

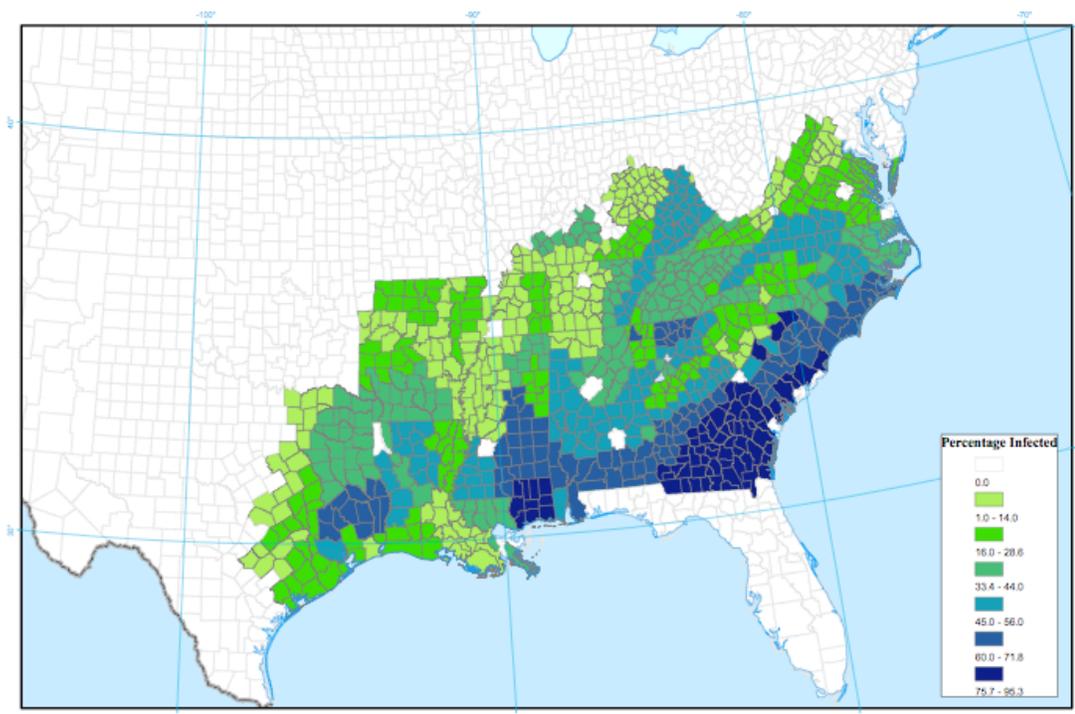


Figure 2. Percentage of School Children Infected With Hookworm. Source: Data collected from Rockefeller Sanitary Commission Annual Reports, 1910-1915, based on surveys conducted by the RSC.

The disease's impact on human development in the South was significant. In children, hookworm impaired cognitive development, stunted growth, and often led to poor attendance at school. A strong correlation existed between childhood hookworm disease and illiteracy.²³ For adults, meanwhile, the disease was often incapacitating. Pregnant women, in particular, were susceptible to developing iron-deficiency anemia as a result of hookworm, and the consequences for both them and their children were significant. Infection led to higher rates of maternal mortality and difficulty producing milk. The children of mothers with hookworm were more likely to be born prematurely and underweight, paving the way for future problems.²⁴ In the first decade

²³ Ibid.: p. 802-03; Hoyt Bleakley, "Disease and Development: Evidence from the American South," *Journal of the European Economic Association* 1, no. 2-3 (2003).

²⁴ Peter J Hotez, "Hookworm Disease," p. 802-03; Peter J. Hotez Simon Brooker, Donald A.P. Bundy, "Hookworm-Related Anaemia among Pregnant Women: A Systematic Review," *PloS Neglected Tropical Diseases* 2, no. 9 (2008).

of the twentieth century, slightly less than 40 percent of southerners were likely infected.

Beginning in 1907, only a few years after the South's hookworm problem was discovered, physicians became aware of the prevalence of pellagra in the region.²⁵ A dietary deficiency disease, caused by lack of niacin, pellagra's most prominent symptoms are dermatitis, diarrhea, and dementia. The dermatitis takes the form of discolored and symmetrical skin eruptions that tend "to be painful to touch during the acute phase and can eventually become so clinically striking that the patient may become ostracized."²⁶ As the disease progresses, its victims begin to feel increasingly lazy and weak, developing poor appetite, vomiting, and diarrhea. In addition to the disease's often disturbing physical manifestations, people with pellagra have difficulty concentrating, experience headaches and anxiety, and often become depressed and tired. If the disease continues to progress, they die.²⁷

The southern pellagra problem was an extreme manifestation of widespread malnutrition, worsened by the region's increased emphasis on cotton and tobacco monoculture following the Civil War. Although state and federal authorities never developed a means of accurately assessing the extent of pellagra morbidity, the Census Bureau's mortality reports make it clear that the disease was almost exclusively confined to the southern United States.²⁸ Physicians, public health workers, and

²⁵ A 1931 Public Health Service report found that, prior to 1908, "At the very most," the information available to medical students in the United States covered its unknown origins, presence in southern Europe, symptoms, and "last, but by no means less stressed, that it did not occur in the United States." See G.A. Wheeler, "A Note on the History of Pellagra in the United States," *Public Health Reports* 46, no. 38 (1931): 2226.

²⁶ Robert A. Schwartz Juraj Hegyi, Vladimir Hegyi, "Pellagra: Dermatitis, Dementia, and Diarrhea," *International Journal of Dermatology* 43(2004): p. 2-5.

²⁷ *Ibid.*: p. 3.

²⁸ In southern states within the Census Bureau's registration zone in 1920, which was viewed as a particularly mild year for pellagra incidence, the Crude Death Rate per 100,000 ranged from 31.1 in Mississippi to 2.68 in Kentucky. Outside of the region, no state had a CDR higher than the border state of Missouri's rate of 0.73 per 100,000. Pellagra's greatest impact was in morbidity, rather than mortality, and contemporary evidence suggests that the vast majority of cases were not reported. Beyond providing some empirical basis for establishing the geographic extent of pellagra, this

academics noted that pellagra was most prominent in areas of intense mono-crop agriculture and little truck farming, where there was little access to meat, fresh vegetables, and milk.

For individuals, families, and communities, the combined effects of these diseases were devastating. Illiteracy, inability to work, ongoing fatigue, medical costs, visits to physicians, and time spent caring for sick family members fueled the persistence of poverty, sapping millions of individual initiative and depriving the region of much-needed intellectual innovation and creativity. Compounding these effects, the presence of dangerous diseases worked to isolate the South from the rest of the United States and from European immigration.²⁹ Although the contemporary “Sunbelt” is unimaginable without the elimination of sharecropping, desegregation, and the advent of air conditioning, it is equally unimaginable without the elimination of hookworm, pellagra, and malaria.

THE “NEW SOUTH,” RACE, AND DISEASE

Neither the infrastructure to confront the South’s public health problems nor the demand to create such an infrastructure existed during the first years of the twentieth century. Ultimately, the primary driving force for change was external: public health workers from the Rockefeller Foundation and the United States Public Health Service created demand for public health efforts by reaching out to local elites, often relying on economic arguments. In the decades following Reconstruction, southern elites became increasingly aware of the yawning divide in prosperity between their region and the rest of nation. Among the most potent manifestations of this

information should not be considered particularly reliable. Crude Death Rates were calculated by the author with data from *Mortality Statistics, 1920: Twenty-First Annual Report*, (Washington, D.C.: Government Printing Office, 1922).

²⁹ On the effects of disease in deterring immigration, see for instance Malaney, "The Economic and Social Burden of Malaria."; John Luke Gallup, "Geography and Economic Development."

awareness was the emergence of the “New South” creed, which imagined a reinvigorated, industrialized, and prosperous South freed from the economic shackles of slavery and restored to respectability and equal status within the national Union.

Although this vision proved elusive, the desire for economic renewal and redemption retained a strong hold on southern thought in the early decades of the twentieth century. As a means of generating support for public health interventions, appeals centered on the need for regional economic development proved powerful. More immediately, public health workers found that planters, businessmen, and other local elites could be persuaded that their own economic interests would be furthered by a workforce freed from the effects of hookworm, pellagra, and malaria.

Both in practice and in presentation, this meant that public health efforts were aimed at improving the health status of both white and black southerners.³⁰ Rural black and white southerners lived and worked in close proximity, meaning that whites could not be freed of infectious diseases unless blacks were also. Meanwhile, neither the white nor the black workforce could be expected to reach full productivity without being relieved of the burdens of disease.

In pursuing their aims, public health workers relied on class stereotypes, such as the poor southern white, along with local racial beliefs and preconceptions as a resource, reinforcing or reinterpreting them where necessary in order to gain the support of local white elites. In the push against hookworm, poor whites were portrayed as the victims of a disease brought to the region and spread by African slaves and their descendents. The South’s poor whites, it was argued, could only

³⁰ A recent line of scholarship has pointed out that the colorblind nature of disease meant that effective urban public health reforms required the provision of services to both black and white. See Don H. Doyle, *New Cities, New Men, New South: Atlanta, Nashville, Charleston, Mobile, 1860-1910* (Chapel Hill: The University of North Carolina Press, 1990); Werner Troesken, *Water, Race, and Disease* (Cambridge, Mass.: MIT Press, 2004); Stuart Galishoff, "Germs Know No Color Line: Black Health and Public Policy in Atlanta, 1900-1918," *Journal of the History of Medicine and Allied Sciences* 40, no. 1 (1985w). For a more detailed discussion, see also below, Chapter 1.

become productive members of society if freed from hookworm, and hookworm could only be eliminated among whites if it was also eliminated among the blacks who served as a “reservoir of disease.” In gaining the support of white elites for efforts against pellagra, which is not an infectious disease, public health workers emphasized the economic impact of the disease, which often prevented its victims from working at full capacity. Though more blacks than whites were afflicted with pellagra, county health boards confronted the disease vigorously and with great success after it was discovered during the late 1920s that consuming brewer’s yeast, which contains niacin, was an effective treatment.

Claims made about race and malaria followed in a similar vein. Although many whites lived in higher-quality housing less likely to be infiltrated by mosquitoes than that of blacks, many did not. Either way, malaria among black could easily spread to whites. The economic rationale behind fighting malaria, meanwhile, was powerful. Once white elites were persuaded that the fevers and chills that kept farm workers weak or at home sick rather than in the fields could be prevented through methods such as screening, larvicide, and drainage, they proved eager to support public health interventions. Along with the substantial immediate impact of the disease, in terms of lost productivity, Public Health Service officers argued that malaria kept whites from inhabiting large swaths of the South. There was little incentive, they maintained, for outsiders relocate to an area, such as the Gulf Coast or Florida, where the disease was known to be widespread.

Beginning in the 1910s, public health workers from the Rockefeller Foundation and the Public Health Service generated support for public health interventions by linking their efforts to concerns about the interracial transfer of disease, the economic prospects of poor whites, the productivity of both black and white labor, and regional economic underdevelopment. As I hope to show, the result

was a system of public health consistent with the southern *status quo* but designed to provide effective services to all. Poor whites and blacks, the primary victims of the southern trilogy of lazy diseases, were, in turn, the most immediate beneficiaries of state intervention.

THE CONTOURS OF FEDERAL INTERVENTION

The careful cultivation of county-level support for public health efforts coordinated by outside organizations during the 1910s and 20s is crucial to understanding the ultimate institutionalization of federal intervention during the New Deal. At first centered in the efforts of charismatic individuals and their base of support among planters, businessmen, and county judges and commissioners, public health measures were transformed, over time, into a formal component of state power. As county and state health departments became increasingly capable of monitoring disease, carrying out effective community outreach programs, and implementing various public health measures, power shifted from the individual to the institution.

The national-level political prominence of southern Democrats during the New Deal helped to facilitate the transfer of legitimacy from the local level to the national level, a process that culminated in the inclusion of the Public Health Service's "rural cooperative sanitation" program, the effort that had grown out of World War I, in the 1935 Social Security Act. Initially fragile programs, dominated by strong personalities and not fully capable of translating scientific knowledge into change on the ground, assumed, by the end of the 1930s, an air of permanence and effectiveness.

Just as federal intervention in southern public health ultimately transformed the southern disease environment, helping to pave the way for the region's subsequent economic transformation, the unique needs of the South proved central in the

development of today's somewhat disjointed system of federal-state-county cooperation in public health, coordinated by the Atlanta-based Centers for Disease Control. The modern system of grants-in-aid through which the federal government attempts to regulate and standardize the public health practices of state and local governments is a direct descendent of the program created by the Public Health Service and institutionalized under the Social Security Act. The CDC, meanwhile, grew out of the Public Health Service's World War II anti-malaria efforts; it was envisioned as a means of coordinating the federal government's role in local public health efforts by individuals who had worked to establish and legitimate this role beginning in the years following World War I.

In documenting the extent of federal intervention in southern public health at the local level, I hope to provide an important qualification to the assumption that southern elites were wholly resistant to interventions by well-intentioned outsiders and in particular by the national government.³¹ Southern politicians, highly influential in Congress as a result of the seniority system and the region's one-party political system, played a central role in defining the contours of federal intervention in public health.

Open to the potential benefits of national state expansion, most southern Democrats retained a strong rhetorical and ideological commitment to states' rights

³¹ While potentially misleading, the anti-statist reputation of early twentieth-century southern elites is well-known. C. Vann Woodward traced the origins of the white South's late 19th century aversion to government action to the reaction against federal intervention during Reconstruction. Intense dissatisfaction with Republican policies following the Civil War "became reaction against governmental interference of any kind." "The distrust and suspicion of legislative action and political power that accompanies any laissez-faire philosophy," Woodward argued, "was more deep-seated in the South than elsewhere. Laissez faire became almost a test of Southern patriotism." See C. Vann Woodward, *Origins of the New South, 1877-1913*, ed. Wendell Holmes Stephenson and E. Merton Coulter, vol. IX, *A History of the South* (Baton Rouge: Louisiana State University Press and The Littlefield Fund for Southern History of the University of Texas, 2005), p. 65. For an account of the benefits of a stronger national state, as perceived by southern and western agrarians during the Progressive era, see Elizabeth Sanders, *Roots of Reform: Farmers, Workers, and the American State, 1877-1917* (Chicago: The University of Chicago Press, 1999).

and limited government. Within Congress, southern Democrats employed party solidarity as a means of ensuring local control over issues of race and labor. Where it might infringe upon the autonomy of states and localities, southern Democratic leaders routinely equated federal action with the Reconstruction period, black rule, and the unsettling of social, economic, and racial relationships. At its extreme, this line of reasoning viewed federal intervention in almost any form as a potential vehicle for the political rebirth and eventual social integration of black southerners.³² An invasive and potentially expansive endeavor, intervention in public health by the federal government might easily have been portrayed as a potential threat to states' right and local control, as indeed it ultimately was during the debate over national health insurance during the late 1940s.³³

That public health interventions were not portrayed as a treat to local autonomy is a testament to the capacity of outside bureaucrats to cultivate relationships with local elites and to define public health problems and their solutions in a manner consistent with prevailing racial mores. Particularly during the early New Deal years, southern Democrats were strong advocates for increased federal intervention in public health. Already working in counties throughout the South, representatives of the United States Public Health Service were a welcome presence in the region. As the issue of southern race relations emerged as an increasingly divisive

³² For a classic analysis of the role of southern Democrats in national government in guaranteeing white supremacy and local autonomy, see V.O. Key, *Southern Politics in State and Nation* (Knoxville: The University of Tennessee Press, 1984). See also Ira; Geiger Katznelson, Kim; Kryder, Daniel, "Limiting Liberalism: The Southern Veto in Congress, 1933-1950," *Political Science Quarterly* 108, no. 2 (1993).

³³ The potentially expansive nature of public health interventions is well-illustrated by recent public health interventions such as New York City's ban on trans-fats in food. Measures as diverse as the lowering of speed limits, construction of sewers, and gun control may be plausibly framed as necessary for the preservation of the public's health. Accepting a legitimate role for government in attempting to regulate and ensure "public" health raises the potentially unanswerable question of where the line might be drawn between personal choice and community well-being. As Paul Starr put it, "The maintenance of the public's health allows- some would say demands- concern with almost every aspect of life." See Paul Starr, *The Social Transformation of American Medicine* (New York: Basic Books, 1982), p. 181. See also James Morone Rogan Kersh, "How the Personal Become Political: Prohibitions, Public Health, and Obesity," *Studies in American Political Development* 16, no. Fall 2002 (2002).

national political issue the 1940s, however, southern Democrats worked to guarantee that federal funding would not lead to greater federal regulation and a federal assault on white supremacy. In 1946, they ensured that the Hill-Burton Act, the basis for the federal government's new program for providing aid for hospital construction, included an explicit "separate but equal" clause. In 1948 and 1949, they played a central role in sealing the fate of Harry Truman's push for national health insurance. Nonetheless, southern members of Congress remained interested in bringing in federal money for health programs. They continued to support the Public Health Service's ongoing local public health efforts and provided a workable, if incomplete, counter-proposal to Truman's health insurance proposal: a federally backed insurance program administered by the states and aimed at helping the indigent that foreshadowed the plan enacted as Medicaid sixteen years later. Developed in response to the needs of the South, the nation's public health infrastructure reflects the region's historically paradoxical relationship with federal authority.

PUBLIC HEALTH INTERVENTIONS AND THE SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONTEXT OF DISEASE

The primary contributions of this study are to the field of American Political Development and in particular to our understanding of the origins, development, and contours of public health infrastructure, both local and national, within the United States. My emphasis on bureaucratic innovation and policy entrepreneurship is broadly consistent with the work of Daniel Carpenter, who has argued that, under certain conditions, bureaucratic actors are capable of fostering constituencies that allow them to pursue policy programs that diverge with the policy objectives of Congress. By contrast, other scholars, including Matthew McCubbins and Thomas Schwartz and McCubbins, Roger Noll, and Barry Weingast, have emphasized the

significance of congressional tools of oversight in limiting the autonomy of bureaucratic actors. In fostering local support for the development of local public health infrastructure, working to create practical public health methods, and in translating local support into national-level political legitimacy, the public health workers at the center of this dissertation fit well Adam Sheingate's definition of the political entrepreneurs as "individuals whose creative acts have transformative effects on politics, policies, or institutions."³⁴ Working beyond both the scope of both congressional oversight and interest until the late 1920s, public health workers from the United States Public Health Service as well as the Rockefeller Foundation put in place the framework of a substantial and consequential shift in national public policy.

Along with this, however, I hope to offer an important corrective, with significant comparative implications, to existing studies of debilitating disease and public health in the United States. The full extent of outside intervention in southern public health during the years between 1910 and 1950, and the central role of the federal government in the elimination of the region's disease burden, has not previously been recognized. Indeed, to the best of my knowledge, this is the first study that documents the Public Health Service's pre-Social Security Act efforts at fostering local public health infrastructure.

In large part, this is a result of the different perspectives taken by those who study the history of science and students of American political development. Those who study the history of science are typically focused on questions about individual diseases and the scientists who investigated them. Important questions about the implementation of public health measures, the role of political institutions, and long-

³⁴ Adam D. Sheingate, "Political Entrepreneurship, Institutional Change, and American Political Development," *Studies in American Political Development* 17(2003): p. 185.

term development of public health infrastructure are often left unanswered.³⁵ By expanding the scope and time horizon of this study, I hope to show the interconnections between public health efforts aimed at combating hookworm, pellagra, and malaria and to highlight the slow-moving processes that resulted both in the elimination of these diseases and in the creation of an integrated nation-wide system of public health.

From a comparative perspective, the central role of public health efforts and infrastructure in the decline of hookworm, pellagra, and malaria in the American South may be viewed as an example of an instance where direct public health interventions were able to trump the social, economic, and environmental factors that led previously to the persistence of debilitating diseases. In the case of malaria, among the most serious public health problems facing the contemporary Third World, my emphasis on the importance of public health institutions is sharply at odds with the currently-accepted explanation of the disease's decline. Margaret Humphreys, a leading scholar of the history of science, has argued that social change was the primary factor in the elimination of malaria in the South. Public health interventions, Humphreys maintains, did not play a central role in elimination of the disease. "Although New Deal programs included drainage projects to combat malaria," she writes, "these were poorly planned and likely had little impact. More important were agricultural programs that paid landowners to take land out of production and other measures that resulted in the depopulation of the southern countryside."³⁶

³⁵ Where the implementation of public health measures has been discussed in depth, as in John Ettling's authoritative study of the Rockefeller Sanitary Commission for the Eradication of Hookworm, *The Germ of Laziness*, the focus has been on an individual disease during a short period of time. The long-term consequences of the Rockefeller hookworm intervention are hinted at but not fully developed in William A. Link's excellent *Paradox of Southern Progressivism*. See John Ettling, *The Germ of Laziness* (Cambridge, Massachusetts: Harvard University Press, 1981); William A. Link, *The Paradox of Southern Progressivism, 1880-1930*, The Fred W. Morrison Series in Southern Studies (Chapel Hill: The University of North Carolina Press, 1992).

³⁶ Margaret Humphreys, "How Four Once Common Diseases Were Eliminated from the American South," *Health Affairs* 28, no. 6 (2009): 1737.

Following the Agricultural Adjustment Act, Humphreys argues in *Malaria: Race, Poverty, and Public Health in the United States*, malaria victims began to move away from endemic areas: “Once the sharecroppers moved away from the densest clouds of anopheles, the critical links in the continual malaria chain began to break down, one community at a time. Certainly other factors such as returning prosperity, drainage, pyrethrum sprays, and screening played their roles. But it was this removal of the malaria carrier/victim from the vicinity of the anopheles mosquito that probably had the largest effect on the decline in the plasmodium’s presence.”³⁷

As I hope to show below, an understanding of the extent of the federal government’s public health capacity at the ground level leads to a more plausible explanation of malaria’s decline. To begin with, the malaria-endemic South was not depopulated during the 1930s.³⁸ In Alabama, for instance, the thirty counties with the highest malaria mortality rate in 1930 experienced a total population growth of 38,240 people between 1930 and 1940. This increase in population was paired with a substantial decline in malaria mortality within these counties over the decade, from 25.8 deaths per 100,000 in 1930 to 12.9 deaths per 100,000 in 1940.³⁹ Rather than rural depopulation caused by the Agricultural Adjustment Act, malaria’s decline in the United States was likely the consequence of massive public works drainage projects, conducted under the supervision of the Public Health Service, larvicide and oiling of

³⁷ ———, *Malaria: Poverty, Race, and Public Health in the United States* (Baltimore: Johns Hopkins University Press, 2001), p. 112.

³⁸ On the southern farm population during the 1930s, see for instance E.L. Langsford, "Over-All Adjustment in Southern Agriculture," *Journal of Farm Economics* 32, no. 4 (1950): p. 775.

³⁹ Calculated by the author using mortality data collected from *Annual Report of the Alabama State Board of Health*, (Montgomery), for 1930; *Vital Statistics Bulletin, Alabama State Board of Health*, (Montgomery). County population data for 1930 and 1940 may be found in the U.S. Census. See Minesota Population Center, *National Historical Geographic Information System: Pre-Release Version 0.1* (Minneapolis, MN: University of Minnesota, 2004). In the short-run, the implications of malaria eradication are somewhat ambiguous. Eradication might cause those whose mobility has previously been limited by disease to seek a better life elsewhere; it might also cause outsiders to move to a previously malarial area or those who might have left to stay. My point here is simply that the decline in malaria does not appear to be an outcome of a decline in population.

anopheles breeding grounds, screening, and the implementation of the 1935 Social Security Act, which further consolidated county health boards as a platform for ensuring the elimination of diseases such as hookworm, pellagra, and malaria.

Though the implications of these findings are important, malaria control efforts in the contemporary Third World face several well-known obstacles. *Anopheles gambiae*, the primary malaria vector in sub-Saharan Africa, are the world's most efficient transmitters of malaria. They have a strong preference for human blood meals and are not easily diverted to livestock. Meanwhile, consistently high temperatures ensure that malaria reproduces far more quickly in sub-Saharan Africa than it did in the United States and that there is no period during which transmission of the parasite is suspended. Beyond these qualifications, the adaptation of scientific knowledge to local conditions, practices, and attitudes, which occurred through a process of experimentation over a lengthy period of time, was an indispensable element of the success of public health workers in the southern United States.

OVERVIEW

The backbone of this dissertation is an analysis of the development of public health infrastructure in the American South between 1902, the year that hookworm was discovered to be endemic in the region, and 1950, the effective end of Harry Truman's push for a national health insurance program. The first three chapters deal with hookworm, pellagra, and malaria, examining the emergence of practices and institutions aimed at fighting these diseases. The final three chapters examine the consolidation of these institutions, elimination of widespread debilitating disease from the South, and the friction that ultimately emerged between the South's support for federal intervention in matters of public health and the desire of its leaders to retain local control over race relations.

Chapter 1, ““Privies Are Cheaper Than Coffins,”” examines the origins of sustained outside intervention in southern public health. After establishing the widespread presence of hookworm in the region, the Public Health Service’s Charles Wardell Stiles began an impassioned one-man campaign to educate the people of the region about the disease. An almost complete lack of public health infrastructure helped to ensure that his efforts would have little effect. In 1909, however, Stiles was able to convince John D. Rockefeller to contribute \$1 million to fighting hookworm disease in the region. Agents of the Rockefeller Sanitary Commission for the Eradication of Hookworm found that representing public health as an economic development project was an effective means of mobilizing local elites to support anti-hookworm efforts. Though it achieved significant results, the Rockefeller Foundation’s initial public health intervention, a program of education and drug distribution through county dispensaries, ran up against the realities of local indifference and poverty. In response, public health workers were forced to develop a more sophisticated understanding of the disease, which accepted the reciprocal relationship between hookworm and poverty, and new strategies, centered on the creation of permanent county health boards, for combating it.

Chapter 2, “Pellagra: ‘The Menace of Famine and Plague,’” explores the beginning of the transformation of the United States Public Health Service’s conception of its role in public health and the expansion of its research capacity in the face of the discovery that pellagra was widespread in the American South. At the time, the etiology of pellagra, a vitamin deficiency disorder, was not known. Scientists investigating the disease became trapped in a debate about its origins premised on the idea the disease was infectious, importing misleading ideas about race and disease from the popular discourse surrounding hookworm. Though Public Health Service officers established often cordial relationships with southern politicians and public

health workers, the PHS's finding that the disease was the result of an inadequate food supply, interconnected with cotton monoculture and the southern political economy, proved highly controversial. When the PHS predicted an outbreak of pellagra and suggested federal intervention after cotton prices crashed in 1921, it prompted a noisy backlash from southern politicians, making clear the weak capacity of the PHS on the ground and precarious nature of its relationship with southern public health officials.

Chapter 3, ““Diseases Which Should Be Matters of History,”” analyzes the development of an active federal role in southern public health in the aftermath of World War I. In the years leading up to American entry into the war, federal public health workers developed a rudimentary capacity to assess and confront pressing public health concerns. When the construction of military bases in the southern United States required emergency federal intervention to fight malaria in areas surrounding bases, federal public health workers used the opportunity created by war to acquire the practical skills necessary for public health work in rural communities and to forge bonds with southern elites. When federal public health officials failed to convince Congress to expand these efforts following the end of the war, they used a pre-existing source of funding and loosely interpreted legislative language to pursue a federal-state-county cooperative program with only shaky authorization from Congress. Following the 1927 flood of the Mississippi River, this program was expanded, gaining new legitimacy and funding.

Chapters 4 and 5, “Depression, Drought, and Social Security” and ““The Religion of Mankind's Future,”” examine the consolidation of federal intervention in southern public health during the 1930s and the effects of outside interventions on hookworm, pellagra, and malaria. When a devastating drought overcame the lower Mississippi River valley in 1930, federal public health workers and their supporters in Congress were able to point to the federal response to the 1927 flood as a precedent

for how the federal government should respond. Funding for the Public Health Service's federal-state-county cooperative program was greatly increased. In 1933, the Public Health Service began a close cooperative relationship with the New Deal public works agencies, supervising the construction of sanitary privies and large-scale drainage projects. In 1935, on the basis of southern support, the Public Health's Service's federal-state-county cooperative program was incorporated into the new Social Security Act. By the end of the decade, hookworm, pellagra, and malaria were near the point of total eradication.

Chapter 6, "Southern Maladies," deals with the paradoxical relationship between southern support for public health efforts and the desire of the region's leaders to retain local autonomy in race relations. It details the emergence of the CDC out of the Public Health Service's anti-malaria work during World War II as a coordinating institution for the national government's local-level public health efforts, the expansion of federal efforts in the region in the form of federally-backed construction of racially segregated hospitals, and the role of southern politicians in the debate over national health insurance during the Truman administration. Finally, the concluding chapter offers an overview of the emergence of the "sunbelt South" out of a region once burdened by widespread debilitating disease and outlines significant factors in the successful development of southern public health infrastructure.

CHAPTER 1

“Privies Are Cheaper Than Coffins”

“Indications are not entirely lacking,” Dr. Charles Wardell Stiles reported to the Surgeon General in 1902 near the beginning of a survey of the southern United States, “that much of the trouble popularly attributed to ‘dirteating,’ ‘resin-chewing,’ and even some of the proverbial laziness of the poorer classes of the white population are in reality various manifestations of uncinariasis [hookworm].”⁴⁰ Although the existence of hookworm disease in parts of Europe, Africa, and Asia had been well known for nearly half of a century, American medical professionals did not become aware of its prevalence in the South until Stiles’s 1902 tour of the region.

A European-trained scientist working for the United States Department of Agriculture, Stiles had long given lectures at Johns Hopkins, Georgetown, and the Army Medical School urging students to consider hookworm infection as a potential cause when they encountered iron-deficiency anemia in tropical or sub-tropical climates.⁴¹ When, following the Spanish-American War, a former student and Army medical officer, Bailey K. Ashford, was stationed on the newly acquired island of Puerto Rico, he discovered that the disease was distributed widely amongst the island’s rural inhabitants. Inspired by Ashford’s finding, Stiles began his own research.⁴² His initial finding, using samples from what was previously believed to be

⁴⁰ Charles Wardell Stiles, "Hook-Worm Disease in the South- Frequency of Infection by the Parasite (*Uncinaria Americana*) in Rural Districts," *Public Health Reports* 17, no. 43 (1902): p. 2434.

⁴¹ ———, "Early History, in Part Esoteric, of the Hookworm (*Uncinariasis*) Campaign in Our Southern United States," *The Journal of Parasitology* 25, no. 4 (1939): p. 289. Stiles offers an important, if sometimes biased, account of the early stages of the hookworm campaign.

⁴² On Ashford’s pioneering work treating hookworm, see Bailey K. Ashford and Pedro Gutierrez Igaravidez, *Uncinariasis (Hookworm Disease) in Porto Rico, Senate Document No. 808* (Washington,

an isolated case in Texas and from Puerto Rico, was that the hookworms in question were a different species from those known to exist in Europe. Not yet aware that the parasite had originated in Africa, Stiles designated the new species *Necator americanus*.

Convinced that hookworm disease would prove as widespread in the American South as in nearby Puerto Rico, Stiles embarked from Washington, D.C. to conduct fieldwork in the region, making his way through Virginia, the Carolinas, Georgia, and Florida. His conclusions were stark. Hookworm, he came to believe, was “one of the most important factors in the inferior mental, physical, and financial condition of the poorer classes of the white population of the rural sand and piney woods districts which I visited.”⁴³

The disease, Stiles reported, represented an ongoing threat to the South’s economic livelihood, “resulting in loss in wages, loss in productive-ness of the farms, loss in the school attendance of the children, extra expenses for drugs and for physicians’ services, etc.” Its causes, moreover, were evident: “The heavy and frequent infections found are amply explained by the almost total absence of privies and closets on the farms visited. Defecation occurs at almost any place within a radius of 50 meters from the house or hut, and as a result the premises become heavily infested with the [hookworm] embryos.”⁴⁴

In time, Stiles’s efforts to publicize his discovery and show southerners how they might avoid hookworm infection would gain the attention of the John D.

D.C.: Government Printing Office, 1911). Whether Ashford or Stiles deserved credit for the discovery of hookworm in the new world remained an ongoing point of contention. See for instance *The Washington Post*, (Washington, D.C.), “Hookworm Discoverer: Army Officials Declare Maj. B.K. Ashford Found it First,” October 31, 1909.

⁴³ Charles Wardell Stiles, *Report Upon the Prevalence and Geographic Distribution of Hookworm Diseases (Uncinariasis or Anchylostomiasis) in the United States* (Washington, D.C.: Government Printing Office, 1903), p. 97.

⁴⁴ Stiles, "Hook-Worm Disease in the South."

Rockefeller philanthropy, laying the ground for a massive external intervention in southern public health. Revival-like gatherings, at which hookworm sufferers were publically diagnosed and then given hookworm purgatives to ingest at home, were the core feature of the initial Rockefeller intervention, which lasted from 1910 through the end of 1914. The limitations of this approach, however, caused agents of the Rockefeller Foundation to consider alternative, less dramatic, strategies of controlling hookworm and other southern diseases.

Less than a decade after Rockefeller's donation of \$1 million to fight hookworm in 1909, the Rockefeller International Health Board was actively involved in the promotion of permanent local public health infrastructure throughout the South. By stressing the broad economic significance of public health work and the specific inhibiting effects of hookworm disease on the life prospects of southern whites, Rockefeller workers were able to convince county governments throughout the region to contribute matching funds to Rockefeller efforts and over time to assume responsibility for vital public health functions. Their attempts to generate local support for public health efforts and create the foundations of sustainable public health infrastructure were a crucial first step in limiting the burden of disease in the South. Ultimately, Stiles's discovery proved the catalyst for a revolution that brought down not just hookworm, but also pellagra and malaria.

Though Stiles lacked a firm quantitative measure of the extent of hookworm infection in the South, the evidence he collected suggested that it was substantial.⁴⁵ Later surveys, conducted by the Rockefeller Sanitary Commission for the Eradication of Hookworm, confirmed his projections. Slightly less than forty percent of the

⁴⁵ Stiles's assessment was based on his own findings and on a significant literature describing instances of "dirt-eating" across the South. See ———, *Report Upon the Prevalence and Geographic Distribution of Hookworm Diseases (Uncinariasis or Anchylostomiasis) in the United States*.

southern population, the Commission ultimately concluded, was likely infected with hookworm. The disease ranged throughout the South, from the Potomac to the Rio Grande, through the coastal plains, the piedmont, and the mountains, though it was particularly concentrated in sandy coastal areas.

Brought to the New World by infected West African slaves, the hookworm thrived in the South, where warm and sandy soil, poor sanitary conditions, and a paucity of shoes ensured continued transmission of the parasite. Deposited into the soil along with human feces, hookworm larvae entered humans through bare feet, eventually making their way to the intestines, where, depending on the number of worms present, they caused varying degrees of anemia.

The impact on human and economic development in the region was devastating. Hookworm disease helped to ensure the South's low literacy rates, low income, and low level of human capital in comparison to the North.⁴⁶ The parasite stunted the growth and impaired the cognitive development of afflicted children, who appeared listless, experienced difficulty concentrating, and were less likely to attend school.⁴⁷ Adult sufferers, depending on the degree of infection, were often extremely weak and unable to work productively. Economically marginalized and socially stigmatized, they were labeled "dirt-eaters" as a result of their propensity to develop pica, an overpowering appetite for dirt, chalk, and clay.⁴⁸

SOUTHERN PUBLIC HEALTH AT THE BEGINNING OF THE 20TH CENTURY

Though Stiles called for a "radical change" in the practice of public health in the South, aimed at educating physicians and citizens about the sanitary measures

⁴⁶ Economist Hoyt Bleakley has found that "the hookworm infection rate could account for around half of the literacy gap and about 20 percent of income differences" between the northern and southern United States during the early 20th Century. See Bleakley, "Disease and Development," p. 105, 84.

⁴⁷ Peter J Hotez, "Hookworm Disease."; Bleakley, "Disease and Development," p. 88, 92.

⁴⁸ Pica is associated with iron-deficiency anemia.

necessary to prevent hookworm infection, state health departments proved ill-equipped to confront the problem. Southern state health departments had been created, beginning in a wave during the 1870s, in response to epidemics of Yellow Fever and cholera.⁴⁹ Primarily concerned with monitoring and attempting to stem the introduction of infectious diseases into their states, the boards typically had little or no coercive authority. Speaking in 1891, the president of the North Carolina Board of Health deplored “the lamentable fact that the Board of Health of North Carolina is still occupying the anomalous position which it occupied at its incipency- a regularly organized Board without executive authority, appointed by the Legislature as an advisory Board on all matters pertaining to hygiene and the preservation of health. The services of such a Board are infrequently, one may say almost never, called upon, and we therefore have very little, if any, progress to report.”⁵⁰

The situation was less bleak in southern cities, where concentrated populations allowed for the implementation of basic public health measures. There, municipal officials were increasingly successful in responding to the threat of contaminated water supplies. Typhoid fever, spread by the contamination of drinking water with human feces, could be markedly reduced by the construction of city sewer systems. As Walter Troesken has argued, effectively combating typhoid required that southern cities not discriminate on the basis of race in providing access to sewers and clean drinking water.⁵¹ Despite the growing rigidity and codification of racial segregation at the turn-of-the century, urban blacks and whites, particularly in older southern cities,

⁴⁹ On early state health departments, their legislative mandates, and the weakness of their coercive power, see Francis R. Allen, "Development of the Public Health Movement in the Southeast," *Social Forces* 22, no. 1 (1943). Arkansas, the last southern state to create a department of health, did not do so until 1913.

⁵⁰ *Fourth Biennial Report of the North Carolina Board of Health, 1891-1892*, (Raleigh, N.C.: Josephus Daniels, State Printer and Binder, 1893), p. 9.

⁵¹ Troesken, *Water, Race, and Disease*. More than this, Troesken finds that “blacks benefited more than whites, in terms of disease reduction, from investments in water and sewer lines and water purification systems.” See ———, *Water, Race, and Disease*, p. 204.

lived in relatively close proximity. Given the circumstances, typhoid among blacks would quickly spread to whites; in addition, proximity often made it prohibitively difficult to avoid black residential areas when constructing sewer lines. As a means of reducing disease incidence and cross-racial “contamination,” “integrated” sewage systems held great appeal for urban public health reformers.⁵²

In the construction of sewers, southern cities only barely trailed their northern counterparts.⁵³ The South, however, was overwhelmingly rural.⁵⁴ The North Carolina Board of Health, among the most competent in the region, remained largely unable to project its authority beyond the state’s scattered urban outposts. The collection of vital statistics, the foundation of modern public health work, was deemed impractical. “Our vital statistics,” the Board reported, “are necessarily partial and incomplete owing to the general character of our population, it being chiefly rural, with one-third of the whole negroes. We have made no attempt, therefore, to collect vital statistics except from cities and towns.”⁵⁵

Consequently, health officials were forced to speculate on rates of mortality, morbidity, and birth when prioritizing public health issues and designing policy. This was typical of southern public health during the years immediately following Stiles’s

⁵² Troesken, *Water, Race, and Disease*. See also Doyle, *New Men, New Cities, New South*, p. 280-81. Doyle argues that the “democracy of disease” in urban areas caused white reformers to favor public health measures for blacks. “Formal segregation,” writes Doyle, “might lessen casual contact with diseased blacks, but there was no practical- never mind legal- way to truly isolate them within a city... Among those who understood the democracy of disease, the need for public health programs... presented the clearest mandate for white civic leaders to take actions that benefited blacks, if only to protect their own race.”

⁵³ Troesken, *Water, Race, and Disease*, p. 39.

⁵⁴ Typhoid continued to be a serious problem in rural areas. “The [typhoid] problem,” Virginia’s health commissioner reported in 1910, “has developed into one concerning principally the small towns and rural districts of the state.” This was because cities had “more or less supervision of their water supply.” See *Virginia Health Bulletin: Annual Report of the Health Commissioner for the Year Ending December 31, 1909*, vol. II, no. 1&2, Virginia Health Bulletin (1910), p. 13.

⁵⁵ *Tenth Biennial Report of the North Carolina Board of Health, 1903-1904*, (Raleigh 1905), p. 86. On early attempts to collect vital statistics, see also *Report of the Board of Health of the State of Mississippi*, (Jackson, MS/ Nashville, TN), September 30, 1909 to June 30, 11, p. 61-62; *Annual Report of the State Board of Health of Florida*, (Jacksonville), Sixteenth Annual Report, February 15, 1905, beginning at p. 8.

finding that hookworm represented a substantial threat to the health and economic livelihood of the region. In 1902, the year of Stiles's initial survey, no southern state had a system of collecting vital statistics deemed adequate by the federal government for inclusion in the Federal Death Registration Area. Kentucky, the first admitted, did not join the Registration Area until 1911. Increasingly aware of the disastrous effects of hookworm and other public health threats, such as pellagra and malaria, southern health officials had no reliable means of documenting and monitoring their intensity or geographic distribution.⁵⁶

Though state boards of health sometimes possessed rudimentary laboratory facilities, no southern state had a hygienic laboratory comparable to those that, in the North, tested water supplies and produced vaccines and anti-toxins until Florida created one in 1903.⁵⁷ Social movements pressing for public health reforms were almost entirely absent.⁵⁸ Throughout the region, health authorities, poorly funded and

⁵⁶ See, for instance, *Annual Report of the State Board of Health of South Carolina*, (Columbia, S.C.), Thirty-Third Annual Report Covering Fiscal Year 1912, published 13, p. 6; *Report of the Board of Health of the State of Mississippi*, September 30, 1909 to June 30, 11, p. 58, 61-62; *Annual Report of the State Board of Health of Florida*, Twenty-Third Annual Report, March 1912, p. 16; *Virginia Health Bulletin: Annual Report of the Health Commissioner for the Year Ending December 31, 1909*, p. 23, 42. Indifference on the part of practicing physicians was often noted as a cause of the inability to collect statistics. In South Carolina, the state health officer attempted to assemble vital statistics by distributing post cards requesting information from physicians. "The response to the appeal," the Health Board reported, "has not been satisfactory. At first reports were received from about one-third of the physicians, but has dwindled down to less than twenty-five reports per month."

⁵⁷ Georgia and North Carolina followed in 1905. See W.S. Rankin, "The Present Status of Public Health Work in the South," in *The South Mobilizing for Social Service: Addresses Delivered at the Southern Sociological Congress, Atlanta, Georgia, April 25-29, 1913* (Nashville: The Southern Sociological Conference, 1913), p. 59. Rankin, himself in charge of the North Carolina Board of Health, obtained information on the organization of southern public health work by mailing a questionnaire to the secretaries of southern boards of health. Later, laboratories were created in Virginia (1908), South Carolina (1909), Kentucky (1911), Texas (1912), Arkansas (1913), and Mississippi (1910). Mississippi received funding to help start its laboratory from the Rockefeller Sanitary Commission. *Report of the Board of Health of the State of Mississippi*, September 30, 1909 to June 30, 11, p. 45. Other southern states also received Rockefeller funding for microscopists and laboratory equipment. See for instance *State Board of Health of North Carolina Biennial Report, 1911- 12*, p. 62.

⁵⁸ See Allen, "Development of the Public Health Movement in the Southeast," p. 73. "The [southeastern] public health movement," writes Allen, "was not a movement of the people, by the people, and for the people... It was a movement for the people but largely by the physicians."

largely ignored by both politicians and communities, found it difficult or impossible to address clear threats to public health such as tuberculosis and smallpox.⁵⁹

The Secretary of the Kentucky Board of Health, expressing indignation at this situation, suggested that “the same proportionate sick and death rate among domestic animals from preventable disease would arouse popular clamor and cause earnest efforts to secure and enforce remedial legislation.” Despite “the warnings of the medical profession, this frightful annual morbidity and mortality is permitted with indifference, and authority and money for investigation are always provided grudgingly.”⁶⁰

While growing knowledge of bacteriology and the desire to respond to rapid urbanization had brought a revolution in public health first to Great Britain and then to the industrializing American North, turn-of-the century southern state and local governments largely lacked the bureaucratic capacity necessary to accurately identify public health problems, develop policy to confront public health issues, and implement policy programs. Public health infrastructure, including laboratories, means of collecting vital statistics, and the ability to inform the public about important public health threats, was underdeveloped. Across the South, counties lacked full-time public health officers, ensuring that public health measures were at best erratic and at worst non-existent.

STILES, THE NEW SOUTH, AND POOR WHITE TRASH

Stiles’s findings drew national attention to the rural South’s dismal sanitary situation. Northern newspapers, taking the hookworm discovery to be something of a

⁵⁹ On the “insignificant sum” allocated to county public health officials, who received most of their incomes from private practice, see *The Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, Second Annual Report*, (Washington, D.C.1911), p. 26-27, 136.

⁶⁰ *Biennial Report of the State Board of Health of Kentucky*, (Louisville), 1904-05, p. 207.

joke, clumsily satirized its hypothesized effects on the South's "poor whites." The hookworm was referred to as "the lazy bug" or "the germ of laziness." "No doubt," the *Denver Republican* mockingly reported, "the lazy man's respect for himself will go up amazingly, and self pity will also be in evidence when he realizes that he is in reality suffering from a disease."⁶¹

Stiles himself, hoping to bring attention to the impact of hookworm on the South in any way possible, calibrated his criticism of the northern response based on his audience.⁶² "When you and I hear these often brilliant witticisms," he later cautioned a reporter from the *Washington Post*, "it must be confessed, we may for a moment find it difficult to suppress a sickly smile, but that smile will be cut suddenly short as we recall experiences beside the sick bed, or death bed in the hovels on the one-horse farms." Dr. Stiles, the *Post* reported, believed that the South's poor whites were "not lazy, not 'good-for-nothing,' but unfortunate."⁶³

Speaking before a southern audience, however, Stiles was less forgiving: "Does it tend to elevate them [tenant whites] if we refer to them as 'lazy' and as 'good for nothing?' Would it not help them more if we could send to the chain gang people who indulge in that kind of pseudo-wit?"⁶⁴

Transferring from the Department of Agriculture to the United States Public Health Service, Stiles received permission from the Surgeon General to begin an

⁶¹ Reprinted in *The Washington Post*, "Hunting Down the Lazy Germ: Scientists Trying to Remove All Excuses for That Tired Feeling," October 25, 1903. See also *The Washington Post*, "Fight With Lazy Bug: Ridding the South of the Hookworm Scourge," July 20, 1903. On the press's reaction to Stiles's findings, see Ettling, *Germ of Laziness*, p. 35-38.

⁶² On the benefits of publicity, see Stiles, "Early History," p. 296.

⁶³ *The Washington Post*, "Crusade to Transform the South's 'Poor Whites' into Industrious Citizens," September 27, 1908.

⁶⁴ Charles Wardell Stiles, "The Medical Influence of the Negro in Connection with Anemia in the White, Address Given to the North Carolina Board of Health and State Medical Society, June 17, 1908," in *Biennial Report of the North Carolina Board of Health, 1907-1908* (Raleigh: 1909), p. 27.

educational campaign in the South. Traveling across the region, Stiles lectured to state medical societies, groups of physicians, medical students, and civic groups. He gave presentations demonstrating how to identify hookworm under a microscope and stressed the importance of treatment for hookworm patients and the role of sanitation in preventing further infection.⁶⁵

At times, when speaking to members of the communities he sought to help, Stiles could appear overbearing and condescending.⁶⁶ He regularly offended his audiences' sense of propriety by insisting on the importance of sanitary privies in combating hookworm. On one occasion, Stiles recalled, the local sheriff "came to me and said that my talk had produced such public indignation that he felt it necessary to give me a bodyguard the rest of the time I was in that town!"⁶⁷ Due to better sanitary conditions, Stiles found, children living in cotton mill towns were less likely to be infected with hookworm. Vocal in his belief that these children were better off than those on the farm, Stiles gained the lasting enmity of the anti-child labor movement.⁶⁸

⁶⁵ Stiles, "Early History," p. 296.

⁶⁶ Despite years of experience and little practical gain in his campaign against hookworm, Stiles continued to describe the disease as "easily preventable." He did little to conceal his anger at the reluctance of southerners to take his warnings to heart: "Most of the rural schools and churches," Stiles told an audience in Washington, D.C., "are a disgrace to the South, and to the country at large. It seems impossible to persuade a Protestant minister in the South to adopt the most primitive sanitary measures. Whatever value the church and school may have in a religious or educational line they are dangerous agents in carrying the hookworm disease." See *The Washington Post*, "Gives Cure For Hookworm: Dr. Stiles Says Sanitation is the Best Remedy," November 28, 1909. A nearly identical statement may be found in Charles Wardell Stiles, "Hookworm Disease in Its Relation to the Negro," *Public Health Reports* 24, no. 31 (1909): p. 1087.

⁶⁷ Stiles, "Early History," p. 298. In 1903, government officials had resisted publishing a health bulletin by Stiles that detailed the importance of sanitary privies, on the grounds, in Stiles's account, "that this chapter was exceedingly undignified, in fact disgusting, and had no place in a scientific article on public health." See ———, "Early History," p. 297.

⁶⁸ See Ettlting, *Germ of Laziness*, p. 43; "Transactions of the Public Health and Marine Hospital Service, Fiscal Year 1909, and to November 1, 1909: Hook-Worm Disease," *Public Health Reports* (1909). "His conclusions on the subject of child labor in the South," a Public Health Service report dryly noted, "are not in harmony with those popularly entertained... his conclusions can best be summarized by his statement that if he had to choose between placing his own 10-year-old daughter in the spinning room of a cotton mill and placing her on the average small tenant farm of the South he would be obliged in the best interests of the child to send her to the mill."

Over the course of several years, Stiles's one-man publicity campaign helped to define hookworm disease and its victims in the regional and national imagination. Tapping into popular stereotypes of southern "poor white trash," Stiles eagerly portrayed impoverished whites as the principal victims of hookworm disease.⁶⁹ The discovery of hookworm disease, he suggested, offered an avenue for their rehabilitation into productive contributors to a new and more dynamic South. Over time, by linking the treatment of poor whites with the ideology of the New South, which imagined an industrializing South released from the indignity of second-class status within the national Union, Stiles developed a powerful argument in favor of organized action against hookworm.

He offered a standard account of poor white origins: unable to afford plantations or slaves, they had been forced onto the South's worst land and into competition with slave labor. "The old-time negro had a great contempt for the white man who could not own a slave, and this contempt culminated in the expression, 'poor white trash.'" Degraded by competition with blacks, poor whites were looked upon with distrust and a lack of sympathy by economically advantaged whites, who adopted the prejudices of their former slaves.⁷⁰

Drawing attention to the role of hookworm disease in their economic plight, Stiles hoped to employ the sympathetic image of the diseased but redeemable poor white to rouse political backing for a more extensive campaign against the parasite. In meetings with groups of physicians, lectures throughout the South, and journal articles, Dr. Stiles effectively linked the presence of hookworm with the poor white stereotype and aspirations for southern economic development. "I believe that there

⁶⁹ For a discussion of the relationship between hookworm disease and the construction of "poor whites" in the national media, see Matt Wray, *Not Quite White: White Trash and the Boundaries of Whiteness* (Durham: Duke University Press, 2006).

⁷⁰ Stiles, "The Medical Influence of the Negro in Connection with Anemia in the White, Address Given to the North Carolina Board of Health and State Medical Society, June 17, 1908," p. 23.

are millions of people in our Southern States who are affected by the hookworm who can be saved,” Stiles told the *Washington Post* in 1908. “Not saved from disease alone, but saved from that laziness which has given them the title of ‘shiftless’ and ‘poor white trash.’” Hookworm, he continued, “causes much of the economical poverty of the States which are infested most with the germ which produces it.”⁷¹ As a 1909 article in *McClure’s Magazine* summarized Stiles’s argument, “Two million dollars will pay the whole bill for the cure of the South... and when the cure is complete, the South will take her place with the North and West in agricultural and industrial prosperity, for her two million sick whites will be two million able workers.”⁷²

The flipside of constructing the victims of hookworm disease as “poor whites” was a portrayal of the disease, of West African origin, as fundamentally “African” and of black sufferers of hookworm as a “reservoir of disease.”⁷³ Poor whites, by this account, were doubly the victims of southern blacks. Forced to compete economically, they were subject also to the ravages of tropical diseases imported from Africa along with the slaves.⁷⁴ Here, Stiles’s arguments coincided with the racist inclinations of the contemporary scientific mainstream, echoing the language used to discuss

⁷¹ *The Washington Post*, “Crusade to Transform the South’s ‘Poor Whites’ into Industrious Citizens,” September 27, 1908.

⁷² Marion Hamilton Carter, “The Vampire of the South,” *McClure’s Magazine* XXXIII, no. 6 (1909): p. 618.

⁷³ Charles Wardell Stiles, “The Industrial Conditions of the Tenant Class (White and Black) as Influenced by the Medical Conditions,” in *The South in the Building of the Nation* (Richmond, VA: The Southern Historical Publication Society, 1909), p. 595, 98; *The Washington Post*, “Crusade to Transform the South’s ‘Poor Whites’ into Industrious Citizens,” September 27, 1908; Wray, *Not Quite White*, p. 124; Stiles, “Hookworm Disease in Its Relation to the Negro,” p. 1086; Ettling, *Germ of Laziness*, p. 173.

⁷⁴ Stiles, “The Medical Influence of the Negro in Connection with Anemia in the White, Address Given to the North Carolina Board of Health and State Medical Society, June 17, 1908,” p. 24; ———, “Hookworm Disease in Its Relation to the Negro.”

tuberculosis and malaria. The poor health status of black Americans was, above all else, a threat to the health of whites.⁷⁵

Like malaria, Stiles noted, hookworm had a greater physical effect on whites than blacks: “this fact... is one of great importance, for it points us to a conclusion from which there is no escape, namely, that the negro race, forms a great reservoir of supply for these infections.”⁷⁶ Because the disease was less severe in blacks, Stiles maintained, they were able to continue working and less likely to seek treatment. Consequently, the disease would continue to be transferred to whites.⁷⁷ Speaking to the American Society for the Advancement of Science, Stiles stated plainly that the South’s hookworm problem resulted from “the fact that in the United States we are violating a law of nature; namely, in attempting to lodge different races of man side by side in the same area.”⁷⁸

Driving home the ongoing black threat to public health in graphic language, Stiles appealed both to white paternalism and the potent fear of inter-racial

⁷⁵ See David McBride, *From Tb to Aids: Epidemics among Urban Blacks since 1900*, ed. John Howard and Robert C. Smit, Suny Series in Afro-American Studies (Albany: State University of New York Press, 1991), p. 17-18; Robert W. Shufeldt, *America's Greatest Problem: The Negro* (Philadelphia: F.A. Davis, 1915).

⁷⁶ Stiles, "The Medical Influence of the Negro in Connection with Anemia in the White, Address Given to the North Carolina Board of Health and State Medical Society, June 17, 1908," p. 24. For repetition of these statements, see also ———, "Hookworm Disease in Its Relation to the Negro.," *The Washington Post*, "Crusade to Transform the South's 'Poor Whites' into Industrious Citizens," September 27, 1908. Stiles's "Hookworm Disease in its Relation to the Negro," which ultimately has very little to say about hookworm in black southerners, is largely a synopsis of talking points that Stiles had developed over the preceding six years. As such, it repeats themes and ideas that can be found in a variety of earlier newspaper interviews, speeches, and publications.

⁷⁷ *The Washington Post*, "Crusade to Transform the South's 'Poor Whites' into Industrious Citizens," September 27, 1908. See also Stiles, "Hookworm Disease in Its Relation to the Negro," p. 1085-86. In rural areas of the South, Stiles writes, "the 833 negroes to the 1,000 whites (found in eight States) represent theoretically 833 possible hookworm reservoirs who do not suffer so seriously from the direct effects of the malady, who are therefore not likely to come under treatment, but who are likely to act as spreaders of the disease to the rest of the community." See also Carter, "The Vampire of the South," p. 629-31.

⁷⁸ *The Washington Post*, "Hookworm Evil Real: Dr. Stiles Tells Scientists of Its Spread in the South," December 29, 1909.

contamination.⁷⁹ In an article detailing sanitary conditions among black and white southern tenant farmers, he maintained that “the absence of a privy at 55.2 per cent of the farm houses tabulated was not due to the ignorance of the tenants, but to the thoughtlessness and ignorance of the better educated white landlord.”⁸⁰ For such men, Stiles argued, the imperatives of social responsibility, public health, and racial purity were in alignment. “One of the finest men in the world to meet,” Stiles wrote, the southern white landowner “would not think of eating at a table with a negro, but it does not seem to occur to him that he and his family daily run the risk of eating negro fecal material carried to their food by flies which have bred and fed in the nearby woods used by his tenants or servants in lieu of a privy.”⁸¹

Offering a clear portrait of the victims and perpetrators of hookworm disease, Stiles elaborated the implications of his understanding of the disease for the implementation of anti-hookworm public policy.⁸² Just as municipal governments across the South were learning that successfully combating typhoid fever meant providing adequate sewage systems for urban blacks as well as whites, Stiles argued that racial discrimination in the battle against hookworm could only serve to harm the health and well-being of white southerners. As long as disease was allowed to endure

⁷⁹ On “contamination,” and the resonance of the hookworm threat with the language of miscegenation, see Wray, *Not Quite White*, p. 124. “What hookworm campaigners essentially argued,” writes Wray, “was remarkably similar to the eugenicists’ theories of cross-racial contamination as the root of the poor white problem. Yes, crusaders agreed, the poor white *was* the victim of cross-racial contamination, but not, as eugenicists argued, as the result of interracial pollution through sexual contact. It was instead, soil pollution that had enabled the corrupting worm to be passed from black to white.” This conclusion is, I believe, largely born-out by the evidence.

⁸⁰ Stiles, “The Industrial Conditions of the Tenant Class (White and Black) as Influenced by the Medical Conditions,” p. 599.

⁸¹ *Ibid.*

⁸² On the role of conceptions of target populations in shaping public policy, see Anne Schneider and Helen Ingram, “Social Construction of Target Populations: Implications for Politics and Policy,” *The American Political Science Review* 87, no. 2 (1993). “The social construction of target populations,” Schneider and Ingram write, “refers to the cultural characterizations or popular images of the persons or groups whose behavior and well-being are affected by public policy. These characterizations are normative and evaluative, portraying groups in positive or negative terms through symbolic language, metaphors, and stories.” They argue that “the social construction of target populations has a powerful influence on public officials and shapes both the policy agenda and the actual design of policy.”

among blacks, whites would remain in danger.⁸³ The responsibility of white landowners, to black tenants as well as their own families, was unambiguous: “The white man who fails to recognize the important necessity of improving the sanitary conditions under which the negro is living fails to go to the root of the evil, and he unconsciously invites disease and death, especially to the women and children of his own race.”⁸⁴

Beginning in early 1903, Stiles’s educational campaign helped to persuade a significant number of southern physicians and politicians that hookworm disease was acting as a check on the region’s human and economic development. He made a strong case for a large-scale effort to eliminate the blight of hookworm from southern life, detailing the necessary sanitary provisions and the importance of treating patients with thymol, the drug needed to purge hookworm from its victims’ intestines. Still, what political support he could muster did not readily translate into financial backing. State funding remained scarce. Although South Carolina Senator “Pitchfork” Ben Tillman expressed interest in securing congressional funding for an anti-hookworm initiative, the plan ultimately came to nothing.⁸⁵ The control of hookworm was not seen as an issue that the federal government should become any further involved in than it already was. Later, promised financial support from a Richmond, Virginia businessman evaporated when the donor died unexpectedly before making the gift official.⁸⁶

⁸³ Stiles, "The Medical Influence of the Negro in Connection with Anemia in the White, Address Given to the North Carolina Board of Health and State Medical Society, June 17, 1908," p. 28. "It is absolutely necessary," Stiles urged the North Carolina Board of Health, "to avoid any distinction between the white and the negroes in this campaign of sanitary education." See also Carter, "The Vampire of the South," p. 631. Marian Hamilton Carter, relying on Stiles’s work, advised the readers of *McClure’s* that "The one real hope of curing the white man lies in curing the black man."

⁸⁴ Stiles, "The Medical Influence of the Negro in Connection with Anemia in the White, Address Given to the North Carolina Board of Health and State Medical Society, June 17, 1908," p. 28.

⁸⁵ ———, "Early History," p. 298.

⁸⁶ *Ibid.*: p. 300; Ettlting, *Germ of Laziness*, p. 100-01.

Beyond its failure to prod either state governments or the federal government to develop a comprehensive program to respond to the hookworm problem, Stiles's campaign had, by 1908, had almost no effect on the lives of the southern victims of hookworm. Across the region, many were unaware or only vaguely aware of the disease's presence. Sanitary privies remained absent throughout much of the rural South, while medical treatment for hookworm remained rare.⁸⁷ Neither of these basic tools in the fight against hookworm disease garnered much popular support or interest. Even when aware that a drug capable of ridding them of hookworm was available, sufferers expressed little desire to swallow a poison that, improperly administered, could lead to grave illness and even death. Both public demand for a serious campaign against hookworm and the institutional basis for such a campaign were severely lacking.

A chance encounter in 1908, however, offered Stiles the opportunity to make his case for a concerted effort to eliminate hookworm to men with the financial and organizational resources to help him make a serious attempt at achieving his goal.⁸⁸ A recognized expert on southern living conditions, Stiles was asked to participate in President Theodore Roosevelt's "Country Life Commission," tasked with analyzing the status of rural life throughout the nation. Traveling through the South, Stiles shared a railway car with "Uncle" Henry Wallace, an influential voice in American agriculture, editor of *Wallace's Farmer*, and grandfather of the future Vice President,

⁸⁷ Of 250,680 farm homes surveyed by the RSC between 1911-1914, fully 125,000 had no privy. See *The Rockefeller Sanitary Commission for the Eradication of Hookworm, Fifth Annual Report*, (1915), p. 13.

⁸⁸ My account of this incident follows Ettlign, *Germ of Laziness*. Ettlign follows Mark Sullivan, *Our Times: The United States 1900-1925*, vol. III (New York: Charles Scribner's Sons, 1930). See also Woodward, *Origins of the New South*, p. 426; Rupert B. Vance, *Human Geography of the South: A Study in Regional Resources and Human Adequacy*, ed. Howard W. Odum, 2nd ed., The University of North Carolina Social Study Series (Chapel Hill: The University of North Carolina Press, 1932), p. 383.

and Walter Hines Page, a well-connected native southerner and editor of the magazine *World's Work*.⁸⁹ While stopped at a railroad station, the three men noticed a disturbingly feeble man lounging on the platform. Wallace, alarmed by the man's appearance, asked "What on earth is that?" Page nonchalantly replied that the man was a "poor white," an unfortunate but common sight in the South. At this point, Stiles interjected, launching into a lecture on hookworm: "That man is a 'dirt-eater.' His condition is due to hookworm infection; he can be cured at a cost of about fifty cents for drugs, and in a few weeks' time he can be turned into a useful man."⁹⁰

Page was either unaware of Stiles's work with hookworm or had not yet made the connection between the parasite, the profusion of visibly sick southerners, and the possibility that hookworm was inhibiting the southern economy. Stiles was happy to connect the dots. He explained what the hookworm was, how it was transmitted, and its devastating effects on human capital in the South. Treating hookworm, he told Page, was "simple, utterly inexpensive, and infallibly certain."⁹¹ Eager to endorse ideas likely to further the prospects for an economic and cultural resurgence in the South, Page found Stiles's hookworm pitch irresistible. Following their conversation, he contacted friends involved in the growing philanthropic enterprises of Standard Oil founder John D. Rockefeller.

The Rockefeller Foundation proved receptive to Page's endorsement of Stiles's call for an enlarged anti-hookworm effort. The Country Life Commission wrapped up its national tour with a reception at Cornell University in Ithaca, New York. There, Wallace Buttrick, secretary of Rockefeller's General Education Board, which had earlier initiated a campaign to help fund public education in the South, approached

⁸⁹ A native of North Carolina, Page was a well-known New South booster and supporter of the Rockefeller Foundation's public education efforts in the South. He later served as ambassador to Great Britain during the Wilson administration.

⁹⁰ Sullivan, *Our Times: The United States 1900-1925*, p. 320.

⁹¹ *Ibid.*, p. 323. This quotation is from Sullivan's summary of the conversation.

Stiles and asked for a briefing on the hookworm problem. After talking late into the night with Stiles, Buttrick decided to arrange a meeting in New York City between Stiles, Simon Flexner, head of the Rockefeller Hospital for Medical Research, and Frederick Gates, who ran the Rockefeller Philanthropies.⁹² Fine-tuned over years of practice, Stiles's presentation persuaded Flexner and Gates of the severity of the problem. Following some reflection and further investigation, and after persuading Rockefeller of the great good that could be done in his name, Gates informed Stiles that the Rockefeller Foundation would offer a large grant for the fight against hookworm in the South.

THE ROCKEFELLER SANITARY COMMISSION FOR THE
ERADICATION OF HOOKWORM

On October 26, 1909, nearly seven years to the day after Stiles published his initial report on hookworm in the South, Rockefeller announced that he would donate \$1 million to further the hookworm campaign. He invited twelve men, many already involved in Rockefeller medical research or active in the General Education Board, to help form the Rockefeller Sanitary Commission for the Eradication of Hookworm. Southern educational leaders were given prominent roles in the new Commission.⁹³ It was hoped that by involving southerners the possibility of a negative reaction from southern leaders, newspapers, and general public could be avoided.

Perhaps inevitably, however, there was a massive backlash.⁹⁴ In part, this was because Rockefeller was an immensely unpopular individual and the motivation for his donation of such a large sum was unclear. More important was the symbolism of a

⁹² Ibid., p. 324.

⁹³ Ettlting, *Germ of Laziness*, p. 108.

⁹⁴ The response of southern leaders to the announcement of the Commission's formation is described in detail in Ibid., p. 130.

rich northerner offering, through the grant of a shockingly large sum of money, to cure the South of its intestinal parasites. From its discovery, hookworm had been far more than a disease. In 1902 and 1903, northern mockery and derision had put southern leaders on the defensive. The new round of publicity that followed the announcement of Rockefeller's gift ensured the politicization of the disease, and discussion of hookworm turned increasingly bitter and sectional.

The northern press responded to the announcement of Rockefeller's donation with a new wave of jokes about poor southern whites and the "Germ of Laziness." In the South, the response was less jovial. Southern Methodist Bishop Warren Candler, brother of the inventor of Coca-Cola and soon to become the first chancellor of Emory University, loudly denounced the gift. "It is to be hoped," Candler said, "that our people will not be taken in by Mr. Rockefeller's vermifuge fund and hookworm commission. The habit of singling out the South for all sorts of reforms, remedies, and enlightenment is not for our benefit, and the too ready acceptance of these things on the part of some of our people is not to our credit." For Candler, the sectional insult was unmistakable: "The South is represented to be filled with a wretched brood of dirt eaters. Who that knows the South can for a moment believe this?"⁹⁵

Other influential southerners, including Mississippi's James Vardaman and North Carolina progressive Josephus Daniels, shared Candler's initial hostility toward the Commission. "Candler and Daniels," John Ettlting suggests, "did not speak for most Southerners." Nonetheless, their responses set a general tone that did not bode well. "Candler," Ettlting writes, "probably influenced Georgia's Senator Hoke Smith to oppose and eventually defeat the bill in the United States Senate to charter the

⁹⁵ *The Washington Post*, "Insulted by Hookworm Gift," November 2, 1909.

Rockefeller Foundation.” Meanwhile, in Texas, “Governor Thomas M. Campbell blocked all Commission activities for as long as he held office.”⁹⁶

In January 1910, the Rockefeller Sanitary Commission for the Eradication of Hookworm set up offices in Washington, D.C. By the end of spring, relatively detailed surveys of the rate of hookworm infection were underway in counties across the South. Confronted with the defensive reaction of the southern press, the RSC worked hard to win over public opinion in the South to the anti-hookworm cause. The negativity of the press suggested that if it failed to do so the RSC would face significant, even debilitating, obstacles.⁹⁷ As a first step, the Commission was organized in a manner intended to emphasize the importance of local people and institutions in fighting hookworm. “It was regarded as fundamental,” the RSC’s first annual report noted, “in the interest both of economy and of efficiency that the work be done as far as possible through existing agencies. Each state has its own system of public health, its own system of organized medicine, its own organized public press, its own system of public schools... These are established institutions rooted in the life and traditions of the people; to enlist these agencies in the accomplishment of the task is to insure the permanency of the work from the beginning.”⁹⁸ Charles Wardell Stiles, previously the public face of the anti-hookworm fight, was appointed the Commission’s Scientific Secretary rather than its administrator, a decision intended to ensure that the RSC would have relatively full control over its own message.⁹⁹ His

⁹⁶ ———, *Germ of Laziness*, p. 132-33. Although, according to Ettlting, Candler came to recognize the worth of the hookworm campaign, he apparently continued to resent the involvement of Rockefeller.

⁹⁷ *The Rockefeller Sanitary Commission for the Eradication of Hookworm, Fifth Annual Report*, p. 21. “Very few papers,” the RSC reported in a 1915 summary of its efforts to gain the support of the press, “could be said to be friendly, or willing to cooperate actively with the Commission in launching the work.”

⁹⁸ *The Rockefeller Sanitary Commission for the Eradication of Hookworm Disease: Report of the Administrative Secretary*, (Washington, D.C.1910), p. 4.

⁹⁹ ———, *Germ of Laziness*, p. 111-12.

personal and idiosyncratic campaign was succeeded by an increasingly well-organized and bureaucratized effort.

In its first year, the Commission achieved only limited success. While its surveys of hookworm infection validated Stiles's earlier projections and helped to more fully document the extent of the problem, the Commission found it difficult to reach out to rural southerners, who were often wary of the claims made about hookworm disease. Committed to working through existing state health departments, the RSC's directors quickly learned that they were generally disorganized, haphazard, and ineffectual institutions.¹⁰⁰

Hoping to gain a better perspective on the administrative challenges facing the anti-hookworm effort, Wickliffe Rose, the Tennessee educator appointed Administrative Secretary of the RSC, commissioned a study of the organization of public health activities in the eleven former Confederate states plus Kentucky.¹⁰¹ Sensitive to the status of public health work in the states it hoped to help, the Commission developed a hybrid public-private mode of organization intended to strengthen the institutional underpinnings of public health in the South; ideally, the Commission's leaders hoped to provide some basis for the future implementation of public health policy. In each state, the RSC chose a State Director of Sanitation who, while technically appointed to a position within the state department of health, was paid with funds from the Rockefeller donation. Field officers were similarly chosen by the RSC, given state appointments, and paid with Rockefeller money.¹⁰² Employing talented native southerners as field agents, it was hoped, would help the RSC to engage with potentially suspicious rural communities.

¹⁰⁰ Ibid., p. 118-19.

¹⁰¹ See *State Systems of Public Health in Twelve Southern States*, (Washington, D.C.: Rockefeller Sanitary Commission, 1911). On Rose's background, see ———, *Germ of Laziness*, p. 115.

¹⁰² Ettling, *Germ of Laziness*, p. 136-37.

By the end of 1911, the fundamental components of a successful drive against hookworm disease appeared increasingly clear to the leaders of the Rockefeller Sanitary Commission. The initial backlash against Rockefeller's gift had largely faded. Popular indifference to the hookworm threat, however, proved a far more serious obstacle. In rural communities across the South, despite Stiles's efforts, individuals were often unaware of hookworm disease. Accustomed to seeing hookworm sufferers in their daily lives, many who learned of the disease were resigned to its ill effects. As the campaign got underway, "the people did not know hookworm disease as a disease. The announcement of its prevalence they had not taken seriously. It was extremely difficult to induce them to be examined, and even more difficult to get them when found infected to consent to treatment."¹⁰³

Early on, the schoolhouse emerged as one of the campaign's primary institutional settings. Students represented a captive and easily accessible audience; educating them about hookworm and testing them for the disease, it was believed, would lay the foundation for a more sanitary South and draw attention to hookworm's role in inhibiting children's ability to learn.¹⁰⁴ Pamphlets detailing the basics of proper sanitation and hookworm prevention were distributed to teachers, and students were instructed on the importance of wearing shoes and avoiding soil pollution if possible. Teachers and school boards, encouraged by the Rockefeller Commission, pushed for the installation of sanitary privies at schools. They quickly achieved real results:

¹⁰³ *Rockefeller Sanitary Commission, Second Annual Report*, p. 17. See also *The Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, Third Annual Report*, (1912), p. 102, "Letter from Dr. J.W. Williams, Everett, N.C." "The people in a certain large neighborhood had never heard of a hookworm," wrote Dr. Williams in response to an RSC request for an example of his experience with hookworm. "I attended services at a church out that way and naturally noticed such a pale crowd of people. I made the remark that 90 per cent of the ones present had hookworm. Oh no! They wouldn't let a new doctor who said they were 'wormy' come into their house."

¹⁰⁴ See Ettlign, *Germ of Laziness*, p. 152.

beginning January 1, 1911, Virginia law required the construction of sanitary privies in all public schools.¹⁰⁵ When the RSC deemed its early methods of surveying the distribution of hookworm disease ineffective, its leaders decided to base their estimates on surveys of a minimum of 200 school children, between eight and eighteen, per county.¹⁰⁶

Along with hookworm education in the schools, the dispensary system, first employed by a Mississippi physician in December 1910, proved an invaluable tool both for transforming public sentiment and actually providing treatment to hookworm patients. At its inception, the dispensary was conceived of as a means of providing care to a limited number of indigent patients. Already in Puerto Rico, American authorities had held large gatherings at which the hookworm purgative thymol was given to the infected rural inhabitants of the island.¹⁰⁷ The Rockefeller Sanitary Commission's leaders, however, did not view this approach as workable. RSC director Wickliffe Rose, who had visited Puerto Rico, later admitted that "the State directors and I were strongly of the opinion that the people would not come to dispensaries for examination and treatment."¹⁰⁸

¹⁰⁵ See, for example, *Rockefeller Sanitary Commission, Second Annual Report*, p. 32, 35, 38, 41, 55, 61, 65; *The Rockefeller Sanitary Commission for the Eradication of Hookworm, Fifth Annual Report*, p. 22; *The Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, Third Annual Report*, p. 35. Local boards of education across the South were fairly quick to adopt privy ordinances, though the extent to which they were meaningfully enforced is not known. On school boards and privies, see Link, *Paradox of Southern Progressivism*, p. 204-05.

¹⁰⁶ *The Rockefeller Sanitary Commission for the Eradication of Hookworm, Fifth Annual Report*, p. 12. Eventually, the RSC examined 548,992 children, averaging 921 per county in 596 counties across the South, from Virginia to Texas, excluding Florida and Oklahoma, states that did not participate in the campaign. The RSC considered 968 counties to be within the "infected zone." West Texas, with relatively less moist soil, was the only part of the region without serious hookworm infection.

¹⁰⁷ *Rockefeller Sanitary Commission, Second Annual Report*, p. 18; Ettlign, *Germ of Laziness*, p. 124-26, 57. In the urban Northeast, dispensaries operated by charitable organizations and using the free labor of physicians and medical students provided free care to the poor. See Starr, *Social Transformation of American Medicine*, p. 181-84; John Duffy, *The Sanitarians: A History of American Public Health* (Urbana and Chicago: University of Illinois Press, 1990), p. 158.

¹⁰⁸ *Rockefeller Sanitary Commission, Second Annual Report*, p. 21.

Far more important, the RSC believed, was the educational campaign centered in the schools. Soon, however, its organizers recognized the value of the Mississippi model, which made the diagnosis of disease and dispensing of medicine a social experience. When it was replicated across the South, the dispensary became a potent means of generating enthusiasm for the Rockefeller-backed fight against hookworm. By the end of 1914, dispensaries had been opened in 578 counties across the region.¹⁰⁹ Although the RSC's leadership had not intended to use, let alone rely on, public dispensaries, the gatherings became the bedrock and most well-known aspect of the Rockefeller campaign. The RSC's adaptability, and eagerness to embrace solutions that offered practical results, would prove to be of great benefit to the southern victims of hookworm.

The dispensary itself was fairly simple. An RSC agent would designate five dispensary locations throughout a single county, opening each for one day a week over a six-week long period. Individuals and families traveled, often by foot, from across the county and from nearby counties to be examined for hookworm.¹¹⁰ Dispensary patients were asked to bring along stool samples; in some cases, they were diagnosed by appearance and symptoms. If they were found to have hookworm, they were given thymol and instructions for its use in purging the worms from their system.

Since patients administered the thymol themselves, at home, the Commission was never entirely certain how many individuals had actually received treatment. If patients returned to the dispensary the next week and were found to still be infected, they were given an additional dose. In addition to offering examination and medication, dispensaries offered an array of visual material testifying to the benefits of ridding one's self of the disease. Samples of the hookworm itself, stereopticon

¹⁰⁹ *The Rockefeller Sanitary Commission for the Eradication of Hookworm, Fifth Annual Report*, p. 18.

¹¹⁰ *Rockefeller Sanitary Commission, Second Annual Report*, p. 20.

presentations about the parasite, and before-and-after photographs of hookworm victims were provided by the Sanitary Commission.¹¹¹ Confronted with visual evidence of the hookworm and its effects, dispensary attendees often became eager participants in the campaign, seeking treatment for themselves and, relieved of their burden, frequently spreading word of the dispensary's virtues.¹¹²

Despite the power of the dispensaries to create popular enthusiasm for the fight against hookworm, their success was ultimately rooted in the Sanitary Commission's ability to mobilize local elites in support of the campaign. There was always the possibility that, when a dispensary opened, the local community would fail to participate. Knowledge of how to treat hookworm, as Stiles had discovered, was difficult to translate into actual change on the ground in the face of popular indifference and unwillingness to engage with the arguments of medical professionals. A later Rockefeller manual on hookworm control, which relied on the southern experience as a blueprint for an international hookworm campaign, explained the obstacles confronting anti-hookworm work: "Although the problem of complete eradication seems simple on paper, it is not so in fact. Many difficulties arise to prevent working it out to the end. Virtually every difficulty, however, may be rightly attributed to one cause: lack of proper co-operation on the part of the people who are to be most benefited."¹¹³ In the absence of community pressure, individuals might not show up for the dispensary. If they did attend, they might decide not to take treatment

¹¹¹ *The Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, Third Annual Report*, p. 17.

¹¹² *Ibid.*, p. 19.

¹¹³ H.H. Howard, *The Control of Hookworm Disease by the Intensive Method* (New York: The Rockefeller Foundation International Health Board, 1919), p. 14.

or to invest the time, money, and effort in improving the sanitary environment around their homes.¹¹⁴

Before opening a dispensary, Sanitary Commission agents employed flattery, appeals to community spirit and the revitalizing ideology of the New South, and bare self interest to convince county medical societies, ministers, school boards, and community leaders to endorse the work of the sanitary commission in their county. Opening a dispensary, it was argued, would mean that communities bogged down by unproductive workers and sickness would be quickly transformed into communities capable of achieving significant economic growth.¹¹⁵

Agents began by appealing to physicians. Doctors were approached by RSC representatives and persuaded to sign a petition in favor of a dispensary in their county. Next, the RSC asked for the endorsement of the county medical society.¹¹⁶ Perhaps worried that physicians might view the Rockefeller effort as a threat to their own individual practices, the Commission sent letters informing physicians that,

¹¹⁴ A report from Mississippi suggests the initial attitude of many towards taking thymol. Field Director Dr. Henry Boswell wrote to the State Director about a Thrasher, Mississippi woman who “was instrumental in having about one hundred persons examined” after combating “disbelief and prejudice in her community.” After convincing a local man to be examined and take treatment, the man began to feel better and gain weight. “Now that the people have seen that the medicine did not leave him blind or crippled, but is actually helping him” the woman told the Field Director, “they are wanting to be examined.” See *The Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, Fourth Annual Report*, (Washington, D.C.1914), p. 88.

¹¹⁵ See for instance *Rockefeller Sanitary Commission, Second Annual Report*, p. 15, 16, 115-16, 20, 25; *The Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, Third Annual Report*, p. 20, 49; *The Washington Post*, “Says Hookworm Affects Efficiency of Country,” September 26, 1912. The RSC’s annual reports are filled with descriptions, intended to be used to persuade county supervisors and other notables to support a dispensary campaign, of the transformative effects of the dispensary on the economic prospects of individuals and communities. Describing the rehabilitation of a young dispensary patient, an RSC field agent reported that the boy’s father had considered him “of no account, worthless, trifling.” “The economic value of this treatment,” the agent continued, “can be best presented just as the old farmer [the boy’s father] told it to me. ‘Aside from saving my boy,’ said he, ‘this thing means money in my pocket. Before I saw you I had to feed and clothe him and care for him at a dead expense... I had to hire a man to take the work I had counted on his doing, which cost me \$1 a day.’” Elsewhere, a physician describes the transformation of an entire Richmond County, Virginia community previously known for “lack of energy and thrift.”

¹¹⁶ *The Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, Third Annual Report*, p. 17; *Rockefeller Sanitary Commission, Second Annual Report*, p. 19.

Table 1. The Rockefeller Sanitary Commission’s Dispensary Strategy, 1911-1914.

1. Mass-mailing of educational literature; education in schools; educational efforts aimed at physicians (essentially an extension of Stiles’s educational campaign, ongoing alongside individual county campaigns).
2. Hookworm infection survey, based on at least 250 county students.
3. Elite Mobilization
4. Appropriation of County Funds (an indicator of legitimacy)
5. Publicity (through newspapers, public notices)
6. Diagnosis of Hookworm Disease at the Dispensary
7. Distribution of thymol (taken at home)
8. Patient returns to dispensary, given more thymol if necessary
9. Patient builds sanitary privy or improves existing privy

Source: Adapted from the RSC *Annual Reports*, 1911-1914.

following the operation of dispensary, “the people in many instances who previously seldom consulted physicians seek treatment from the regular practitioners... A wholesale drug house reports a great increase in the sale of thymol among the doctors in the counties where the dispensaries have been.”¹¹⁷

After similarly courting the school board and prominent members of the community, and armed with letters detailing the transformative success of hookworm dispensaries in neighboring communities, the Rockefeller agent would present a petition to the county commissioners.¹¹⁸ Endorsed by physicians, the school board, and local elites, the petition requested the appropriation of county funds to aid in the hookworm campaign. Though county money helped to defray expenses, its value as a representation of community sentiment was viewed as far more crucial by the RSC: “The appropriation of county funds by the county commissioners carries with it a

¹¹⁷ *Rockefeller Sanitary Commission, Second Annual Report*, p. 93-94. The Commission’s reports contain targeted sample form letters to be sent to all of the physicians in a county, leading citizens, and ministers.

¹¹⁸ *Report of the Board of Health of the State of Mississippi*, July 1, 1911, to June 30, 13, “Letters from Members of County Boards of Supervisors and Other Officials,” p. 105-106; *The Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, Third Annual Report*, p. 108.

moral weight which no appropriation of money from the outside could have; it is an official announcement to every citizen that hookworm infection is prevalent in the county; that it is a serious menace to the public welfare; that cooperation in this relief work is a public duty.”¹¹⁹ As the success of the dispensaries became widely known, counties began to appropriate funds on their own initiative and invite the Sanitary Commission to open dispensaries.

After funding had been secured, local elites and ministers were enlisted to attend the dispensary along with their families and encourage others to visit.¹²⁰ “With your influence in your section of the county,” a typical entreaty read, “you can render a lasting service to your people by setting an example in visiting the dispensary and taking your family. What you do the masses will do, and consequently on you and others of your position depends the success of the effort to bring health, happiness, and usefulness to those who, though diseased, have not the courage to take the lead in obtaining the free treatment they need.”¹²¹ Along with notices about the upcoming dispensary campaign in public spaces and the local press, the prodding of notables and religious figures was enough to induce many rural southerners to at least attend the dispensary.¹²²

Ultimately, the Rockefeller Sanitary Commission for the Eradication of Hookworm was in operation for only five years, from late 1909 through December 31, 1914. The Commission neither eradicated hookworm from the South nor did it spend

¹¹⁹ *Rockefeller Sanitary Commission, Second Annual Report*, p. 19-20.

¹²⁰ *The Rockefeller Foundation International Health Board, Third Annual Report, January 1, 1916-December 31, 1916*, (New York 1917), p. 32.

¹²¹ *Rockefeller Sanitary Commission, Second Annual Report*, p. 101.

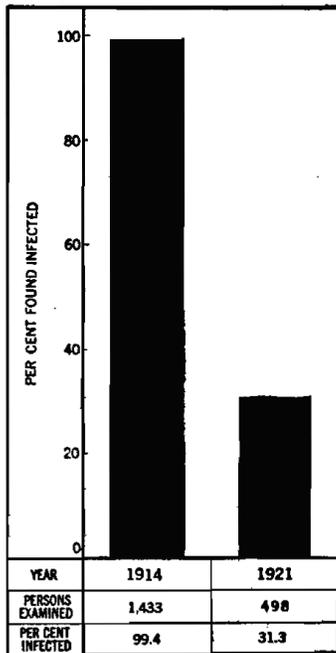
¹²² The Rockefeller International Health Board employed similar techniques in different settings. A 1916 photo from Ceylon (now Sri Lanka) shows a dispensary setting much like those of the South; the dispensary took place on the day of a religious festival, and offering legitimacy to the proceedings are “nine Buddhist priests, in robes.” See *The Rockefeller Foundation International Health Board, Third Annual Report, January 1, 1916- December 31, 1916*, p. 209.

the entire \$1 million promised by John D. Rockefeller. Although the RSC failed to achieve Stiles's goal of eliminating hookworm and transforming southern life, its impact, measured by its effect on hookworm, was substantial. When, in 1920, the Rockefeller International Health Board carried out a survey of hookworm infection in twelve southern counties, the Board found that "the average infection rate of 59.7 per cent which prevailed at the time of the initial survey in 1911 had been reduced to 21.7 per cent."¹²³ This drop in rates of hookworm infection had long-term consequences for school attendance and literacy in the South. In areas of heavy hookworm infection at the beginning of the Rockefeller campaign, Hoyt Bleakley has shown, school attendance improved substantially in the wake of the campaign: a "county with a 1910 infection rate of 50 percent experienced on average an increase of school enrollment of 4.5 percentage points, relative to a county with no infection problem."¹²⁴

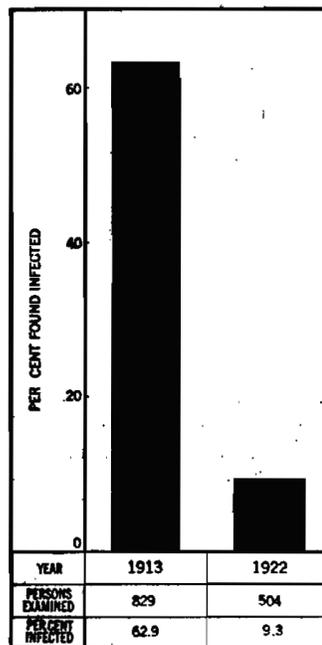
¹²³ *The Rockefeller Foundation International Health Board Seventh Annual Report, January 1, 1920-December 31, 1920*, (New York 1921), p. 89.

¹²⁴ Bleakley, "Disease and Development," p. 381.

Grady County, GA



Pamlico County, NC



Lee County, AL

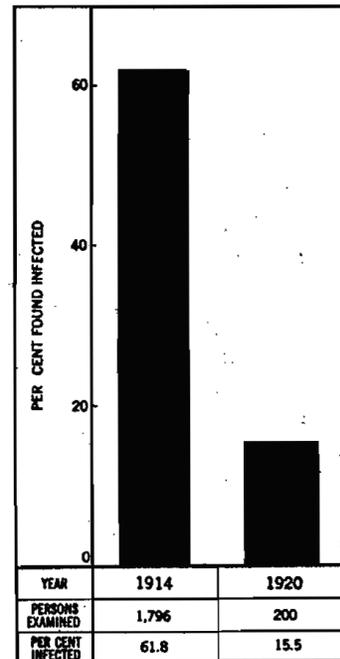


Figure 3. Reduction in rate of hookworm infection among schoolchildren in three southern counties. Source: IHB, 1922, p. 25, 26, 27.

Table 2. Number of Individuals Receiving Treatment Through the Dispensary Campaign, 1911- 1914.

State	1911	1912	1913	1914	Total
Alabama	15,389	9,113	8,077	10,941	43,520
Arkansas	350	1,412	3,517	1,691	6,970
Georgia	587	10,341	10,006	24,560	45,494
Kentucky	0	6,353	13,491	18,072	37,916
Louisiana	6,322	11,965	11,847	7,091	37,225
Mississippi	10,578	37,358	17,751	8,232	73,919
North Carolina	29,939	41,702	21,937	5,412	98,990
South Carolina	2,437	21,154	11,066	3,754	38,411
Tennessee	0	6,592	7,033	9,707	23,332
Texas	0	4,298	9,032	4,160	17,490
Virginia	619	5,632	6,557	4,301	17,109
Total	66,221	155,920	120,314	97,921	440,376

Source: Adapted From Rockefeller Sanitary Commission *Annual Report for 1914*, p. 41.

Table 3. Number of Counties With Dispensary Completed, 1911-1914.

State	Number of Counties in State	1911	1912	1913	1914	Total
Alabama	67	10	15	12	16	53
Arkansas	75	1	2	12	28	43
Georgia	148	1	18	21	26	66
Kentucky	120	0	6	12	14	32
Louisiana	64	5	10	20	14	49
Mississippi	79	7	22	26	21	76
North Carolina	100	16	38	38	7	99
South Carolina	44	2	20	16	3	41
Tennessee	96	0	12	15	16	43
Texas*	75	0	4	20	21	45
Virginia	100	3	8	13	7	31
Total	968	45	155	205	173	578

* Though there were 249 counties in Texas, the RSC only considered 75 to be within the “infected area.”

Source: Adapted from Rockefeller Sanitary Commission *Annual Report for 1914*, p. 34, 16.

Table 4. Expenditures by County Governments on the Hookworm Campaign, by State and Year.

State	1911	1912	1913	1914	Total
Alabama	\$1,087	\$975	\$1,174	\$1,334	\$4,569
Arkansas	50	132	1,461	2,679	4,322
Georgia	89	1,886	2,493	3,683	8,151
Kentucky	0	1,750	3,750	3,195	8,695
Louisiana	503	1,613	2,838	3,060	8,013
Mississippi	944	4,259	5,122	3,354	13,679
North Carolina	3,432	8,161	7,789	2,297	21,679
South Carolina	47	601	769	1,027	2,443
Tennessee	0	743	1,500	2,937	5,180
Texas	0	1,060	5,284	4,554	10,899
Virginia	152	500	1,200	885	2,737
Total	\$6,303	\$21,679	\$33,380	\$29,004	\$90,366

Source: Adapted from Rockefeller Sanitary Commission *Annual Report* for 1914, p. 49.

Table 5. Rockefeller Sanitary Commission Expenditures, by State and Year.

State	1910	1911	1912	1913	1914	Total
Alabama	\$1,506	\$10,278	\$12,056	\$13,890	\$16,073	\$53,802
Arkansas	4,514	12,117	12,704	14,529	15,035	58,899
Georgia	6,938	16,288	15,542	16,348	18,344	73,459
Kentucky	0	0	14,760	19,569	19,574	53,903
Louisiana	550	10,445	14,235	15,490	14,210	54,930
Mississippi	6,641	17,093	19,739	20,769	20,606	84,848
North Carolina	9,463	18,393	19,188	17,471	12,764	77,278
South Carolina	4,068	10,794	14,460	15,792	15,268	60,382
Tennessee	5,044	15,076	15,975	14,613	15,556	66,263
Texas	0	0	3,960	12,627	13,255	29,843
Virginia	8,627	14,844	13,926	14,462	14,557	66,416
State Totals	\$47,351	\$125,327	\$156,544	\$175,560	\$175,241	\$680,023
Administration	20,223	21,349	27,200	23,694	25,398	117,865
Overall Total	\$67,574	\$146,677	\$183,744	\$199,254	\$200,639	\$797,888

Source: Adapted from Rockefeller Sanitary Commission *Annual Report* for 1914, p. 50.

THE ROCKEFELLER FOUNDATION AND
LOCAL PUBLIC HEALTH INFRASTRUCTURE

By operating through, and at the request of, state health departments, the RSC hoped to guarantee that some of the infrastructure needed for its campaign, including laboratories, means of collecting and distributing public health information, and connections between state departments of health and previously isolated counties, would not quickly evaporate. Acknowledging, in its final report, that hookworm disease remained a serious problem in the region, the RSC emphasized its role as an institution-builder in offering a charitably revised statement of its own initial goals: “In the inauguration of this work it was assumed that the Commission itself should not attempt the task of complete eradication; that the problem was one for the States themselves to work out through existing agencies; that the Commission could be helpful only in so far as it could aid the States in organizing their own forces and directing them to the work to be done.”¹²⁵

Though it was an exaggeration to claim that institution-building had been the RSC’s central focus at the onset of the hookworm campaign, it became an increasingly important goal as the long-term nature of the hookworm problem became evident. Beginning in 1913, the Commission had developed an “intensive plan” for combating hookworm that centered on the creation of more permanent county health agencies capable of achieving greater penetration into isolated rural communities. On Knot’s Island, a community off of the northeastern North Carolina coast, the RSC examined all but seven of 567 citizens. Ninety-three, the Commission found, were infected. Through treatment and the construction of sanitary privies, the Commission attempted to wholly eradicate hookworm from the small island. In the next year, the RSC

¹²⁵ *The Rockefeller Sanitary Commission for the Eradication of Hookworm, Fifth Annual Report*, p. 9.

extended the intensive plan to additional locations in Virginia, North Carolina, South Carolina, and Louisiana.¹²⁶

After experimenting with different modes of organization, the Commission determined that, in each county, the intensive plan should be arranged around a central office that “keeps financial records, distributes publicity material, makes microscopic examinations, tabulates on specially prepared blanks detailed statistics of the house-to-house sanitary survey, and prepares local maps on which are shown the homes, roads, streams, school houses, churches, and other features pertinent to the work.” This institutional presence would be augmented by a team of health inspectors who “visit the people, inspect their premises, and urge changes necessary to provide each family with a latrine of a type approved by the State Board of Health.” Under these circumstances, it was found, lasting improvements could be made in a community’s disease environment.¹²⁷ These initial steps would lay the ground for the systematic monitoring of disease in the community. Beyond lowering the incidence of hookworm disease, data showed that, because of the widespread construction of sanitary privies where the intensive plan had been put into action, significant reductions had occurred in the incidence of typhoid, dysentery, and diarrhea.¹²⁸

When the RSC was dissolved at the end of 1914, much of its high level staff and some of its activities were folded into the Rockefeller Foundation’s International Health Board, which had embarked on an international effort to fight hookworm disease. Discontinuing the dispensary campaign in the South, the International Health Board took the creation of permanent institutions of public health, modeled on the

¹²⁶ *The Rockefeller Foundation International Health Board, Third Annual Report, January 1, 1916-December 31, 1916*, p. 33; Link, *Paradox of Southern Progressivism*, p. 216; *The Rockefeller Sanitary Commission for the Eradication of Hookworm, Fifth Annual Report*, p. 51.

¹²⁷ *The Rockefeller Foundation International Health Board, Third Annual Report, January 1, 1916-December 31, 1916*, p. 33, 35.

¹²⁸ *Ibid.*, p. 37-38.

organizational structure of the intensive plan, to be its central task in the region. From the onset, the IHB expressed confidence in the future of southern public health. “A movement is under way,” the Board reported in 1917, “to develop the county force into a permanent department of health, ultimately to be maintained with state and county funds, and to assume responsibility not only for the completion of the work of hookworm control but for the advancement of other measures pertaining to public health.”¹²⁹ Systemization and bureaucratization of local public health operations, rather than wholesale “eradication,” was now, in practice, where money from the Rockefeller Foundation would be directed.

North Carolina, where the intensive plan had first been implemented, served as a model for the cooperative development of county health departments. In ten rural counties, the International Health Board, the State of North Carolina, and the county governments agreed, over a three-year period, to shift total control of public health work from the IHB to new county health departments.¹³⁰ Initially, county governments agreed to take on 50 percent of the cost of operations, while the IHB and the State covered the remainder. Over time, the county and state would accept more financial responsibility, eventually covering all costs themselves.¹³¹ The success of the emerging county health departments, like the earlier success of the dispensary campaign, soon led to embrace of the IHB’s plan by counties across the South.¹³² By 1917, the intensive method was being implemented, to a greater or lesser extent, in 100 communities across the region.¹³³

¹²⁹ Ibid., p. 31.

¹³⁰ Ibid., p. 38.

¹³¹ Ibid., p. 40; *The Rockefeller Foundation International Health Board, Fifth Annual Report, January 1, 1918- December 31, 1918*, (New York 1919), p. 36; *State Board of Health of North Carolina Biennial Report*, Seventeenth Biennial Report, 1917-19, p. 29.

¹³² *The Rockefeller Foundation International Health Board, Third Annual Report, January 1, 1916- December 31, 1916*, p. 43- 44; *Report of the Board of Health of the State of Mississippi*, July 1, 1917, to June 30, 19, p. 8, 10; Link, *Paradox of Southern Progressivism*, p. 219, 20.

¹³³ *Rockefeller Foundation International Health Board, Fourth Annual Report, January 1, 1917- December 31, 1917*, (New York 1918), p. 81.

Increasingly attuned to the prominence of malaria in the lives of southerners, the IHB expanded its activities to include collaboration with state governments and the United States Public Health Service in pioneering malaria control efforts in select southern communities.¹³⁴ In support of both the intensive plan and malaria programs, the Rockefeller Foundation continued to pour substantial sums of money into the region: in 1916, IHB spent a total of \$102,062 on public health work in the South; in 1920, it spent approximately \$257,671.¹³⁵

The growing bureaucratization of public health, organized at the county level, represented a major improvement upon the dispensary campaign. Although the Rockefeller Sanitary Commission worked hard in recruiting local elites to the cause and attempting to appeal to local sentiment, the communities that the Commission hoped to transform through the dispensary and educational campaigns were, as it turned out, largely impenetrable even to agents chosen by the RSC for their familiarity with the manners, expectations, and folkways of the rural South. While local elites could provide a bridge between the RSC men and the hookworm victims they hoped to help, the time-constrained activities of the Commission could have little effect on the underlying cause of hookworm disease, the deep-seated poverty and low standard of living in the rural South.¹³⁶

¹³⁴ On malaria control in Arkansas and Mississippi, see *The Rockefeller Foundation International Health Board, Fifth Annual Report, January 1, 1918- December 31, 1918*, p. 124-38. See also *State Board of Health of North Carolina Biennial Report*, December 1, 1920 - June 30, 22, published 23, p. 17.

¹³⁵ *The Rockefeller Foundation International Health Board, Third Annual Report, January 1, 1916- December 31, 1916*, p. 227; *The Rockefeller Foundation International Health Board Seventh Annual Report, January 1, 1920- December 31, 1920*, p. 132, 33. In 1916, \$47,565.09 of this was on hookworm and another \$54,496.97 was on attempts to eradicate malaria from communities in Arkansas and Mississippi. In 1920, \$136,019.07 went to hookworm, and \$121,652.24 to malaria. A small part of the money counted in the 1920 hookworm figure went to administrative costs for efforts in Kansas, New Mexico, and West Virginia. Overall administrative costs for hookworm that year were \$6,032.20.

¹³⁶ On the effectiveness of county health departments compared to earlier “campaigns” against particular diseases see, for instance, *Report of the Board of Health of the State of Mississippi*, July 1, 1925 to June 30, 27, p. 7, 71. On the importance of forging lasting and personal links with communities

Sanitary conditions on southern farms guaranteed that treatment alone would prove ineffective. Though children were accustomed, and often enjoyed, going shoeless during the warmer months of the year, asking their parents to provide them with shoes where both cash and credit were scarce only highlighted the poverty that had allowed the disease to become so entrenched. As a result of both economic constraints and deeply-engrained habits, many southerners failed to follow the RSC's strong suggestion to build sanitary privies. During his time traveling through the South, Stiles had found "a great popular prejudice in rural districts against privies. The point of view was that not only were they unpleasant places but that nature's way of disposing of excreta was to expose it to the rays of the sun or to hide it in the brush."¹³⁷

In 1910, along with the United States Public Health Service's Norman Roberts and Leslie Lumsden, Stiles had helped to create a blueprint for the "L.R.S." sanitary privy.¹³⁸ Despite the widespread distribution of instructions for the L.R.S. privy and an educational campaign that both praised the virtues of the privy and portrayed soil pollution as a sin against both God and community, many were reluctant to take the time to build one.¹³⁹ Reporting on the apparent success of the hookworm campaign

and community leaders through county health departments, see also *Report of the Board of Health of the State of Mississippi*, July 1, 1917 to June 30, 19, p. 8, 126, 129; Vance, *Human Geography of the South*, p. 386.

¹³⁷ Stiles, "Early History," p. 298.

¹³⁸ Norman Roberts L.L. Lumsden, and Charles Wardell Stiles, "Preliminary Note on a Simple and Inexpensive Apparatus for Use in Safe Disposal of Night Soil," *Public Health Reports* 25, no. 45 (1910).

¹³⁹ *The Rockefeller Foundation International Health Board, Third Annual Report, January 1, 1916-December 31, 1916*, p. 42. Building sanitary privies, the Rockefeller International Health Board noted in 1917, "demands of the population itself a positive contribution. In most cases it requires the purchase of building material and the expenditure of time and energy to build latrines. More than this, it necessitates the arousing of a sanitary sense and a change of personal habits that will lead the people to use and maintain the latrines once built, and calls for more intimate contact with the people, more persistent and protracted effort, and a more marked faculty of leadership by the director in charge." See also *The Rockefeller Foundation International Health Board, Fifth Annual Report, January 1, 1918-December 31, 1918*, p. 91. On the role of religion in the dispensary campaign, see Ettlting, *Germ of Laziness*. Ettlting argues that aspects of the dispensary campaign mirrored, and perhaps were modeled on, the American evangelical revival tradition. Stiles cites Deuteronomy as evidence that God frowns

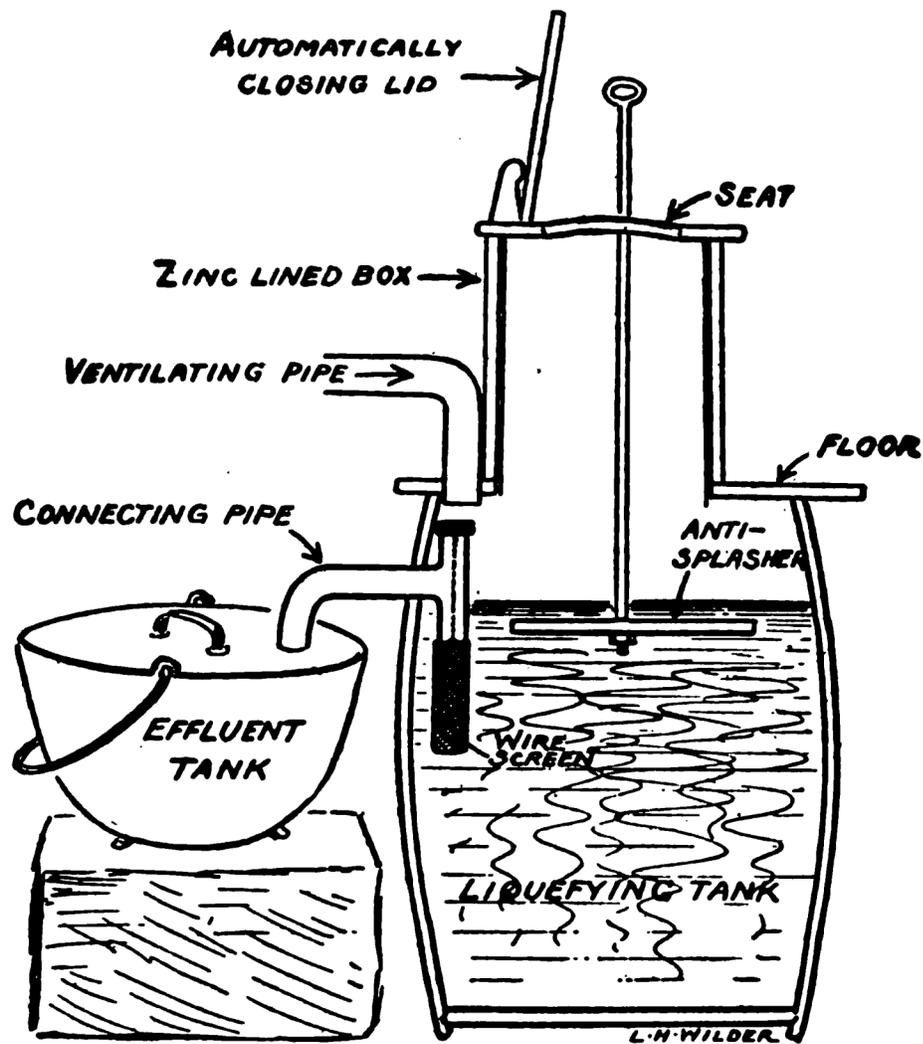


Figure 4. “An L.R.S. privy with an ordinary vinegar barrel used as a liquefying tank and an iron pot for effluent tank.” Source: Lumsden, Stiles, and Freeman, *Public Health Bulletin No. 68, Safe Disposal of Human Excreta at Unsewered Homes* (1915), p. 21.

in South Carolina in 1912, the state’s Director of Rural Sanitation noted that “The only discouraging aspect of the work is the great difficulty of getting people to stop soil pollution, by using sanitary privies, which, after all, are much cheaper than coffins.”¹⁴⁰

upon soil pollution in Charles Wardell Stiles, *Soil Pollution as a Cause of Ground-Itch, Hookworm Disease (Ground-Itch Anemia), and Dirt Eating* (Washington, D.C.: The Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, 1910), p. 6.

¹⁴⁰ *Annual Report of the State Board of Health of South Carolina, Thirty-Third Annual Report, for the Fiscal Year 1912*, published 13, p. 24.

Sensitive to the failures of the RSC, the Rockefeller International Health Board placed the transformation of community sentiment towards sanitary privies at the heart of its plan for building a new basis for southern public health. The IHB-sponsored nascent departments of health, more firmly rooted in their communities than the “whirlwind” dispensary campaigns and mass-mailings of privy-building literature, actively developed tactics for directing the energy of southerners towards the growth of “privy pride.”¹⁴¹ Following the lead of International Health Board intensive plans in Mississippi, local newspapers across the region published a list of “heads of families who had brought their latrines up to the standard approved by the state board of health.”¹⁴² Along with, or in place of, this, health departments posted “a large, carefully prepared map giving the location of every home... in a conspicuous place in the community. As each householder completed the sanitary program a ring was drawn around the dot on the map which indicated his home. The map became a topic of conversation. As the scales tipped in favor of those who had completed the work of sanitation, further delay for the remaining families became increasingly embarrassing.”¹⁴³

¹⁴¹ *The Rockefeller Foundation International Health Board, Fifth Annual Report, January 1, 1918-December 31, 1918*, p. 120. On the intensive plan in comparison to the dispensaries, see *Report of the Board of Health of the State of Mississippi*, July 1, 1917 to June 30, 19, p. 8. *Report of the Board of Health of the State of Mississippi*, July 1, 1925 to June 30, 27, p. 71. The intensive plan, the Mississippi State Board of Health reported in 1919, “marked an epoch in the development of the health work of the state. [The campaigns] were carried on in such a way as to create new ideals among the people in health standards and they have been effective in standardizing the county organization for health work... The prevention of disease means to a considerable extent the shaping of the social fabric of a people.”

¹⁴² *The Rockefeller Foundation International Health Board, Third Annual Report, January 1, 1916-December 31, 1916*, p. 36; *The Rockefeller Foundation International Health Board, Fifth Annual Report, January 1, 1918-December 31, 1918*, p. 121.

¹⁴³ *The Rockefeller Foundation International Health Board, Third Annual Report, January 1, 1916-December 31, 1916*, p. 36; *The Rockefeller Foundation International Health Board, Fifth Annual Report, January 1, 1918-December 31, 1918*, p. 121.

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Forrest County Leads the State in Rural Sanitation

More than Three Hundred Sanitary Closets Built at Rural Homes in the County This Year—Below will be found Lists of those who have Built Sanitary Closets.

EATON GROVE COMMUNITY.

The territory in Forrest County between Leaf and Bouie Rivers, Contain-
ing 176 homes.

(Whites who have built sanitary closets).

- | | | |
|------------------|-------------------|---------------------|
| Baylis, J. M. | Jacobs, E. | Pool, J. D. |
| Baylis, R. W. | Jacobs, J. J. | Fewell, Mrs. |
| Baylis, G. B. | Johnson, O. E. | Quick, J. A. |
| Baucum, J. E. | Jones, Rev. W. F. | Richardson, B. F. |
| Beavera, G. B. | Knight, R. W. | Richardson, W. M. |
| Bishop, A. | Lee, T. F. | Richardson, L. M. |
| Bodman, J. F. | Lee, A. M. | Rich, C. S. |
| Boyce, L. B. | Lewis, B. B. | Roberts, Mrs. V. M. |
| Brown, W. D. | Lott, J. C. | Spencer, A. J. |
| Bryant, S. E. | Lovelace, O. | Steele, M. A. |
| Burkett, G. A. | Lovelace, L. E. | Stewart, G. W. |
| Chappell, J. O. | McCullough, J. W. | Strahan, A. L. |
| Clinton, David | McDonald, J. C. | Strahan, W. A. |
| Dessett, E. D. | McDonald, J. D. | Sumrall, W. A. |
| Edmonson, Chas. | McLemore, J. E. | Travis, J. A. |
| Fairchild, Mrs. | Meeks, J. C. | Travis, J. E. |
| Gill, M. N. | Menasco, C. E. | Travis, O. A. |
| Glover, J. M. | Miley, J. M. | Walls, J. |
| Graham, S. E. | Miller, W. D. | Watts, J. E. |
| Granberry, W. L. | Mixon, G. E. | Wellington, R. W. |
| Gray, W. E. | Montgomery, W. E. | Wilson, C. C. |
| Harrell, Mrs. | Nobles, F. S. | Windham, W. J. |
| Hobby, T. C. | Norrell, C. E. | Wright, H. B. |
| Holliday, M. E. | Patrick, W. J. | Young, J. M. |
| | Perry, L. E. | |

(Colored, who have built sanitary closets).

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|------------------|-----------------|---------------|
| Bishop, Isom | Ferrall, Lem | Lindsey, — |
| Blanks, Eli | Ferrall, Sol. | McComb, John |
| Boles, Edw. | Fairley, Albert | McCurdy, R. |
| Brown, Frank | Fairley, Joel | McCullom, S. |
| Byrd, Eph. | Fairley, C. | Merrill, Jim |
| Cameron, Jas. | Gillespie, O. | Merritt, M. |
| Campbell, B. | Grant, West | Miner, Albert |
| Carter, Quil | Heidelberg F. | Mott, Bill |
| Carter, Jas. | Henderson, M. | Mott, Warren |
| Charleston, W. | Holliman, L. | Mott, Henry |
| Chapman, Zack | Jones, Lizzie | Overhart, G. |
| Chapman, Z., Jr. | Jones, Mose | Page, Steve |
| Chapman, Will | Kelly, Taft | Powell, Gip |
| Craft, Nathan | Kelly, Horace | Travis, Leroy |
| Dahmer, G. W. | Kelly, Elbert | Travis, Levi |

Figure 5. "Extract from Hattiesburg, Miss., Tribune, giving list of homes in Forrest county at which improved latrines have been built." Source: International Health Board, *Third Annual Report*, covering 1916, p. 37.

SCIENTIFIC KNOWLEDGE, LOCAL PRACTICE, AND PUBLIC POLICY

Reflecting on the experience of his own individual campaign against hookworm and the Rockefeller effort that followed on its heels, Charles Wardell Stiles touched on the challenges that confront public health interventions at the nexus of scientific knowledge and local knowledge. “Probably the most difficult problem in public health work,” Stiles wrote, “is to put into practical application the theoretical knowledge we possess which can be utilized to reduce unnecessary death, suffering, and disease, and to increase health and happiness.”¹⁴⁴ Judged by its ability to adapt the medical knowledge it possessed to local circumstances, the Rockefeller effort was, in many ways, a success.

Confronted with initially hostile elites, an indifferent and generally uncooperative target population, and little pre-existing institutional basis for an attack on hookworm disease, the RSC employed scientific knowledge and a strong appeal to local interests and aspirations to persuade politicians, newspapermen, preachers, landowners, and others to support the campaign. Relying on well-established local folkways and stereotypes, particularly the image of the degraded and lazy poor white, the RSC convinced community members with influence that a concerted effort at treating hookworm disease would lead to a revitalization of the local economy and ultimately to a rebirth of the South as a full and equal partner in the national Union. Poor whites, it was argued, could be transformed into the industrious base of a new and vibrant economy. The result was the authorization of local funding by county commissioners, an indicator of legitimacy, and widespread participation in the dispensary campaign. Over the course of the next decade, the precedent set by the RSC and the International Health Board, centered on cooperation between local elites and outside supporters of public health reform, would be followed by the United

¹⁴⁴ Stiles, "Early History," p. 300.

States Public Health Service, helping to spread the framework of a new system of public health throughout the region.

The vision of southern economic revitalization that Stiles and the RSC relied on imagined a new white South, but continued political and economic subordination for southern blacks. Rather than being portrayed as potential contributors to a new South, blacks were vilified as carriers of a debilitating disease and as a threat to the economic prosperity of poor whites. The racial logic of the treatment of hookworm suggested that white hookworm sufferers could only be saved if blacks were also rid of the disease. Were blacks to remain a “reservoir” of hookworm, living and working in close proximity to whites, the community would remain in danger. The consequences of this approach to the problem of hookworm among blacks during the dispensary campaign, unfortunately, are not clear. Dispensaries were held for both black and white southerners, and there is evidence that outreach efforts were made to black schools. The RSC’s annual reports, along with the corresponding state reports, however, are almost entirely race neutral.¹⁴⁵ As a consequence, we do not know whether the dispensary campaign and school educational and sanitary efforts disproportionately catered to whites.¹⁴⁶

The International Health Board’s intensive plan, however, unambiguously attempted to improve sanitary conditions regardless of race. In mapping entire

¹⁴⁵ “From this distance in time and with the figures [Administrative Secretary Wickliffe] Rose and his field workers left us,” John Ettling finds, “it is impossible to estimate the number of Southern blacks examined and treated by agents of the Sanitary Commission.” See Ettling, *Germ of Laziness*, p. 176. The state health reports tend to follow, almost to the word, those of the RSC.

¹⁴⁶ *The Rockefeller Sanitary Commission for the Eradication of Hookworm, Fifth Annual Report*, p. 114, 12; *The Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, Fourth Annual Report*, p. 80. Photographs of dispensaries include both all-white dispensaries and all-black dispensaries. In 1914, Virginia reported that “102 privies were built at rural colored schools in the twenty-five counties which now have a colored rural school supervisor.” Mississippi reported that “much emphasis has been placed on lecturing to the colored schools during the present year.” Charles Wardell Stiles, as RSC Scientific Secretary, continued to mention the possibility that whites were ingesting the fecal matter of blacks. See *The Rockefeller Sanitary Commission for the Eradication of Hookworm, Fifth Annual Report*, p. 125.

communities, house by house, the IHB made evident the close proximity of black and white southerners and the importance of including blacks in any meaningful attempt to rid the community of hookworm. Both black and white houses were visited during the intensive plan stage of the development of county health bureaucracies and included in the efforts of the IHB to pressure households to build sanitary privies.¹⁴⁷ In lists of privy improvements printed in newspapers and maintained in the records of nascent county boards, individual households are listed according to race.

A report on cooperative IHB and County activities in Mississippi suggests the potentially coercive nature of a visit from a white county health worker to a black family. “The persuasive method of approach was used almost without exception,” wrote the state’s director of rural sanitation, “although in a few instances it was found ineffective, in the case of foreign and negro populations. In such cases the field director and his staff told the people summarily what they were expected to do in the way of installing the necessary sanitary latrines.”¹⁴⁸ The logic of hookworm disease continued to ensure that those who sought to redeem its white victims would view black public health as an unavoidable aspect of community public health.

The growing bureaucratization of southern public health, and its new emphasis on transforming the disease environment at the county level, highlighted major shifts in thought about the relationship between poverty and disease. The equation of the poor white archetype with severe ill health, pioneered by Charles Wardell Stiles, became ubiquitous through the efforts of both the national media and the Rockefeller

¹⁴⁷ *Report of the Board of Health of the State of Mississippi*, June 1, 1913, to June 30, 15, p. 32-33; *The Rockefeller Sanitary Commission for the Eradication of Hookworm, Fifth Annual Report*, p. 96-97, 100. Maps of the Eatongrove Sanitary District in Mississippi and Salemburg community in North Carolina, representative of those used during the intensive plan, indicate whether blacks or whites live in a home as well as hookworm infection per household and type of privy. The maps also indicate privy improvements in the homes of both races.

¹⁴⁸ *Report of the Board of Health of the State of Mississippi*, July 1, 1917, to June 30, 19, p. 87. “Foreign” apparently refers to French speakers.

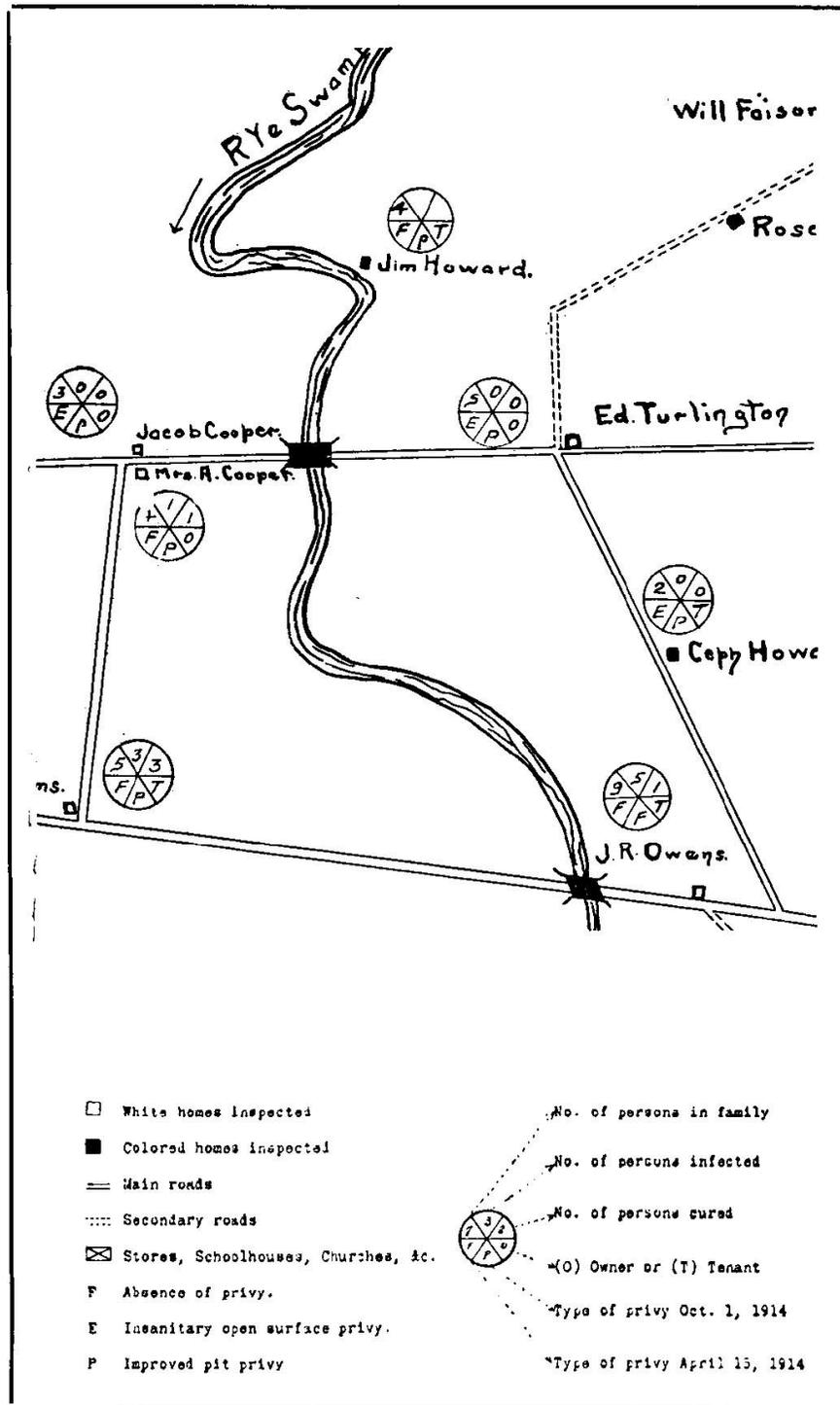


Figure 7. “Intensive Plan” map detailing improvements in hookworm incidence and privy quality as well as race of the household, Philadelphia Community, North Carolina. Source: RSC Annual Report for 1914.

Sanitary Commission for the Eradication of Hookworm. In detailing the effects of the “lazy bug” on southerners, newspapers reinforced northern perceptions of southern distinctiveness and linked them with the idea of a diseased and inhospitable region. In persuading local elites to cooperate with the anti-hookworm effort, the RSC ensured their sensitivity to the role of disease in shaping the prospects of their own communities.

While Stiles and then the RSC portrayed hookworm as a discrete and easily solvable scientific issue, the disease was deeply interconnected with a larger social and economic environment that could not be meaningfully addressed through the short-lived dispensary campaigns. Rather than confronting the reciprocal relationship between the parasite and poverty, the RSC had maintained that erasing hookworm from the South would also erase poverty, and the “poor white” class, from the region.¹⁴⁹ Even significant improvements in the incidence of the disease, however, tended to illuminate ongoing obstacles to public health such as the inability to afford shoes and lack of access to sanitary privies. By re-directing its efforts towards the formation of permanent county-level public health bureaucracies, the International Health Board suggested a more sophisticated, environmental, approach to the problem of hookworm disease in the South. Rather than sweeping in and cleansing a community of hookworm disease, the IHB would help to foster the foundations of an approach to public health that would consider disease within the context of the community.

Where the dispensary campaign had relied on individuals, encouraged by community leaders, to seek out treatment, the intensive plan required nascent county

¹⁴⁹ On the RSC’s “reductionist, biomedical” interpretation of hookworm disease, see Stephen J. Kunitz, “Hookworm and Pellagra: Exemplary Diseases in the New South,” *Journal of Health and Social Behavior* 29, no. 2 (1988).

health boards to actively seek out individuals and households. The implementation of procedures for collecting vital statistics ensured that county health officers could use surveillance of disease rates and sanitary conditions to better understand a community's public health problems. Far more intrusive on personal privacy than the dispensary campaign, these measures were also far more effective. During the dispensary campaigns, individuals who avoided visiting the dispensary, refused to take thymol, or did not build sanitary privies were largely invisible to the Rockefeller Sanitary Commission and the state governments that it worked through. With the growth of county health boards and effective record-keeping, non-compliance became visible to the local government; through newspapers and publicly posted maps of privy construction, it also became visible to the community. Public exposure of non-compliance emerged as a useful means of pressuring individuals to take treatment and build sanitary privies.

However halting and incomplete their actions, southern states began, as a consequence of the Rockefeller Sanitary Commission and International Health Board's efforts, to consider public health an important government function. Emphasizing the accurate measurement of local disease rates, the fostering of relationships between the department and the community, and prevention rather than eradication, county health departments represented a distinct improvement in state capacity to deal with issues of public health. In an echo of the arguments of Stiles and the RSC, investment in public health was increasingly viewed as an investment in the economic and human development of the community, state, and region. Where county governments could raise the funds to match the states and the International Health Board, they typically did.

Table 6. Alternative Strategies for Hookworm Control Implemented by the Rockefeller Sanitary Commission and the International Health Board. 1910-1925.

<u>Dispensary Campaign (RSC)</u>	<u>Model of Disease</u>	<u>Relationship b/w Government and the Individual</u>	<u>Form of Resistance</u>	<u>Response to Resistance</u>
<u>Dispensary Campaign (RSC)</u>	Reductionist	Persuasive/Time Constrained: the RSC, acting through the state government, attempts to raise “community spirit,” mobilizes elites; <i>the individual seeks treatment</i>	Invisible: the individual is outside the scope of government knowledge; manifested in non-attendance, refusal to take treatment; failure to construct privy	Preemptive mobilization of local elites; dispersion of educational materials
<u>Intensive Plan/ County Health Boards (IHB)</u>	Environmental	Persuasive-Coercive/Ongoing: CHBs persuade and pressure individuals to take treatment and build privies; <i>the CHB seeks out the individual</i>	Visible: through mapping, record-keeping, local knowledge, health officers are aware of non-compliance	Public exposure of non-compliance, creation of permanent presence in community, effective monitoring, record keeping, legal recourse where applicable

Source: Adapted from RSC Second Annual Report, 1912; IHB Third Annual Report, Fourth Annual Report, 1917, 1918.

By 1920, eleven years after the beginning of the Rockefeller Sanitary Commission's anti-hookworm campaign, the International Health Board could report that "the foundation has been laid in these states for a tax-supported health service, state and local, which may be depended upon in the end for the control of hookworm and other preventable diseases."¹⁵⁰

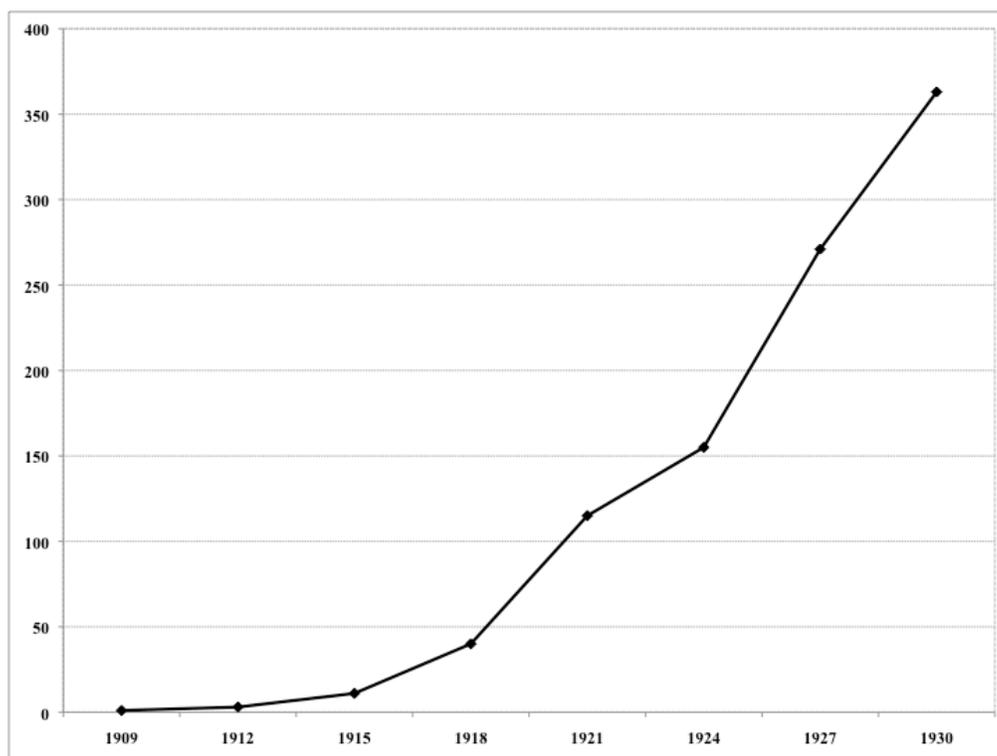


Figure 8. Active Full-Time County Health Boards in the South, 1909-1930. Source: Adapted from *Public Health Bulletin No. 222: History of County Health Organizations*.

¹⁵⁰ *The Rockefeller Foundation International Health Board Seventh Annual Report, January 1, 1920-December 31, 1920*. See also *The Rockefeller Foundation International Health Board, Fifth Annual Report, January 1, 1918-December 31, 1918*, p. 36; Vance, *Human Geography of the South*, p. 384, 85-86; Link, *Paradox of Southern Progressivism*, p. 222; Tindall, *Emergence of the New South*, p. 281; Milton I. Roemer Frederick D. Mott, *Rural Health and Medical Care* (McGraw-Hill Book Company, Inc., 1948), p. 339. "The achievement," Rupert Vance wrote in 1932 of the hookworm campaign's legacy, "was a social no less than a scientific triumph. A lack of interest and organization for public health was met and overcome. Although the South may not realize the debt, it is largely to the early Rockefeller campaigns that the section owes its present county public health organization."

State and county appropriations to fund new county health departments and state-wide programs indicate the depth of change. In 1910, the eleven southern states where the RSC ran anti-hookworm campaigns appropriated a total of \$255,395 to their state boards of health; by 1920, the total was \$1,735,359.¹⁵¹

Once established, moreover, county health boards tended to become permanent. Throughout the 1920s, with the ongoing financial support of the International Health Board, southern counties hired full-time public health officers and laid the foundations of a new and more bureaucratic practice of southern public health.

Table 7. Percentage of Rural Population Served by a Full-Time County or District Health Officer, 1923-1929.

	1923	1925	1927	1929
Alabama	36.0%	43.9	53.4	79
Arkansas	0.0	0.0	5.8	39
Florida	0.0	0.0	6.9	7
Georgia	16.5	17.6	20.9	27
Kentucky	8.9	8.0	8.7	35
Louisiana	16.3	18.6	20.0	54
Mississippi	22.1	15.8	25.8	41
North Carolina	39.8	45.2	49.3	53
Oklahoma	1.3	10.7	17.7	19
South Carolina	19.7	35.4	42.7	50
Tennessee	8.5	14.0	23.9	36
Texas	5.2	3.4	4.3	4
Virginia	16.7	18.8	21.3	24
United States as a whole	11.6	13.9	16.6	23

Source: Adapted from Lumsden, "Extent of Rural Health Service," 1923, 1925, 1927, 1929.

¹⁵¹ *The Rockefeller Foundation International Health Board Seventh Annual Report, January 1, 1920-December 31, 1920*, p. 134.

In the aftermath of World War I, the Public Health Service initiated a program, discussed below, broadly similar to the Rockefeller Foundation's, helping to expand and further cement the IHB's gains. In Public Health Service studies of rural public health during the 1920s, southern states would routinely lead the nation in the percentage of their population served by a full-time county health officer.¹⁵²

It was a measure of the region's ongoing poor health and poverty, however, that the growth of rural health programs in the South outpaced that of any other region. The region's significant public health challenges, including hookworm, pellagra, and malaria, often ensured poor health status even for those served by a full-time health officer. Despite the successes of the hookworm campaign and prospect of progress represented by the scattered new full-time county health departments, lack of access to health care facilities and personnel, inability to collect accurate vital statistics, and other obstacles to individual and community well-being remained significant challenges throughout the region.

¹⁵² See L. L. Lumsden, "Extent of Rural Health Service in the United States, 1921-1925," *Public Health Reports* 40, no. 19 (1925); L.L Lumsden, "Extent of Rural Health Service in the United States, 1925-1929," *Public Health Reports* 1, no. 44 (1929). Lumsden, who collaborated with Stiles in designing the federal government's standard sanitary privy design and later ran the United States Public Health Service's rural county health department initiative, published yearly studies of the status of rural public health beginning in 1923.

CHAPTER 2

Pellagra: “The Menace of Famine and Plague”

Pellagra, first identified in Spanish and Italian peasants during the 18th century, was not believed to exist in the United States. In the Spring of 1902, however, a Georgia farmer came into the office of Dr. Henry Harris complaining of “loss of appetite, thirst, and a feeling of malaise,” symptoms of an illness that had afflicted him every spring for the past fifteen years. Within six to eight weeks, he would become “entirely unfit for labor of any kind. At these times he suffers to an extraordinary degree from melancholia, and freely asserts that he would much prefer death than to live on in his diseased condition.”

The disease’s external manifestations were equally painful: “In the Spring, at the time when he begins his labors in the fields, his hands and arms and dorsal surfaces of his feet become greatly inflamed, blisters form in considerable numbers, followed by the formation of scabs in the affected areas.” The farmer, Dr. Harris believed, had pellagra. “If this be a genuine example of the disease,” he wrote, “it is the first case of the kind that has ever been reported in the United States.”¹⁵³ As in the

¹⁵³ *Annual Report of the Georgia State Board of Health*, January 1, 1908, p. 44-46, 49-50; Elizabeth W. Etheridge, *The Butterfly Caste: A Social History of Pellagra in the South* (Westport, Connecticut: Greenwood Publishing Company, 1972), p. 3. Beginning with Paul de Kruif’s 1928 classic *Hunger Fighters*, the work and personality of Joseph Goldberger, who demonstrated that pellagra was a dietary deficiency disease, have provided the basis for an extensive literature on the history of pellagra. As an introduction to this literature, see Paul DeKruif, *Hunger Fighters* (New York: Harcourt, Brace and Company, 1928); Alan M. Kraut, *Goldberger’s War* (New York: Hill and Wang, 2003); Jon M. Harkness, “Prisoners and Pellagra,” *Public Health Reports* III(1996); Harry M. Marks, “Epidemiologists Explain Pellagra: Gender, Race, and Political Economy in the Work of Edgar Sydenstricker,” *Journal of the History of Medicine* 58, no. January 2003 (2003); Daphne A. Roe, *A Plague of Corn: The Social History of Pellagra* (Ithaca: Cornell University Press, 1973); Robert Parsons, *Trail to Light: A Biography of Joseph Goldberger* (Indianapolis: Bobbs- Merrill, 1943). The

case of hookworm disease, American physicians were not taught to look for it in their patients. To the few who heard of Harris's patient, the case appeared to be either a fluke or a misdiagnosis.¹⁵⁴ In 1906, however, George Searcy, an Alabama physician, recognized pellagra among the patients at Alabama's Mount Vernon Insane Hospital. When his findings were published in the *Journal of the American Medical Association* the next year, medical professionals across the South had little difficulty recognizing the disease's disturbing symptoms, dermatitis, dementia, and diarrhea, in their patients.¹⁵⁵

Like hookworm, pellagra made life and work difficult for its victims. In its early stages, signs of pellagra "include lassitude, weakness, loss of appetite, mild digestive disturbances and psychiatric or emotional distress (anxiety, irritability and depression)."¹⁵⁶ Diarrhea contributes to feelings of weakness and discomfort. In time, symmetrical patterns of dermatitis appear on victims' skin. Patients find it increasingly difficult to work or concentrate. Eventually, "fatigue and insomnia progress to encephalopathy characterized by confusion, memory loss, and psychosis... As pellagra advances, patients become disoriented, confused and delirious, then stuporous and comatose, and finally die."¹⁵⁷

Because pellagra's existence in the American South was established in the wake of the discovery of hookworm and also afflicted poor rural southerners, some

studies by Etheridge and Roe are the most comprehensive, with Etheridge focusing on the disease in the southern United States and Roe taking a more global perspective. In a recent article, Harry Marks explores the role of race and gender in the work of Goldberger's close associate Edgar Sydenstricker.

¹⁵⁴ Roe, *A Plague of Corn*, p. 30; *Transactions of the Seventh Annual Conference of State and Territorial Health Officers with the United States Public Health and Marine-Hospital Service, Held June 2, 1909 in Washington, D.C.*, (Washington, D.C.: Government Printing Office, 1910), p. 67; Etheridge, *Butterfly Caste*, p. 4.

¹⁵⁵ Etheridge, *Butterfly Caste*, p. 4; George H. Searcy, "An Epidemic of Acute Pellagra," *Journal of the American Medical Association* 49, no. 1 (1907): p. 37.

¹⁵⁶ Juraj Hegyi, "Pellagra: Dermatitis, Dementia, and Diarrhea," p. 2.

¹⁵⁷ *Ibid.*: p. 3.

speculated that there might be a connection between the two diseases. “Pellagra and hookworm,” the *Washington Post* reported, “travel hand in hand. Where the former is found there also may be found the latter, in many cases burrowing his way to the vitals of the patient. Until the hookworm is routed, the successful treatment of pellagra is useless to attempt.”¹⁵⁸

Apparently a “cousin to the hookworm,” researchers assumed that pellagra was also an infectious disease.¹⁵⁹ In time, the study of the pellagra became entangled in a debate over whether the disease stemmed from bacteria growing on spoiled corn or some other source of infection. Although statistics collected by the Census Bureau eventually showed that pellagra disproportionately affected southern blacks and women, some physicians believed early on that blacks were relatively immune. Information collected by the Public Health Service officer in charge of investigating the disease appeared to show that the disease was more prevalent among whites than among blacks, while the Census Bureau’s mortality statistics did not include any southern states until the addition of Kentucky in 1911.¹⁶⁰

In 1912, the chairman of North Carolina’s Commission on Pellagra felt confident in drawing a connection between the role of race in pellagra and hookworm. Hookworm, he wrote, was a predisposing factor in the development of pellagra. More resistant to hookworm than whites, he argued, blacks were also less likely to contract

¹⁵⁸ *The Washington Post*, “Cousin to the Hookworm: Pellagra Theory Presented to Conference of Experts,” November 4, 1909.

¹⁵⁹ For an elaboration of the argument that the infectious paradigm of understanding disease fostered misunderstanding of pellagra and then resistance to the finding that it was a dietary deficiency disease, see Chris Leslie, “Fighting an Unseen Enemy: The Infectious Paradigm in the Conquest of Pellagra,” *Journal of Medical Humanities* 23, no. 3-4 (2002). But see also Kunitz, “Hookworm and Pellagra: Exemplary Diseases in the New South.”

¹⁶⁰ “It should be remembered,” the Census Bureau’s report for 1913 advised, “that the majority of the deaths from pellagra occur in nonregistration localities.” See *Mortality Statistics, 1913: Fourteenth Annual Report*, (Washington, D.C.: Government Printing Office, 1915), p. 27.

pellagra. Meanwhile, as a result of disease, “the white man is often unable to work from physical infirmity.”¹⁶¹

Beginning in 1914, however, the work of Public Health Service officer Joseph Goldberger, operating with an expanded federal mandate and funding for research into “interstate” diseases, started to reveal the true nature of pellagra. A dietary deficiency disease, Goldberger argued, pellagra was a consequence of the restricted diet of southerners living within areas of intense cotton and tobacco monoculture. Where hookworm could be portrayed, however inaccurately, as a disease capable of speedy elimination through medication and a few sanitary measures, such as wearing shoes and constructing sanitary privies, Goldberger’s analysis of pellagra ultimately highlighted the failings of the region’s political economic system. Despite the growth of knowledge about the causes of the disease and means of treating it, pellagra appeared an intractable aspect of southern life. By the early 1920s, the Public Health Service felt confident in making predictions about when economic conditions might exacerbate it; its recommendations of an increase in mixed agriculture and a well-balanced diet, however, could have little impact in the face of cotton’s dominance of southern farming.

THE DISPUTED ETIOLOGY OF PELLAGRA

As in Spain and Italy, the Americans most likely to develop pellagra were those who subsisted on a monotonous diet heavy in corn. That this diet had some relationship to the disease seemed apparent. Cesare Lombroso, a leading Italian expert on the disease, had argued that spoiled corn caused pellagra; this theory swiftly

¹⁶¹ Edward Jenner Wood, *A Treatise on Pellagra: For the General Practitioner* (New York: D. Appleton and Company, 1912), p. 130.

became dominant in the United States.¹⁶² Dr. Charles Dana, a New York psychiatrist, explained the Lombrosian understanding of the disease: “The peasants [of northern Italy] are forced to live on inferior grades of Indian corn, the product of poorly cultivated ground, sown late and harvested before maturity. Frequently it has been stored in a green state, and when sent to the mills there is a fungus growth on it, which is thought to be chiefly conducive to this form of insanity [pellagra].” Pellagra’s sudden appearance, to many, appeared to be linked to changes in the way that corn was harvested in the American Midwest.¹⁶³

Despite widespread initial acceptance of Lombroso’s theory, alternative explanations quickly emerged. Dr. J.H. Taylor, speaking at the National Conference of Pellagra held in South Carolina in 1908, offered an early dissent. Though corn was eaten in cities and towns as well as the countryside, pellagra was almost exclusively a rural disease. Though members of families lived in the same household “under identical food conditions, often only one is attacked, the other remaining absolutely free of symptoms.” The spoiled corn theory, he argued, could not account for the manifestly seasonal nature of the disease, which lay dormant throughout the winter and emerged again annually during the spring. Beyond this, the disease’s geographic concentration appeared incompatible with the Lombrosian approach: there were large parts of the globe where pellagra was “rampant,” but corn was neither “grown nor

¹⁶² *Transactions of National Conference on Pellagra: Held under the Auspices of the State Board of Health of South Carolina at the State Hospital for the Insane, October 29th, 1908*, (Columbia, S.C.: The State Co. Printers, 1909), p. 13; C.H. Lavinder, "The Theory of the Parasitic Origin of Pellagra," *Public Health Reports* 25, no. 22 (1910). Influenced by Lombroso, Dr. Searcy had dealt with pellagra at the Mount Vernon Insane Hospital by changing the patients’ diet: “As soon as the nature of the disease was determined and the true cause suspected the patients were taken off corn bread and grits and wheat bread and potatoes substituted.” See Searcy, "An Epidemic of Acute Pellagra," p. 37.

¹⁶³ *The New York Times*, (New York), “New Kind of Mania Appears in South: Dr. Dana, Alienist, Says It Came from Provinces in the North of Italy,” December 2, 1908. On the secondary theory that new methods of harvesting corn were resulting in the growth of fungus, see *Transactions of National Conference on Pellagra*, John McCampbell, “A Theory as to the Cause of the Recent Appearance in this Country of Pellagra,” p. 25-27; *Transactions of the Seventh Annual Conference of State and Territorial Health Officers with the United States Public Health and Marine-Hospital Service, Held June 2, 1909 in Washington, D.C.*, p. 71.

eaten, while on the other hand, there are large areas where this cereal is the principal article of diet, with all its fungi and bacteria, but pellagra is unknown.”¹⁶⁴

Some American pellagra researchers, taking these concerns into consideration, argued that the disease was the result of an unknown infectious agent, possibly transmitted by protozoa carried by flies.¹⁶⁵ This theory emerged as the most popular alternative to the spoiled corn theory. While pellagra continued to ravage the cotton belt, professional medicine appeared incapable of offering effective solutions to the problem. In 1913, Dr. C.H. Lavinder, the Public Health Service officer in charge of the federal investigation into the causes of pellagra, summarized the development of scientific knowledge of the disease in recent years: “The literature of pellagra continues to increase in volume, but our actual knowledge of the nature of the disease still leaves much, very much, to be desired. The etiology of pellagra remains in obscurity. The Italian school continues to ring changes on the corn theory, while the American school seems largely inclined to regard pellagra as an infectious disease of some undetermined nature.”¹⁶⁶ Lavinder’s own investigation, which had taken him throughout the American South and on fact-finding trips to northern Italy, suggested that the two competing camps were nowhere near reaching a resolution.

¹⁶⁴ *Transactions of National Conference on Pellagra*, J.H. Taylor, “The Protozoan Theory of Pellagra,” p. 20-25.

¹⁶⁵ Joseph Goldberger, “The Cause and Prevention of Pellagra,” in *Goldberger on Pellagra*, ed. Milton Terris (Baton Rouge: Louisiana State University Press, 1964), p. 25, originally published in *Public Health Reports*, vol. 29, no. 37 (September 11, 1914), 2354-57; C.H. Lavinder, “Pellagra: Brief Comments on Our Present Knowledge of the Disease,” *Public Health Reports* 28, no. 47 (1913). See also *The New York Times*, “More Causes of Pellagra,” October 9, 1909, “The Cause of Pellagra,” June 19, 10, “Put Pellagra Cases in South at 50,000: First Study of Commission in One County Shows that Disease is not Decreasing,” December 3, 12.

¹⁶⁶ Lavinder, “Pellagra: Brief Comments on Our Present Knowledge of the Disease,” p. 2461.

INSTITUTIONAL UNDERPINNINGS OF EXPANDED FEDERAL INVOLVEMENT IN THE
SOUTH'S PELLAGRA PROBLEM

Placed under the direction of Dr. Joseph Goldberger in April 1914, the Public Health Service's investigation took on new life. A childhood immigrant from the Austro-Hungarian Empire who had grown up in New York City, Goldberger was considered a rising star within the Public Health Service. An astute observer of individuals and society, he was well prepared to deal with southern public health workers, physicians, and politicians; he had spent time in Texas and Louisiana combating yellow fever and then dengue fever and married a woman from New Orleans.

Goldberger's personal qualities were buttressed by an enlargement of the Public Health Service's mandate and a corresponding growth in funding. It is worth briefly reviewing the history of the Public Health Service in order to better understand the institutional and constitutional context in which he operated. The Marine Hospital Service, the institutional precursor of the Public Health Service, had been founded in 1798 as a means of providing health care, based on a tax on sailors, for seaman entering American ports.¹⁶⁷ Connected to the system of federal customs houses, the Marine Hospital Service was housed within the Department of the Treasury. After 1871, when the Service was reorganized under the direction of Dr. John Maynard Woodworth, former chief medical officer to General William Tecumseh Sherman, the Service's organization mirrored that of the military. Its career corps of commissioned physicians "were required to wear a regulation uniform when on duty, and the general

¹⁶⁷ Ronald Hamowy, *Government and Public Health in America* (Northampton, MA: Edward Elgar, 2007), p. 23; Laurence F. Schmeckebier, *The Public Health Service: Its History, Activities and Organization*, Service Monographs of the United States Government (Baltimore: The Johns Hopkins Press, 1923), p. 2.

discipline and administration of the hospitals were modeled on military lines.” The Service’s “Supervising Surgeon” was renamed the Surgeon General.¹⁶⁸

Beginning in the last decade of the nineteenth century, Congress had granted increasing authority to the Service, which had previously been almost solely concerned with running the federal marine hospitals. In the wake of the massive Yellow Fever outbreak of 1878, which took around 20,000 lives throughout the lower Mississippi valley, and a short-lived national quarantine under a hastily created “National Board of Health,” the Service acquired a degree of control over quarantine. Nonetheless, its authority was tenuous and states and municipalities continued to exert control over entry into their own ports.¹⁶⁹ In 1890, the Service was granted power, when deemed necessary by the president, to attempt to control the interstate spread of cholera, yellow fever, smallpox, and plague. The Surgeon General was tasked with developing regulations to prevent the movement of these diseases, enforceable through fine or imprisonment.¹⁷⁰

That same year, the Marine Hospital Service took control of inspections of immigrants at Ellis Island; in 1891, this authority was extended to all ports of entry in the United States.¹⁷¹ The final step in this phase of growth came in 1893, when a new national quarantine law was designed with the intention of gradually ensuring that the Marine Hospital Service fully controlled all interstate and international quarantines.

¹⁶⁸ Hamowy, *Government and Public Health in America*, p. 24; Schmeckebier, *Public Health Service*, p. 9. The quotation is from Schmeckebier.

¹⁶⁹ Beginning in New Orleans, the 1878 epidemic ultimately killed 4,046 in the crescent city and 5,150 in Memphis, the two cities worst hit. The disease ranged as far north as St. Louis and Cincinnati. The Marine Hospital Service gained control over the weak national quarantine following four years of control by the National Board of Health, created in response to the outbreak. Schmeckebier, *Public Health Service*, p. 10; Margaret Warner, "Local Control Versus National Interest: The Debate over Southern Public Health, 1878-1884," *The Journal of Southern History* 50, no. 3 (1984).

¹⁷⁰ James A. Tobey, *The National Government and Public Health* (Baltimore: The Johns Hopkins Press, 1926), p. 88; Schmeckebier, *Public Health Service*, p. 16-17, 19.

¹⁷¹ Tobey, *National Government and Public Health*, p. 89; Bess Furman, *A Profile of the United States Public Health Service, 1798-1948* (Washington, D.C.: U.S. Department of Health Education, and Welfare, National Institutes of Health, National Library of Medicine, 1973), p. 206.

With the cooperation of the states, the Service began to assume authority over locally-operated quarantine facilities.¹⁷² Most clearly in dealing with international health threats, but more and more in instances where the potential interstate spread of disease was concerned, the federal government began to assume a direct role in public health matters.¹⁷³ In 1902, the Marine Hospital Service was renamed the Public Health and Marine Hospital Service, reflecting the expansion of its role over the preceding decade.

Throughout this period, during which Dr. Charles Wardell Stiles began his campaign against hookworm disease, federal authority in public health matters outside of ports of entry to the United States was largely investigative and educational. “These investigations,” Surgeon General Walter Wyman wrote in 1910, “are usually made at the request of state health authorities.” Public health was viewed as a police power, left to the states under the 10th Amendment to the Constitution. Although the police power of the states ensured their central role in the provision of public health services, Wyman noted, “Without question, it is the right and duty of the General Government to engage in the most thorough scientific investigations, to collect all possible statistics, and to publish [and] broadcast important sanitary and hygienic information.”¹⁷⁴ In large part, Charles Wardell Stiles had needed the support of a private philanthropy in fighting hookworm because active public health interventions

¹⁷² Tobey, *National Government and Public Health*, p. 91; Walter Wyman, "The Present Organization and Work for the Protection of Health in the United States," *Public Health Reports* 25, no. 38 (1910): p. 1306. "It would probably have been impossible to pass a law prohibiting states from maintaining quarantine stations," Tobey wrote in 1926, "and the best results were thus obtained by allowing the states to surrender their quarantine functions from time to time as they realized the advantages of the national system."

¹⁷³ See Wyman, "The Present Organization and Work for the Protection of Health in the United States."

¹⁷⁴ *Ibid.*: p. 1307-09.

at the local level were viewed as beyond the appropriate role of the federal government.

While the Public Health Service continued to view its investigative actions as dependent on the consent of the states, reforms beginning in 1912 substantially increased both the perceived legitimacy and the institutional underpinnings of federal intervention in public health. President William Howard Taft, taking office in 1909, had advocated the centralization of federal public health functions within an expanded Public Health Service or new health department.¹⁷⁵ Speaking at the Carolina-Georgia Fair in Augusta, Georgia, Taft offered the powerful Department of Agriculture as a worthy model: “Now, it is true that the health of the citizens is directly committed to the States, but it is also true that the question of agriculture is committed by the Constitution directly to the States. Nevertheless, the Agricultural Department has found much that with the means at its command it can do to assist the agriculture of the country.” Under the direction of a federal health agency, Taft argued, massive strides in the science of agriculture made in the previous decades could be mirrored “with respect to sanitation.” The benefits of such an agency would be particularly significant for the South, he told the crowd, “for as you reach nearer to the tropics the danger of the spread of diseases is much greater.”¹⁷⁶

In Congress, Oklahoma Senator Robert Owen, backed by the progressive Committee of One Hundred on National Health Care, proposed the consolidation of all federal health activities in one cabinet-level public health department.¹⁷⁷ Speaking in the spring of 1910, as the Rockefeller Sanitary Commission was beginning its survey

¹⁷⁵ See *The New York Times*, “A Federal Health Bureau,” December 9, 1910.

¹⁷⁶ William Howard Taft, “Sanitation and Health of the South: Remarks at the Georgia-Carolina Fair, Augusta, Georgia, November 8, 1909,” in *The Collected Works of William Howard Taft*, ed. David H. Burton (Athens, OH: Ohio University Press, 2002), p. 334-35.

¹⁷⁷ Schmeckebier, *Public Health Service*, p. 35; Hamowy, *Government and Public Health in America*, p. 27; *The New York Times*, “Scientists Favor U.S. Health Bureau: Many Organizations Join in Indorsing the Bill Introduced by Senator Owen,” April 18, 1910.

of the southern states, he suggested that hookworm disease posed a serious threat to the region and reasonable target of federal action. Although, Senator Owen argued, hookworm was preventable and could be cured for around a dollar per person, “the prevalence of the disease is denied, prejudices and lack of learning stand in the way of speedy restoration of thousands, and the voice of the men who know the habits, life, history, and remedy for hookworm carries with it little power or authority to heal the unlearned patients.”¹⁷⁸ Owen’s plan faced opposition from a variety of sources, including practitioners of alternative medical practices and federal bureaucracies such as the Department of Agriculture, which sought to retain control of the enforcement of the Pure Food and Drugs Act.¹⁷⁹

Ultimately, President Taft and Senator Owen, who were not wholly in agreement on the specifics of how a national public health agency would function, were unable to garner the support for the expansion and centralization of public health functions that both thought necessary. Nonetheless, their efforts helped to set in motion a gradual expansion of the Public Health Service’s institutional capacity. In 1912, Taft signed legislation jettisoning the mention of marine hospitals from the Service’s name, expanding its jurisdiction, and increasing pay for its officers. Studiously avoiding infringement of states’ rights, the Public Health Service’s new enabling legislation granted it a vague authority to “study and investigate the diseases

¹⁷⁸ *The Washington Post*, “Might Prolong Life: Senator Owen Urges Federal Health Department Bill,” March 25, 1910.

¹⁷⁹ Speaking before the American Public Health Association in 1914, Galveston, Texas physician M.L. Graves reflected on the potential conflict between states’ rights and the likely benefits of the Owen bill: “For myself, born and raised in the South, and impregnated with the ideas of State Rights, I am firmly convinced that when it comes to sufficient and efficient protection of the public health it will require the powers of the National Government to do it. Political myths and party shibboleths should no longer be permitted to retard our progress and cause such enormous waste of valuable lives and the economic loss from preventable illness and death.” See Committee on Public Health and National Quarantine United States Congress, *Proposed Department of Public Health, Hearings before the United States Senate Committee on Public Health and National Quarantine, Sixty-First Congress, Second Session* (Washington, D.C.: Government Printing Office, 1910); M.L. Graves, “Practical Remedial Measures for the Improvement of Hygienic Conditions of the Negroes in the South,” *American Journal of Public Health* 5, no. 3 (1915): p. 214.

of man and conditions influencing the propagation and spread thereof, including sanitation and sewage and the pollution either directly or indirectly of the navigable streams and lakes of the United States.” Public Health Service officers welcomed the bill, which they interpreted broadly. According to that year’s Surgeon General’s report, the authorization marked “a new epoch in the history of the health activities of the Federal Government, and it is believed [that the bill] clearly recognizes the Public Health Service as the central health agency in the Nation.”¹⁸⁰

The apparent enlargement of the PHS’s authority was confirmed and given teeth by the Sundry Civil Appropriations Act for the 1914 fiscal year, which appropriated \$200,000 for Public Health Service field investigations.¹⁸¹ In eastern Kentucky, and later in the mountains of Virginia, West Virginia, and Tennessee, the Service began surveying and treating people for Trachoma, an infectious eye disease that was widespread in southern Appalachia.¹⁸² Increasingly, the PHS paid attention to the prevalence of malaria throughout much of the South, conducting surveys and in a few locations cooperating with the Rockefeller International Health Board in conducting demonstrations in malaria control.

Along with the general appropriation for field investigations, the Sundry Civil Appropriations Act set aside an additional \$47,000 for the Service to operate a new pellagra hospital in Spartanburg, South Carolina.¹⁸³ The Spartanburg area, dominated by the cotton textile industry, had emerged as a center of pellagra research as a result

¹⁸⁰ Tobey, *National Government and Public Health*, p. 102; *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1912*, (Washington, D.C.: Government Printing Office, 1913), p. 9.

¹⁸¹ Furman, *Profile of the United States Public Health Service*, p. 288; Tobey, *National Government and Public Health*, p. 104; *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1914*, (Washington, D.C.: Government Printing Office, 1914), p. 16.

¹⁸² Schmeckebier, *Public Health Service*, p. 83.

¹⁸³ *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1914*, p. 30.

of the welcoming nature of local mill owners, who were eager to rid their workers of a disease that, as it advanced, could leave them weak, unproductive, or incapable of working.

The Thompson-McFadden Commission, a privately endowed inquiry into the causes of pellagra, had been active in the area for years. Local mill workers, its scientists found, were surprisingly receptive to outsiders who hoped to help rid their communities of the disease. The *New York Times* reported that the Thompson-McFadden researchers had been “led to expect that a minute inquiry into the lives and habits of the mill hands would meet with resentment or even determined opposition. On the contrary, they were received with courtesy wherever their inquiries led them, and in only a few instances was there a display of reticence. All of the afflicted, or likely to become afflicted, realized the importance of the investigation and the serious menace to their health unless the pellagra problem was solved within a comparatively brief period.”¹⁸⁴

GOLDBERGER: OBSERVATION AND EXPERIMENTATION

Relaying his initial observations to the Surgeon General in July 1914, Dr. Goldberger cited English pellagra expert Louis Sambon’s claim that, in Italy, “long experience has taught that there is no danger whatever of transmission from the sick to the healthy in any collective dwelling within urban precincts.”¹⁸⁵ What he had seen in the South, Goldberger noted, strongly supported the conclusion that pellagra was not, as many American scientists believed, a contagious disease. In institutional settings,

¹⁸⁴ *The New York Times*, “Put Pellagra Cases in South at 50,000: First Study of Commission in One County Shows that Disease is Not Decreasing,” December 3, 1912.

¹⁸⁵ Joseph Goldberger, “The Etiology of Pellagra: The Significance of Certain Epidemiological Observations with Respect Thereto,” in *Goldberger on Pellagra*, ed. Milton Terris (Baton Rouge: Louisiana State University Press, 1964), p. 19-20, originally published in *Public Health Reports* 29, June 26, 1914.

such as state asylums, nurses and attendants were often surrounded by the disease. Nonetheless, they appeared “uniformly to be immune.”¹⁸⁶ Only the patients developed pellagra.

Side-stepping the debate over whether pellagra resulted from spoiled corn or some undiscovered infectious agent, Goldberger called attention to the predominance of the rural poor among the afflicted. “What important difference,” Goldberger asked, “is there between the elements of poverty in our slums and those of poverty in rural dwellers?” The difference, he concluded, was one of diet: “studies of urban and rural dietaries have shown that on the whole the very poor of cities have a more varied diet, than the poor in rural sections.”¹⁸⁷ Rather than exposure to an infectious agent or spoiled corn, Goldberger speculated that rural southerners developed pellagra as a result of a missing element in their diets. In state asylums, where nurses and attendants were immune and the patients pellagrous, all received their food from the same source. Nonetheless, Goldberger noticed, it was “the attendants, the nurses, who got the nice cuts of meat, the glasses of milk.”¹⁸⁸

During the summer of 1914, Goldberger collected data and observed cases of pellagra in preparation for experimental testing of the dietary hypothesis. At two orphanages in Jackson, Mississippi, Goldberger, assisted by other PHS officers, compiled information on diet as well as pellagra incidence. Establishing a trusting relationship with the orphans and paying close attention to their habits, Goldberger became aware of disparities in their diets across age ranges. The younger children, he found, were given a few glasses of milk each day. Older children, meanwhile, were assigned chores and, as a reward, given additional meat. Moreover, some of the older

¹⁸⁶ Ibid., p. 20.

¹⁸⁷ Ibid., p. 21.

¹⁸⁸ DeKruif, *Hunger Fighters*, p. 341.

children confessed, they stole milk and meat when they could. Children between the ages of six and twelve, too old to be given additional milk and too young for chores, were the most likely to develop pellagra.¹⁸⁹

In September, the Public Health Service began to supplement diets at both orphanages, providing the children and staff with a new menu heavy in protein-rich foods. Though the PHS-approved menu continued to include carbohydrate-rich southern fare such as corn bread and syrup, its prominence was greatly reduced in favor of fresh meat, beans, milk, and eggs. Oatmeal was substituted for grits at breakfast in the hopes that this would encourage milk consumption.¹⁹⁰

In spring, when pellagra typically reemerged, the orphans appeared healthy. By the early summer of 1915, when cases of pellagra would have been approaching full bloom, the results of Goldberger's orphanage study were clear. In one orphanage, where 67 children given the new diet had developed pellagra the year before, the disease did not recur in a single case. Among ninety-nine other children and adults resident, no one else developed pellagra. In the second orphanage, with 105 previous cases of pellagra, only one child developed the disease again in the spring of 1915.¹⁹¹ A similar study, using two groups of inmates at the Georgia State Sanitarium, white women and black women, produced the same results: there were no recurrences of pellagra among either group.¹⁹²

As his success in preventing pellagra in the orphanages was becoming clear, Goldberger began an attempt to induce pellagra in previously healthy individuals.

¹⁸⁹ Ibid., p. 343.

¹⁹⁰ C.H. Waring Joseph Goldberger, and David G. Willets, "The Prevention of Pellagra: A Test of Diet among Institutional Inmates," in *Goldberger on Pellagra*, ed. Milton Terris (Baton Rouge: Louisiana State University Press, 1964), p. 32-33.

¹⁹¹ Ibid., p. 33.

¹⁹² Ibid., p. 37.

Relying on his friendly relationship with Mississippi State Board of Health secretary Dr. E.H. Galloway, Goldberger was able to persuade Governor Earl Brewer to allow him access to inmates at Mississippi's Rankin Prison Farm. He proposed to "test the possibility of producing pellagra in previously healthy men by feeding [them] a one side sided, monotonous, principally cereal diet of the type found in previous studies to be associated with a high incidence of pellagra." Governor Brewer agreed to offer pardons to twelve inmates in return for their "voluntary" participation in the study.¹⁹³

For Goldberger, the Rankin Prison Farm was an ideal setting for studying pellagra. Located in sparsely populated Rankin County, eight miles east of Jackson, the farm was largely self-sufficient, producing food for inmates as well as cash crops. Its population was made up entirely of adult white men, the "race, sex, and age group" which "judging by the available data with respect to incidence... would seem to be least susceptible to the disease."¹⁹⁴ The prisoners' typical diet, moreover, appeared to be of high quality. Although pellagra was "fairly prevalent" in surrounding Rankin County, Goldberger noted, "no case of the disease had been observed on the farm."¹⁹⁵ Inducing pellagra among white male adults in an environment previously free of pellagra, Goldberger believed, would prove particularly persuasive to those skeptical of his dietary theory. For good measure, Goldberger decided to attempt to bring on the disease during August or September, "a season when the incidence and the prevalence of the disease were normally on the decline."¹⁹⁶

Beginning on February 4, 1915, twelve prisoners, ranging from age twenty-four to fifty and including "six who were serving life terms for murder, one a life term

¹⁹³ Joseph Goldberger and G.A. Wheeler, "The Experimental Production of Pellagra in Human Subjects by Means of Diet," in *Goldberger on Pellagra*, ed. Milton Terris (Baton Rouge: Louisiana State University Press, 1964), p. 55. Originally published as *Hygienic Laboratory Bulletin*, No. 120 (February, 1920), 7-116; Harkness, "Prisoners and Pellagra."

¹⁹⁴ Wheeler, "The Experimental Production of Pellagra in Human Subjects by Means of Diet," p. 55.

¹⁹⁵ *Ibid.*, p. 61.

¹⁹⁶ *Ibid.*, p. 55.

for criminal assault” and others serving “terms for manslaughter, bigamy, and embezzlement,” were kept under close observation for nearly two months, in order to ensure that none had a pre-existing case of pellagra. During this period, the prisoners worked the fields and ate the same diet as other prisoners.¹⁹⁷ One member of the “pellagra squad” attempted to escape and was replaced by a prisoner from the general population who had also been under observation.

The pellagra squad was housed in conditions far superior to those of the general inmate population. In the areas where the general population was housed, the screening of windows and doors was “incomplete and defective, so that flies and mosquitoes had easy access to these quarters.” Their quarters “were inadequately looked after and were for the most part dirty and vermin infested.” Over the course of Goldberger’s study, “a number of rather sharp attacks of malaria were observed” among the general inmate population. While the living quarters of the general population offered optimal conditions for the spread of disease, “the quarters of the volunteers were regularly and thoroughly cleaned.” In addition, they were provided with clean bedding and undergarments.¹⁹⁸ Ensuring a sanitary environment, Goldberger hoped to show that pellagra was not the result of filth or outside infection.

On April 19, the prisoners began their new diet. One prisoner, who developed an unrelated illness, was later released from the group, leaving eleven subjects. The diet consisted entirely of “white wheat flour, corn (maize) meal, hominy grits, cornstarch, white rice, granulated cane sugar, cane sirup, sweet potatoes, pork fat, cabbage, collards, turnips, turnip greens, and coffee.”¹⁹⁹ Most of the food came from

¹⁹⁷ Ibid. Information on the prisoners’ crimes is from Etheridge, *Butterfly Caste*, p. 93.

¹⁹⁸ Wheeler, “The Experimental Production of Pellagra in Human Subjects by Means of Diet,” p. 61, 62, 72.

¹⁹⁹ Ibid., p. 67.

the prison's general supply. Because of the long-standing belief that spoiled corn was responsible for pellagra, however, Goldberger and his Public Health Service assistants "provided the best quality of both meal and hominy grits obtainable on the local market." The same high quality corn products were provided to the prisoners in the general population, who acted as a control group for the study.²⁰⁰ Although atypical in its extreme monotony, the prisoners' diet was essentially an exaggerated form of the familiar southern "meat, molasses, and maize" regimen.²⁰¹ They continued to work, though with longer breaks and shorter hours, until they became unable to near the end of the experiment.

After being pardoned and released, one of the prisoners, W.H. English, related his experience at Rankin Farm to a reporter in a New Orleans hotel. Weak and despondent, he told the reporter he had "been through a thousand hells." Accepting Governor Brewer's offer of a pardon had resulted in "nine months of torture." "For the first few months," English explained, "I felt only lazy and stupid... After the first three months, I never had a good night's sleep. It was more of a stupor, accompanied by unnatural parching of the skin and occasional sweats." Near the end of the experiment, he became "so weak... that I wouldn't hardly move... My skin became saffron and felt like it was going to crack. We were told to play cards and exercise, but did not have the ambition to do it."²⁰²

Six of the eleven prisoners, Dr. Goldberger reported, had developed unmistakable cases of pellagra, which by convention could only be diagnosed following the eruption of skin lesions. A team of medical experts confirmed the

²⁰⁰ Ibid., p. 67-68.

²⁰¹ "The 'meat,'" writes Robert Higgs of the "Three Ms" diet, "hardly deserved its name, consisting almost entirely of fat." See Goldberger, "The Cause and Prevention of Pellagra," p. 25; Robert Higgs, *Competition and Coercion: Blacks in the American Economy, 1865-1914* (New York: Cambridge University Press, 1977), p. 105-08.

²⁰² *The Washington Post*, "Tortured by Pellagra," November 7, 1915.

diagnosis.²⁰³ Although the remaining inmates had not yet developed lesions when the experiment was concluded, they exhibited other characteristic symptoms of pellagra. “In other words,” Goldberger wrote, “we are of the opinion that every one of the volunteers developed pellagra, six or seven with skin lesions and four or five without.”²⁰⁴

The “volunteers” themselves were eager to escape from Goldberger’s supervision. Like others afflicted with pellagra, the inmates developed severe melancholy and were prone to suicidal thoughts. “Several of us tried suicide during the last few months,” English told the reporter, “but we were watched night and day. At any time I would have gladly welcomed a bullet.” At least two members of the pellagra squad submitted written requests to return to their cells and life sentences. Although the Public Health Service and the State of Mississippi offered to provide the prisoners a balanced diet following the end of the experiment in order to remedy their pellagra, none of the eleven prisoners who made it through the experiment accepted. English himself had left immediately for New Orleans and was headed for California: “We all just wanted to get away from the scene of our torture.”²⁰⁵

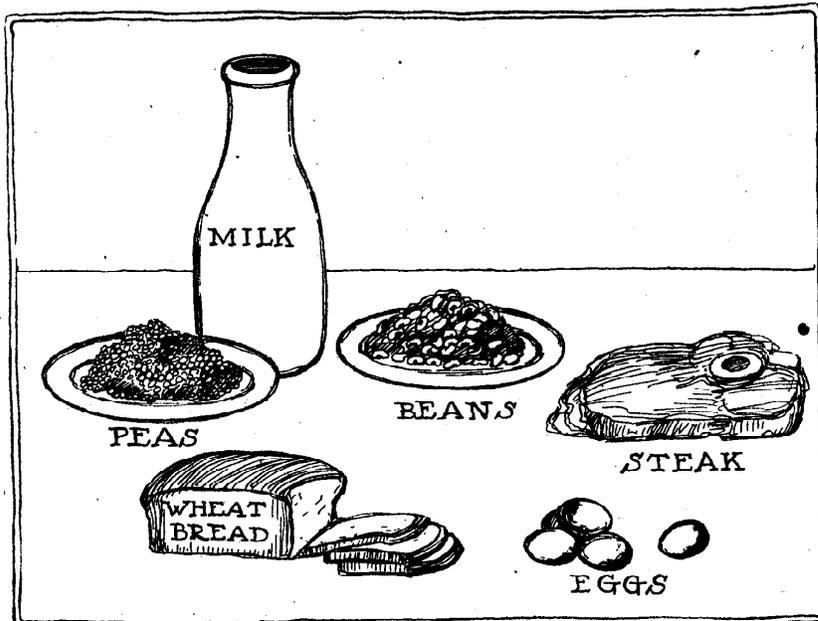
Though Goldberger was now confident that he had established “the controlling influence of diet in both the prevention and the causation” of pellagra, other students of the disease were far from convinced.²⁰⁶ In Mississippi, newspapers heralded Goldberger as a local hero. The State Board of Health began an educational program based on his recommendation of a diet containing more animal proteins, and he was

²⁰³ Wheeler, “The Experimental Production of Pellagra in Human Subjects by Means of Diet,” p. 73.

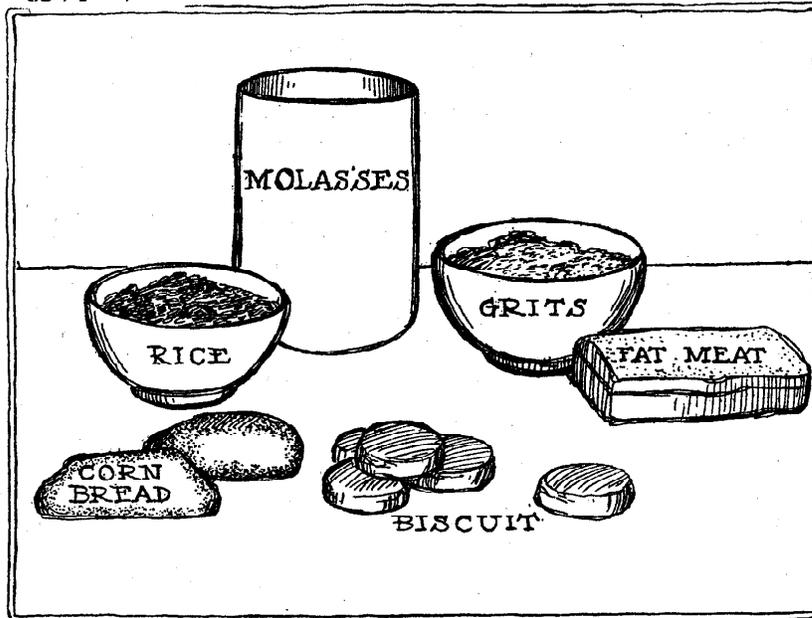
²⁰⁴ *Ibid.*, p. 75.

²⁰⁵ *The Washington Post*, “Tortured by Pellagra,” November 7, 1915.

²⁰⁶ G.A. Wheeler, Joseph Goldberger, and Edgar Sydenstricker, “A Study of the Relation of Diet to Pellagra Incidence in Seven Textile-Mill Communities of South Carolina in 1916,” in *Goldberger on Pellagra*, ed. Milton Terris (Baton Rouge: Louisiana State University Press, 1964), p. 131. A typical contemporary critique of Goldberger’s findings, written by Dr. Henry Harris, the Georgia physician who described pellagra in 1902, may be found in H.F. Harris, *Pellagra* (New York: The Macmillan Company, 1919).



This kind of food will prevent and cure pellagra. A person should eat, from day to day, the proper amount of protein food, such as milk, eggs, peas, etc.



This kind of food, when eaten from day to day, will cause pellagra. A monotonous diet should be avoided. A well balanced ration must include some protein (Meat, milk, eggs, peas, etc.), carbohydrate (starches and sugar) and fat (butter, lard, etc.).

Figure 9. Mississippi State Board of Health dietary advice, circa 1916, based on acceptance of Goldberger's findings. Source: *Mississippi State Board of Health Report, June 1st, 1915 to June 30th, 1917*, p. 308.

made an honorary member of the Jackson Rotary Club.²⁰⁷ When the Southern Medical Association met the week after Goldberger announced his results, however, a discussion of pellagra quickly deteriorated into “a sounding board for a vitriolic attack on Goldberger, who was not present.”²⁰⁸

RACE, EPIDEMIOLOGY, AND PELLAGRA

Disputed by proponents of both the spoiled corn theory and the unknown infectious agent theory, Goldberger’s results also contradicted those of the well-regarded Thompson-McFadden Commission, which had reported that pellagra was indeed an infectious disease. Basing its conclusions on data gathered in the largely white mill towns surrounding Spartanburg, South Carolina, the Commission’s report had caused many southern physicians to focus again on the potential connections between pellagra and hookworm disease.²⁰⁹ Although Census Bureau statistics seemed to show that pellagra disproportionately affected southern blacks and women, the Commission’s findings muddied the picture. Within Spartanburg County, the commission reported, 45 whites per 10,000 inhabitants were afflicted with the disease, while only 9.5 per 10,000 blacks were afflicted. “In other words, while whites are present in the population in the proportion of two whites to one negro, there are ten white pellagrins to one negro pellagrin.” The meaning of this information was left unclear. To the Commission, the relative absence of pellagra among Spartanburg County blacks appeared to be related to their absence in the county’s mill towns,

²⁰⁷ Etheridge, *Butterfly Caste*, p. 97-98.

²⁰⁸ *Ibid.*, p. 98.

²⁰⁹ E. Mack Parrish, "Epidemiology of Pellagra," *Texas State Journal of Medicine* XII(1916); William Heiskell and Thompson Daederick, Loyd Oscar, *The Endemic Diseases of the Southern States* (Philadelphia: W.B. Saunders Company, 1916), p. 289.

which the Commission believed were the sites of unsanitary conditions that fostered the spread of pellagra.²¹⁰

Even before the Thompson-McFadden Commission's report, prominent physicians had offered support for the idea that blacks were less likely to develop pellagra than whites. Because no southern state was included within the Census Bureau's death registration area until Kentucky achieved adequate vital statistics reporting in 1911, early information on pellagra incidence was extremely unreliable. Attempting to clarify the underlying facts of the disease, Dr. C.H. Lavinder, the PHS officer in charge of pellagra investigations before Goldberger, had collected statistics during 1912 that, he believed, indicated that pellagra was largely a white disease. Based on a survey of physicians in eight southern states, conducted by mail, Lavinder found 2,924 white male cases of pellagra, 931 black male cases, 6,857 white female cases, and 3,117 black female cases from 1907 through 1911. In October 1912, he presented his findings at the meeting of the National Association for the Study of Pellagra in Columbia, South Carolina and published them in the Public Health Service's *Public Health Reports*.²¹¹

"It has been thought by many," Lavinder explained, "that in the South negro females have been the worst sufferers from pellagra. But here in a total of nearly 14,000 cases, reported from States many of which have a large negro population, we

²¹⁰ P.E. Garrison J.F. Siler, and W.J. MacNeal, *Pellagra: First Progress Report of the Thompson-Mcfadden Pellagra Commission of the New York Post-Graduate School and Hospital* (New York 1914), p. 26-27. Even excepting the populations of mill towns, though, the commission found a rate of 25.2 white victims per 10,000 and 9.5 black victims per 10,000.

²¹¹ C.H. Lavinder, "The Prevalence and Geographic Distribution of Pellagra in the United States," *Public Health Reports* 27, no. 50 (1912); ———, "The Prevalence and Geographic Distribution of Pellagra in the United States," in *Transactions of the National Association for the Study of Pellagra, Second Triennial Meeting at Columbia, South Carolina, October 3 and 4, 1912* (Columbia, SC: The R.L. Bryan Company, 1914). The states were Virginia, North Carolina, South Carolina, Georgia, Kentucky, Alabama, Mississippi, and Louisiana. In 1912, the most recent published Census data was for 1909 and included no southern states. See *Mortality Statistics, 1909: Tenth Annual Report with Revised Rates for the Intercensal Years 1901 to 1909, Based Upon the Census of 1910*, (Washington, D.C.: Government Printing Office, 1912).

PELLAGRA DEATHS BY COLOR OR RACE DURING EACH MONTH, 1914.

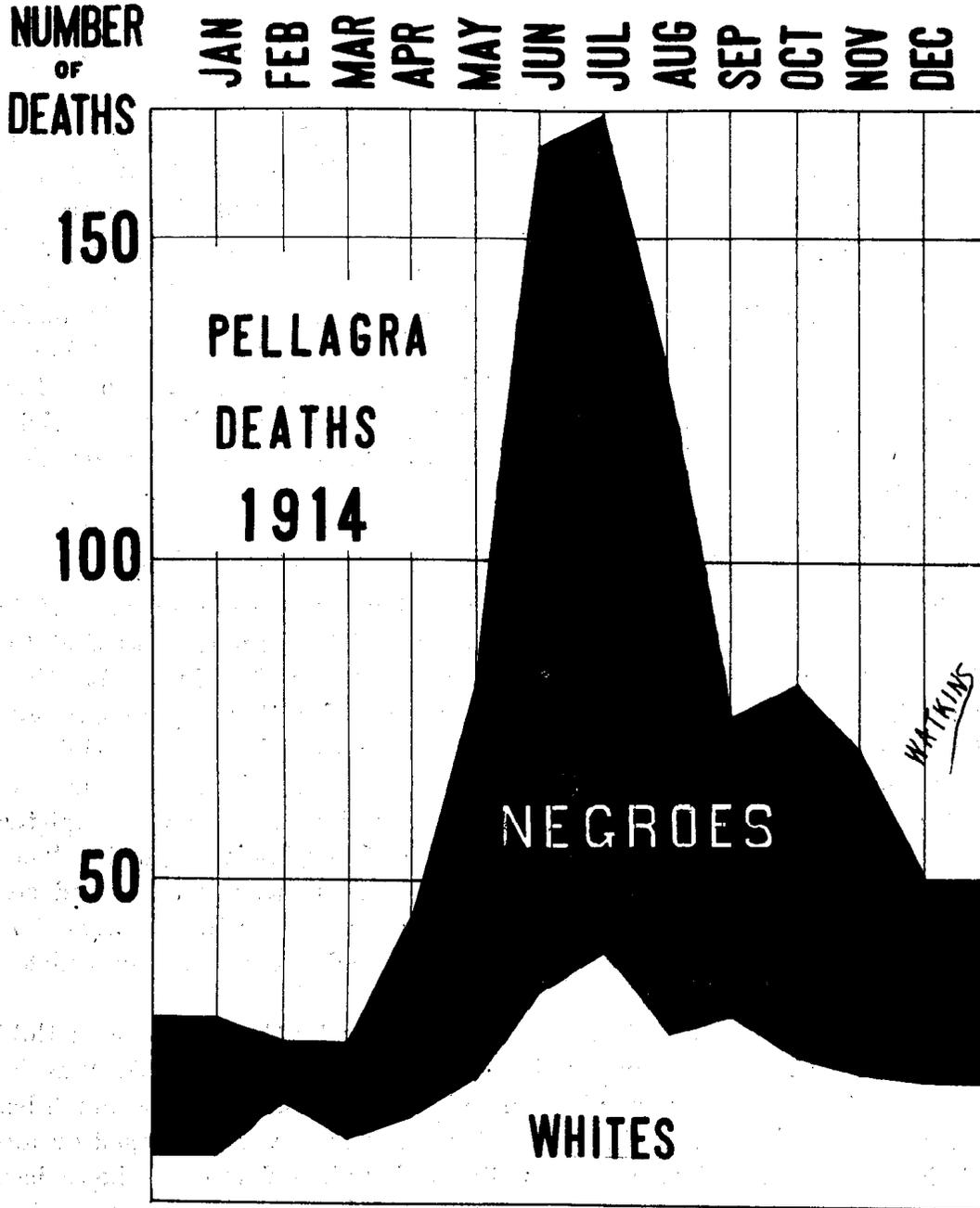


Figure 10. Prominence of Blacks Among Mississippi Pellagra Victims. Source: Mississippi State Board of Health Report, June 1st, 1915 to June 30th, 1917, p. 338.

find that the white females outnumber the negro females and the white males outnumber the negro males.” “This shows the folly,” he concluded, “of trying to make generalizations on a small number of cases, as has been done hereto-fore.”²¹²

Lavinder’s conclusions were severely flawed. Although only twenty-five percent of the physicians who had received his request for information responded, he expressed confidence that “notwithstanding faulty methods, I believe the returns give us a fairly accurate idea of the extent and prevalence of pellagra in the United States.”²¹³ Although the relative prevalence of pellagra among blacks and whites could not be determined, even with the most reliable data, without adjusting the number of cases according to the proportion of blacks and whites in a given state or area, Lavinder presented and interpreted his data unadjusted. He did not address the possibility that blacks might be less likely to seek or have access to a physician when they came down with pellagra.

The same year, Dr. Edward Jenner Wood, Chairman of the North Carolina State Board of Health’s Pellagra Commission suggested that relative black immunity was related to black resistance to hookworm. “I am inclined to think,” Wood wrote, “that the difference [in pellagra incidence] is due to the fact that, as Stiles has shown so often, the negro is not so susceptible to hookworm disease as the white, and, in fact, hookworm disease in the negro race is counted a rare condition. Pellagra shows a strong tendency to attach itself to a victim of any chronic disease whose resistance is

²¹² Lavinder, "The Prevalence and Geographic Distribution of Pellagra in the United States," p. 2078. Writing in 1911, Lavinder had noted that “although statistics are scant, it seems undoubted that there is a marked preponderance of females and, in the Southern States, negro females. With regard to *race and nationality* there is observed no especial immunity or predisposition. It has been said in a general way that the negro of the Southern United States is a marked sufferer from the disease; but here again statistics are lacking [*italics in original*].” See C.H. Lavinder, "The Salient Epidemiological Features of Pellagra," *Public Health Reports* 26, no. 39 (1911): p. 1463-64.

²¹³ Lavinder, "The Prevalence and Geographic Distribution of Pellagra in the United States," p. 2077.

lowered, and this is especially true of hookworm disease. It is also a fact that the negro in the South is usually better conditioned than the poor white.”²¹⁴

Now, the Thompson-McFadden Commission’s report reinforced the idea of black resistance to the disease. “Generally speaking,” one study of southern diseases asserted, employing data from the Commission and other sources, “pellagra is commoner in the white race than in the negro.”²¹⁵ Virginia physician Beverly Tucker wrote that “the Thompson-McFadden Pellagra Commission found that in many of the southern states the whites were affected three or four times to the negro’s once, and in no state, not even in Mississippi, where the negro population predominates, was pellagra as frequent among the negroes.”²¹⁶

Texas physician E. Mack Parrish, a critic of Goldberger’s work, outlined the apparent connection between black susceptibility to hookworm and to pellagra: “If the negro is less susceptible to soil infections, by reason of the character of his skin and his long residence in the tropics, we might expect the negro to be less susceptible to pellagra, as we find he is.” Goldberger’s dietary hypothesis, he argued, was inconsistent with black resistance to pellagra: “surely it will not be found that negroes are better nourished than whites.”²¹⁷

²¹⁴ Wood, *A Treatise on Pellagra: For the General Practitioner*, p. 123. Beginning in 1912, it was the officially adopted position of North Carolina’s State Board of Health that pellagra was “an interstate problem, not a state problem,” and that the federal government should “deal with pellagra as a federal problem.” See *State Board of Health of North Carolina Biennial Report*, Eighteenth Biennial Report, 1919-20, p. 13. In 1918, after hearing Goldberger read a paper at the annual meeting of the North Carolina State Medical Society, Dr. Wood offered an enthusiastic acceptance of his work: “I want to say on behalf of the whole State of North Carolina that the coming of Dr. Goldberger is not second even to the coming of Dr. Stiles to North Carolina in 1903 when he brought us the news of the hookworm. There is nothing that has ever happened in North Carolina that could be so far-reaching... for the everlasting upbringing of the State than what we have heard today.” See Benjamin Earle Washburn, *A History of the North Carolina State Board of Health, 1877-1925* (Raleigh: North Carolina State Board of Health, 1966), p. 83.

²¹⁵ Daederick, *The Endemic Diseases of the Southern States*, p. 289. See also Beverley R. Tucker, “Pellagra,” *International Clinics* I, no. 26 (1916).

²¹⁶ Tucker, “Pellagra,” p. 67. For 1914, Mississippi’s actual reported death rate, by race, was 32.3 per 100,000 for whites and 78 per 100,000 for blacks. See *Report of the Board of Health of the State of Mississippi*, June 1st, 1915 to June 30th, 17.

²¹⁷ Parrish, “Epidemiology of Pellagra,” p. 179.

Though Goldberger had hoped, by inducing pellagra in healthy white men at Rankin Farm, to add additional weight to his dietary argument, even the seemingly straightforward premise that white men were the least likely to develop the disease found doubters within the confused and fragmented national discussion of pellagra. While misleading, however, the claim that blacks were less susceptible to pellagra than whites ultimately had little impact. Aware that the disease had first been observed in Spain, France, and Italy, few were willing to blame the prevalence of pellagra on southern blacks. As Harry Marks has argued, the general debate over the causes of pellagra, however confused, was, given the context, surprisingly race neutral.²¹⁸

THE POLITICAL ECONOMY OF PELLAGRA

Despite the antagonism that greeted his work, Goldberger continued to refine his understanding of the relationship between nutrition and pellagra. Employing the statistical expertise of his Public Health Service colleague Dr. Edgar Sydenstricker, who had a background in labor economics, Goldberger began to assemble comprehensive data on diet and the incidence of pellagra in seven South Carolina mill villages.²¹⁹ Each village investigated was within easy reach of the Public Health Service's pellagra hospital in Spartanburg. Moreover, the villages "had previously been studied more or less intensively by the Thompson- McFadden Commission, with whose results we thought our own would therefore be more directly comparable than if our work were done elsewhere."²²⁰ Operating within the same area, Goldberger

²¹⁸ Marks, "Epidemiologists Explain Pellagra: Gender, Race, and Political Economy in the Work of Edgar Sydenstricker," particularly p. 35-36. "Across the political spectrum," writes Marks, "it seemed difficult to talk of disease in the South without invoking race... For the most part, however, pellagra was not such a race-identified disease."

²¹⁹ On Sydenstricker's background and for a critique of his methodology see *Ibid.*

²²⁰ Joseph Goldberger, "A Study of the Relation of Diet to Pellagra Incidence in Seven Textile-Mill Communities of South Carolina in 1916," p. 139-40.

hoped to disprove the Commission's finding that the disease was infectious.²²¹ Well aware of the higher proportion of black southerners afflicted with pellagra, Goldberger was nonetheless comfortable with pursuing his research in mill towns that were almost entirely white. Indeed, he likely viewed this situation as an advantage, since he believed that "racial customs and habits" probably played a role in diet. The "few Negro families" living in the mill villages were excluded from the study.²²²

"At first," Goldberger found, "considerable reluctance was displayed by some of the people in speaking of any condition which they believed or suspected to be pellagrous; but, as we became better known to the village people, this reserve in large measure disappeared." Ultimately, residents kept the PHS team informed of new cases of pellagra and local doctors agreed to cooperate with the study. Most instances of the disease, the researchers soon learned, were not reported to physicians.²²³ Accurately determining the diet of such a large group of individuals, a potentially serious challenge to Goldberger's research, was simplified by the choice of mill villages for the study. Nearly every family obtained the majority of its food from mill company stores, which, in turn, provided Goldberger and Sydenstricker with detailed records of each purchase.²²⁴

Given the results of his previous work, Goldberger was not surprised to find that the principal difference between families with cases of pellagra and those without

²²¹ See J.F. Siler, *Pellagra: First Progress Report of the Thompson-Mcfadden Pellagra Commission of the New York Post-Graduate School and Hospital*, p. 15; *The New York Times*, "Pellagra Called Infectious Disease: Thompson-McFadden Commission Discounts Maize Theory and Blames Stable Fly," March 15, 1914. "Pellagra," the commission found, "is in all probability a specific infectious disease communicable from person to person by means at present unknown." The commission also rejected the possibility that pellagra was caused by spoiled corn.

²²² Joseph Goldberger, "A Study of the Relation of Diet to Pellagra Incidence in Seven Textile-Mill Communities of South Carolina in 1916," p. 139, 40. "Racial customs and habits" apparently refers to the possibility that black southerners might be culturally inclined to a diet more likely than that of white southerners to induce pellagra.

²²³ *Ibid.*, p. 140-41.

²²⁴ *Ibid.*, p. 147.

was the presence of animal protein in the diets of those without the disease.

Demonstrating that both pellagrous and non-pellagrous households ate corn products from the same sources in similar quantities, Goldberger and Sydenstricker's mill village studies offered additional support for Goldberger's claim, also endorsed by the Thompson-McFadden Commission, that spoiled corn was not the cause of pellagra.²²⁵ In contrast to the Commission, though, Goldberger and Sydenstricker found that there was no consistent correlation between a town's sanitary condition and the incidence of pellagra, casting doubt on some theories of the transmission of pellagra.²²⁶ Even more importantly, the new data suggested that the victims of pellagra were not only victims of poverty, but also victims of location and political economy. In some mill towns, poor residents remained entirely free of the disease while, in others, the disease ran rampant.

In the years following the Civil War, cotton monoculture had spread far beyond the confines of the antebellum cotton belt. The abolition of slavery, the antebellum basis for credit and strategies of wealth accumulation in the region, resulted in the emergence of sharecropping and other new modes of credit, which ultimately gave lenders increased leverage over what crops were grown.²²⁷ Cotton was viewed as a trustworthy investment, leading to the demise of truck farming and mixed agriculture throughout much of the South.²²⁸ In the western reaches of the

²²⁵ Ibid., p. 188.

²²⁶ G.A. Wheeler Joseph Goldberger, Edgar Sydenstricker, R.E. Tarbett, "A Study of the Relation of Factors of a Sanitary Character to Pellagra Incidence in Seven Cotton-Mill Villages of South Carolina in 1916," in *Goldberger on Pellagra*, ed. Milton Terris (Baton Rouge: Louisiana State University Press, 1964).

²²⁷ Wright, *Old South, New South: Revolutions in the Southern Economy since the Civil War*, p. 87-88; Sutch, *One Kind of Freedom*, p. 159-60. For a detailed description of credit practices in the postbellum American South, see Harold D. Woodman, "King Cotton and His Retainers," (Lexington: University of Kentucky Press, 1968).

²²⁸ On the massive decline of food output in the postbellum cotton belt, see Sutch, *One Kind of Freedom*, p. 151-52. The steady decline of cotton prices, increased competition from other cotton-exporting nations, and expansion of regional production put a severe strain on the southern economy. C.

South as well as long-dormant cotton regions in the east, plantations and small farms began to devote more land to cotton cultivation.²²⁹ Upland regions previously engaged in mixed agriculture were drawn into the market economy by the postbellum infiltration of railroads and soon became the site of an expanding cotton culture. Steven Hahn has termed the processes that drew southern farmers deeper into the grip of cotton monoculture the “vortex of the cotton economy.”²³⁰ The relative prominence of cotton monoculture in the areas surrounding the mill towns, Goldberger and Sydenstricker came to argue, was the defining factor in their susceptibility to pellagra.

In a comparative study of two towns, one with high levels of pellagra and one free of the disease, Goldberger, Sydenstricker, and their associates compiled information on retail grocery establishments, fresh-meat markets, availability of produce from nearby farms, ownership of livestock, as well as information on agricultural activity in the countryside. The land surrounding the pellagrous village, they found, “was planted principally in cotton, and relatively little diversification in crops existed. Truck farming on any considerable scale was not engaged in. Few beef cattle were raised and milk cows apparently were usually not more than sufficient to supply the household needs of the farmers.” These conditions, Goldberger noted, “seemed rather typical of the cotton areas in South Carolina. Cotton was the predominant crop; all other products were incidental.”²³¹

Vann Woodward argued that, excepting other factors, “The threefold revolution in labor, land tenure, and credit, together with the heritage of military defeat and pillage, would have been enough to keep generations of Southern farmers in a slough of depression.” See C. Vann Woodward, *Origins of the New South: 1877-1913*, ed. Wendell Holmes Stephenson and E. Merton Coulter, 10 vols., vol. IX, *A History of the South* (Baton Rouge: Louisiana State University Press, 2005), p. 185.

²²⁹ Wright, *Old South, New South: Revolutions in the Southern Economy since the Civil War*, p. 34-35.

²³⁰ See Hahn, “Roots of Southern Populism.”

²³¹ G.A. Wheeler Joseph Goldberger, and Edgar Sydenstricker, “A Study of the Relation of Family Income and Other Economic Factors to Pellagra Incidence in Seven Cotton-Mill Villages of South Carolina in 1916,” in *Goldberger on Pellagra*, ed. Milton Terris (Baton Rouge: Louisiana State University Press, 1964), p. 253-54.

Table 8. Food Availability. Indicated “by the proportion of households with family incomes under the average of the contrasted villages purchasing the specified articles from nearby farms,” May 16-30, 1916.

Article Purchased	Non-Pellagrous Village			Pellagrous Village		
	Avg. Quantity per household purchasing	Households Purchasing		Avg. Quantity per household purchasing	Households Purchasing	
		Number	% of Total Households		Number	% of Total Households
Fresh Milk	22.5 qts.	24	51	29.3 qts.	3	4.5
Butter	3.4 lbs.	23	49	4 lbs	1	1.5
Eggs	2.9 doz.	19	40.5	6 doz.	1	1.5
Fresh Vegetables	....	31	66	....	1	1.5
Fresh Fruit	....	8	17	....	0	0
Poultry	4 lbs	1	2.1	3 lbs	1	1.5
Any of the Above Articles	....	40	83.3	....	6	9
None	....	8	16.7	....	61	91

Source: Adapted from Goldberger, “Relation of Family Income and Other Economic Factors to Pellagra Incidence,” p. 254.

The village without pellagra, meanwhile, “was exceptional for South Carolina in that a considerable amount of diversified farming was carried on... Cotton was a relatively less important crop, and beef cattle, swine, poultry, and milk cows seemed much more abundant... Apparently greater emphasis was given to gardens, and the amount of truck produced was noticeably larger.” Nestled within the foothills of the Blue Ridge Mountains, the land surrounding the pellagra-free village was “quite rolling and even hilly... and thus not so well suited to cotton growing.” More isolated than the other village, its residents nonetheless had access to fresh meat and produce from the surrounding countryside and were, consequently, free from pellagra.²³² Though his conclusions were based on data from only two small southern towns, Goldberger suggested that an analogous difference in food availability, rooted in

²³² Ibid., p. 254-55. The pellagrous village, Goldberger noted, had to compete with the city of Spartanburg for meat and produce.

cotton monoculture, likely accounted for the concentration of pellagra in the southern United States.²³³

A political economic disease, Goldberger recognized that pellagra might prove extremely difficult to dislodge from the cotton South. He expressed little hope of either alleviating the poverty of pellagra sufferers or transforming the agricultural practices that surrounded them. Though a campaign to publicize the relationship between mono-crop agriculture and pellagra might, optimistically, result in an increase in home gardens for growing protein-rich legumes, the political-economic underpinnings of the disease appeared, to Goldberger, insurmountable. Until a cure other than the wholesale transformation of the southern economy was discovered, pellagra would likely continue to be an aspect of life for many poor southerners. Fluctuations in the fortunes of cotton farmers, moreover, could quickly result in devastating reductions in access to meat and dairy in areas where these products were already scarce and pellagra was only barely held at bay.²³⁴

NO WORKABLE SOLUTION

The implications of Goldberger's analysis were soon borne out. Riding the post-World War boom in agricultural prices, southern farmers planted what would become 13,440,000 bales of cotton in 1920, the largest crop in years. Despite high expectations, however, the year's investment quickly became a liability. On July 15, 1920, middling cotton traded at an average of 41.20 cents a pound in New York. By

²³³ "It is readily conceivable," wrote Goldberger, "that analogous differences may exist between areas of great extent such as there is reason to believe actually is the case between the northern and southern part of the United States. This difference is probably an important factor... in the notable inequality in the incidence of the disease in these two sections of the country." See *Ibid.*, p. 263, 64. See also Vance, *Human Geography of the South*, p. 438.

²³⁴ See Joseph Goldberger, "A Study of the Relation of Family Income and Other Economic Factors to Pellagra Incidence in Seven Cotton-Mill Villages of South Carolina in 1916," p. 264-65.

December 15th, the price per pound had dropped to only 15.68 cents.²³⁵ Cotton's dramatic collapse had immediate effects on southern public health. Writing in the fall of 1920, Goldberger emphasized the ongoing relationship between crop prices and the incidence of pellagra. A substantial outbreak of pellagra, Goldberger argued, "may again be observed in the spring of 1921 if the present depression, especially in the price of cotton and cotton-textile manufacturing, continues."²³⁶

By the summer, it was clear that Goldberger had been correct. Tightening credit severely constrained the ability of rural southerners to obtain meat and dairy products, resulting in "a markedly increasing prevalence of the disease in many localities." Though the information available to the Public Health Service was incomplete, it seemed "probable that the number of cases will be more than double what they were last year (1920) in the localities for which information is at hand."²³⁷ In one Spartanburg County cotton mill village, the Public Service later reported, "the economic depression was followed in 1921 by an increase in pellagra incidence... of approximately 150 per cent over the incidence in 1920."²³⁸

Hoping to draw attention to the pellagra outbreak, the Public Health Service released a statement that, along with attempting to explain the relationship between pellagra and the southern cotton economy, requested congressional funding for immediate relief in the region. The only alternative, Goldberger explained to the *New York Times*, was a shift away from the prevailing southern system of mono-crop agriculture: farmers would need to be persuaded to "diversify their crops, or at any

²³⁵ Arthur S. Link, "The Federal Reserve Policy and the Agricultural Depression of 1920-1921," *Agricultural History* 20, no. 3 (1946): p. 166.

²³⁶ G.A. Wheeler Joseph Goldberger, and Edgar Sydenstricker, "A Study of the Relation of Family Income and Other Economic Factors to Pellagra Incidence in Seven Cotton-Mill Villages of South Carolina in 1916," in *Goldberger on Pellagra*, ed. Milton Terris (Baton Rouge: Louisiana State University Press, 1920), p. 263. Originally published in *Public Health Reports*, vol. 35, no. 46 (November 12, 1920).

²³⁷ "Economic Depression and Pellagra Incidence," *Public Health Reports* 36, no. 27 (1921).

²³⁸ *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1922*, (Washington, D.C.: Government Printing Office, 1922), p. 26.

rate to plant kitchen gardens and to keep pigs, hens, and possibly a milk cow.”²³⁹ Southern politicians and public health workers, the *Times* reported, were aware of the severity of the crisis and eager to receive federal aid.²⁴⁰ Disastrously, however, the Public Health Service’s plea for more funding, a coordinated state and federal effort to set up clinics and provide adequate food in plantation stores, and help from the Red Cross was followed by an inflammatory open letter to the Surgeon General from President Warren G. Harding.²⁴¹

“I have been greatly concerned,” the President wrote, “to note the public statement from the Public Health Service as to the menace of pellagra and condition of at least semi-famine in a large section of the cotton belt... Famine and plague are words almost foreign to our American vocabulary, save as we have learned their meaning in connection with the afflictions of lands less favored and toward which our people have so many times displayed large and generous charity.” The President requested a full investigation and expressed his belief that “immediate and effective measures of amelioration are manifestly demanded if conditions even approximate the gravity suggested by the Public Health report. It is unthinkable that we should delay for a single day the institution of such measures.”²⁴²

Though Harding’s message represented an earnest acknowledgement of the need to confront a serious and growing problem, it resulted in a noisy and bitter backlash against federal intervention by southern politicians and public health workers. From Texas to Virginia, local public health officials, including those who

²³⁹ *The New York Times*, “Plague Threatens 100,000 Victims in the Cotton Belt: Tenant Farmers, Half-Starved by Crop Failure, Face Scourge of Pellagra,” July 25, 1921.

²⁴⁰ *Ibid.*

²⁴¹ Etheridge, *Butterfly Caste*, p. 147, 49.

²⁴² See *The New York Times*, “Orders Relief for Pellagra Victims: Harding Asks Public Health Service for Full Report on Cotton Belt Conditions,” July 26, 1921. Harding was alerted to the increase in pellagra by reading a *New York Times* article based on Goldberger’s report. See also *The Washington Post*, “Asks Famine Inquiry: Harding Calls for Health Service and Red Cross to Aid South,” July 26, 1921.

had recently agreed with the Public Health Service's unabashedly dire assessment, denounced Harding's statement, denying "any unusual number of cases of pellagra, or that 'semi-famine,' or any economic condition resembling it existed."²⁴³ In Georgia, the state senate introduced and unanimously passed a resolution "denouncing the reports and asserting that Georgia was not affected by this disease to any appreciable extent." Both Alabama and Virginia claimed that incidence of pellagra had decreased in comparison with the previous year.²⁴⁴

In Congress, southern representatives demanded an investigation into the Public Health Service report. South Carolina Representative James Byrnes wrote President Harding to assure him that the people of the South were not "menaced with famine and are not seeking charity." Allowing that "pellagra may have increased in some one or in several States," Byrnes hoped that, when the President learned of the true situation in the South, he would rescind his earlier statement about "famine and plague" and "take appropriate action toward the officials who by misrepresenting conditions mislead you into making the statement."²⁴⁵

Despite the growing hostility of southern officials to outside help, serious offers of assistance emerged in the wake of the PHS announcement. From Chicago, the president of the Institute of American Meatpackers wrote to the Surgeon General to propose a donation: "Realizing the probable value of a proper quantity of high-grade proteins in preventing and curing pellagra, the packing industry will be glad to donate for use through the Public Health Service... 20,000 pounds of meats; these

²⁴³ *The New York Times*, "South Resents Federal Alarm Over Pellagra: Cotton Belt Authorities Declare There is No Occasion For Government Aid," July 27, 1921. See also *The New York Times*, "Surprise in Washington: No Reason Seen to Withdraw Statements on the Situation," July 27, 1921; *The Washington Post*, "Pellagra Reports Rouse Ire of South: State Officials Deny That Disease Will Spread to 100,000 in Cotton Belt," July 27, 1921.

²⁴⁴ *The New York Times*, "South Resents Federal Alarm Over Pellagra: Cotton Belt Authorities Declare There is No Occasion For Government Aid," July 27, 1921; Vance, *Human Geography of the South*, p. 438-39.

²⁴⁵ *The New York Times*, "Wants Refutation of Pellagra Scare: Byrnes Asks Harding to Go On with Investigation and to Punish Federal Officials," July 31, 1921.

meats to be carefully selected by the industry's scientific experts on nutrition on the basis of their adaptability to pellagra patients."²⁴⁶ The Borden Milk Company, meanwhile, offered "to furnish without charge condensed milk for use in combating the disease."²⁴⁷ Although his plan would likely have proven difficult to implement, Goldberger outlined an ambitious scheme for getting meat and fresh milk to the victims of pellagra.²⁴⁸

For many southern leaders, Goldberger's straightforward explanation of the disease's causes cast the region in an unacceptably harsh light. Looking back on the southern response to the Public Health Service's 1921 overtures in 1932, University of North Carolina sociologist Rupert Vance noted that "publicity concerning pellagra, just as that concerning hookworm, has been deeply resented by the South." The reaction of southern elites to the statements of the Public Health Service and President Harding, in Vance's view, was unsurprising: "It is not necessary to credit this resentment to any excessive provincialism. It is natural and to be expected in all diseases implying low social and economic standards. To say that an ailment indicates ignorance, filth, poverty, or undernourishment of an area has never been known to provoke a lively outpouring of gratitude."²⁴⁹

Faced with concerted opposition from the political representatives of the people it sought to help, the Public Health Service was soon forced to drop its proposal for a large-scale federal response to the crisis. Southern politicians and public health officials rejected offers of private aid, maintaining that they were perfectly capable of handling what pellagra existed in the region on their own. The weak

²⁴⁶ Ibid.

²⁴⁷ Etheridge, *Butterfly Caste*, p. 160.

²⁴⁸ Ibid., p. 150.

²⁴⁹ Vance, *Human Geography of the South*, p. 438-39.

capacity of the Public Health Service to deliver services on the ground, along with the precarious nature of its growing relationships with southern politicians and public health authorities, was clearly illuminated.

Despite a growing capacity to investigate disease, monitor its incidence to some degree, and, in the case of pellagra, accurately predict its upswing, the Public Health Service proved unable to meaningfully deal with the outbreak of pellagra when it attempted to act. Political opposition, institutional weakness, and, crucially, the interconnections between pellagra and the southern economy, rendered the Service a bystander. Within six years, however, when the Mississippi River and its tributaries flooded, creating a public health emergency in the lower Mississippi valley, Goldberger would be prepared with a more workable remedy to the problem of pellagra. Although Goldberger remained critical of the southern political economy, the experience of 1921 made it clear that emphasizing the role of poverty and deprivation in fueling southern pellagra incidence might easily prove counterproductive.

CHAPTER 3

“Diseases Which Should Be Matters of History”

American entry into World War I made the South’s daunting public health problems an issue of national concern. Though most essential war industries were located in the industrial North, a large number of military encampments, unavoidably, were in the South.²⁵⁰ Although the Rockefeller International Health Board continued to expand its effort to promote the creation of county health departments within the South, endemic malaria, weak or non-existent public health capacity, and poor sanitation represented serious and unmistakable threats to the health of soldiers stationed in the region.²⁵¹

Already equipped with a tentative plan for addressing wartime public health concerns in the event that the United States entered the war, the Public Health Service was placed by executive order and an act of Congress in charge of “extra-cantonment zones,” areas of intensive public health work surrounding army camps that, “because of means of communication, transportation, origin of food stuffs, or any other factor, [have] a bearing either directly or indirectly upon the state of the health and bodily welfare of the troops.”²⁵² By the end of the war, the Public Health Service controlled

²⁵⁰ See Benjamin S. Warren and Charles F. Bolduan, “War Activities of the United States Public Health Service,” *Public Health Reports* 34, no. 23 (1919): p. 1247-48, 51-52.

²⁵¹ *Ibid.*: p. 1245.

²⁵² J.A. Watkins, “Extra-Cantonment Zone Sanitation, Camp Shelby, near Hattiesburg, Miss,” *Public Health Reports* 32, no. 51 (1917): p. 2149; *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1918*, (Washington, D.C.: Government Printing Office, 1918), p. 103. See also *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1919*, (Washington, D.C.: Government Printing Office, 1919), p. 86-87. This quotation is from PHS Officer J.A. Watkins. The PHS began planning in February 1917, two

forty-eight extra-cantonment zones, eleven in the North and thirty-seven in the South.²⁵³ Hopeful that they could build upon the successes of wartime cooperation between the federal government, states, and counties, Public Health Service Officers lobbied for an expansion of the Service's role and funding for an ongoing program to develop county health departments similar to that of the Rockefeller Foundation's International Health Board. Although the Public Health Service failed to secure authorization and appropriation for a county health program on the scale initially envisioned, its officers relied on a pre-existing source of funding, designated for ill-defined "studies and demonstration in rural sanitation," to continue the small-scale program that grew out of the wartime extra-cantonment zones, refining public health techniques and laying the groundwork for ongoing collaboration between the Public Health Service and state and county governments. In the aftermath of the massive 1927 flood of the lower Mississippi river valley, Public Health Service officers were able to convince members of the executive branch and the Congress to support an expansion of this program throughout the flooded area. The implementation of new public health measures helped public health workers to cultivate local support for their efforts. In time, this support would provide the basis for further expansion of the program and of the federal government's authority in local-level public health efforts.

months before the U.S. entered the war, "On account of the very strained relations existing between the United States and certain other countries."

²⁵³ Bolduan, "War Activities of the United States Public Health Service," p. 1247-48. The PHS conducted surveys of sanitary conditions in at least twelve plants producing explosives for the war effort. The PHS also supervised sanitary conditions at the explosives plant in Nitro, West Virginia, examining potential employees, vaccinating workers, providing medical care, engaging in a variety of sanitation efforts, and attempting to reduce occupational health hazards. See ———, "War Activities of the United States Public Health Service," p. 1252-55.

PUBLIC HEALTH EFFORTS IN EXTRA-CANTONMENT ZONES

The Camp Shelby Extra-Cantonment Zone, surrounding Hattiesburg, Mississippi, was typical of Public Health Service operations in the region.²⁵⁴ Within the military encampment itself, the Army handled sanitation. Surrounding it, the PHS took control of a fourteen county area with a population of approximately 239,000. The Rockefeller International Health Board had recently operated in three counties within the extra-cantonment zone, ensuring a pre-existing degree of administrative capacity that the Service was able to expand upon. Still, active public health work remained fairly rudimentary. Although “an admirable percentage of the registered physicians reported the cases of communicable diseases occurring in their practices, the reports were made only once a month.” Hookworm incidence had been reduced as a result of the International Health Board’s work, and many of the rural communities surrounding Camp Shelby had, compared with much of the region, relatively high levels of access to sanitary privies.²⁵⁵

Nonetheless, the underlying poor health of the extra-cantonment zone was inescapable: PHS sanitary engineer Joseph A. LePrince reported that “Malaria prevails in the area in which Hattiesburg and Camp Shelby are situated. Anopheles are easily found, and conditions at present are favorable to the spread of this disease. The situation is serious.”²⁵⁶ The influx of civilian workers, “each with a span of mules or team of horses,” into the area surrounding the military encampment compounded the pre-existing situation. Overwhelming local resources, workers lived in makeshift

²⁵⁴ For a summary of PHS work in all extra-cantonment zones, see *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1918*, p. 103-60; *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1919*, p. 86-106. A description of extra-cantonment activities near Little Rock, Arkansas, accompanied by photographs, may be found in Rupert Blue, "Conserving the Nation's Man Power: Disease Weakens Armies, Cripples Industry, Reduces Production. How the Government Is Sanitating the Civil Zones around Cantonment Areas. A Nation-Wide Campaign for Health," *National Geographic* XXXII(1917).

²⁵⁵ Watkins, "Extra-Cantonment Zone Sanitation, Camp Shelby, near Hattiesburg, Miss," p. 2153; *Report of the Board of Health of the State of Mississippi*, June 1st, 1915 to June 30th, 17, p. 36, 43, 47.

²⁵⁶ Watkins, "Extra-Cantonment Zone Sanitation, Camp Shelby, near Hattiesburg, Miss," p. 2151.

settlements with little access to safe water or sanitary privies, presenting “a sanitary problem of major importance.” In Hattiesburg, the “sudden and comparatively great increase in population... placed so great a strain upon public utilities, such as gas, water, electricity; the sewerage, garbage, and refuse collection system; streets, public buildings, toilets, etc., that existing facilities proved entirely inadequate to meet these unusual demands.”²⁵⁷

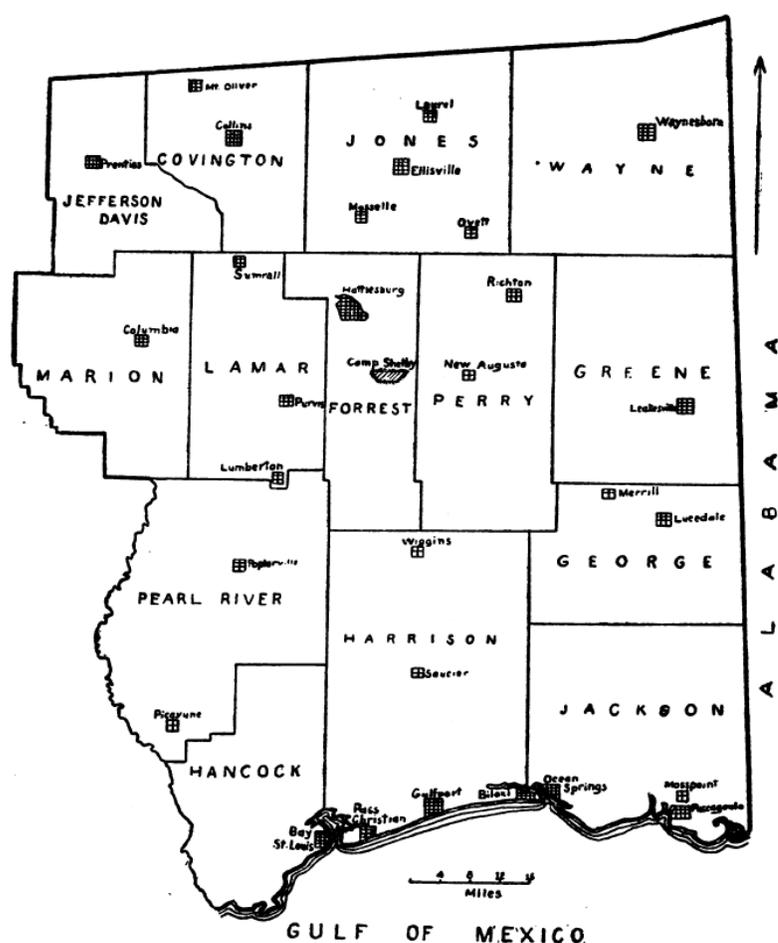


Figure 11. “The area around Camp Shelby under special health administration.”
 Source: Watkins, “Extra-Cantonment Zone Sanitation,” p. 2150.
 Note: The area surrounding Gulfport and Biloxi was subsequently made an independent Extra-Cantonment Zone.

²⁵⁷ Ibid.: p. 2153.

Because of uncertainty about the constitutionality of federal health activities at the local level, PHS Officer J.A. Watkins was “made the legally authorized agent of the State board of health of the State of Mississippi, and, by executive action of this board, [was] delegated all legal authority possessed by the State board of health under existing laws of the State of Mississippi.” Watkins divided the extra-cantonment zone into three parts. In Zone 3, the outermost zone, the PHS monitored food products entering Zone 1, collected vital statistics, and attempted to gain the cooperation of local physicians. Zone 2 encircled Zone 1, and included “surrounding small towns, railroad stations, lumber-mill settlements, and farming centers within one day’s usual foot or vehicle travel.” PHS activities in this zone were similar to those in Zone 3, but were carried out more exhaustively.²⁵⁸

Zone 1, the highest priority, was “an area surrounding the camp site and not less than one mile wide at any point.” To the north of the encampment, it spanned eleven miles in width and encompassed the town of Hattiesburg. Within this area, the PHS proactively confronted pressing public health concerns. Legally absorbed into the state public health apparatus, PHS officers enjoyed no greater authority as agents of the federal government during wartime than county health officers. Although they found existing public health laws “defective,” officers attempted to obtain “desired conditions by appeal to civic pride and patriotism and by other means,” rather than attempt to get the state legislature or counties to pass new legislation, “to which there might possibly be objection, with lack of cooperation, and of which there certainly would be much ignorance.”²⁵⁹

After assuming control, the Public Health Service conducted a house-to-house survey of sanitary conditions within Zone 1. Following this, property owners were

²⁵⁸ Ibid.: p. 2149-50.

²⁵⁹ Ibid.: p. 2163.

issued notices asking them “to install a sanitary can in surface privies on their premises.” Local restaurants, often filthy and unscreened against mosquitoes, were subjected to routine inspection. The cooperation of railroad companies, PHS Officer Watkins reported, made it “possible to provide adequate toilet facilities at most of the railroad stations.” Though most local physicians were already contributing to the collection of vital statistics, the PHS, backed by an executive order from the State Board of Health, developed a system for effectively monitoring day-to-day morbidity and mortality within the extra-cantonment zone. Particularly in Zones 1 and 2, local physicians cooperated in providing daily reports via “mail, telephone, or telegraph, depending upon the importance of the matter.”²⁶⁰

The local population, PHS officers found, was largely unresponsive to the upsurge in public health activity. An important obstacle “was the lack of a general public sentiment in favor of better public health conditions and the absence of knowledge on the part of the community as to the necessity for the acquisition and maintenance of a rigid control and for the adoption of measures for the prevention of the spread of communicable disease.” Although “the more educated and cultured residents of this area appreciated the need for sanitary improvements, the bulk of the population did not.”²⁶¹

What public health regulations were in effect had often previously gone unenforced. Restrictive measures such as quarantine, which the PHS hoped to use to protect soldiers from disease, proved particularly problematic to implement. When an outbreak of measles occurred in the area surrounding Camp Shelby soon after the PHS took control, community resistance to PHS measures became widespread and overt.

²⁶⁰ Ibid.: p. 2156. On morbidity reporting in extra-cantonments zones, see also Bolduan, "War Activities of the United States Public Health Service," p. 1250.

²⁶¹ Watkins, "Extra-Cantonment Zone Sanitation, Camp Shelby, near Hattiesburg, Miss," p. 2154.

Attempts to evade the quarantine were “almost universal.” “There seemed to be a general impression that these laws, having never in the past been enforced,” need not be enforced “at the present time.” Frustrated public health workers found it difficult to convince extra-cantonment residents that “the rules and regulations pertaining to public health were in fact not only necessary under existing conditions, but aimed toward the permanent good of the community.”²⁶²

The need to control malaria was the primary reason for the concentration of wartime extra-cantonment zones in the South. Malaria infection had been an important problem for soldiers stationed in the South during the Spanish-American War, and PHS surveys in the years before American entry into World War I had documented the extent of the problem in the region.²⁶³

Once a threat to health throughout the nation, malaria had long since receded from most of the northern states in the wake of nineteenth century improvements in economic and sanitary conditions.²⁶⁴ Shorter winters, swampy land, and unscreened windows, among other factors, enabled the disease to persist in many parts of the South. It was particularly severe in the coastal plain, lower Mississippi Valley, and western Florida.²⁶⁵ Despite growing knowledge of engineering measures capable of robbing mosquitoes of their breeding grounds, public health officials had done little to address malaria. “There are few diseases,” Assistant Surgeon General John Trask

²⁶² Ibid.: p. 2155.

²⁶³ J.A. LePrince, "Mosquito Control About Cantonments and Shipyards," *Public Health Reports* 34, no. 12 (1919): p. 547; *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1917*, (Washington, D.C.: Government Printing Office, 1917), p. 19; *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1916*, (Washington, D.C.: Government Printing Office, 1916), p. 19-20.

²⁶⁴ On the retreat of the disease in the border areas of Indiana, Maryland, Missouri, Kentucky, and Virginia, see Kenneth F. Maxcy, "The Distribution of Malaria in the United States as Indicated by Mortality Reports," *Public Health Reports* 38, no. 21 (1923): p. 1136.

²⁶⁵ Ibid.: p. 1128, 34.

reported in 1916, “to which health departments have given so little attention.”²⁶⁶

Southerners, he believed, had become overly accustomed to malaria’s presence. While “an exotic disease which threatens invasion or an occasional malady of which little is known will arouse a general clamor,” Trask noted, “ailments which are widely prevalent and are thoroughly understood receive the most meager attention.”²⁶⁷

Before their work in the extra-cantonment zones, PHS officers had gained some first hand experience in fighting the disease. In Roanoke Rapids, North Carolina, with funding supplied by local textile mill operators, Public Health Service officers had led a successful anti-malaria campaign during 1914. Directed by Service officers, local workers dug ditches, oiled lakes, and removed blockages from streams. At the end of the effort, the PHS reported, “the manager of Roanoke Rapids Mills stated that at no time has labor been more efficient and sufficient, attendance more steady, and sickness less, and that the returns for the contribution of \$1,000 of this one mill were more than gained in one month’s... operation of the mill.” A similar effort, backed by a local lumber company, was undertaken in Electric Mills, Mississippi.²⁶⁸

During 1916, the Public Health Service and the Rockefeller International Health Board had carried out cooperative experiments in malaria control measures at two locations in Arkansas, providing the Service with additional practical experience

²⁶⁶ John W. Trask, "Malaria: A Public Health and Economic Problem in the United States," *Public Health Reports* 31, no. 51 (1916): p. 3447.

²⁶⁷ *Ibid.*: p. 3445-46. For an explanation of the lack of malaria control efforts that largely blames northern indifference, see *Public Health Bulletin No. 105: Transactions of the Seventeenth Annual Conference of State and Territorial Health Officers with the United States Public Health Service, Held at Washington, D.C. June 4 and 5, 1919.*, (Washington, D.C.: Government Printing Office, 1920), “Malaria: Its Importance, National and State Problems Involved,” p. 42. For a prominent recent account of the history of malaria in the United States, see Humphreys, *Malaria*.

²⁶⁸ See R.H. von Ezdorf, "Demonstrations of Malaria Control," *Public Health Reports* 31, no. 10 (1916). Dr. T.M.W. Long, employed as a health officer by Roanoke Rapids Mills, was instrumental in the Roanoke demonstration project. Though the Public Health Service carried out numerous surveys of malaria and advised county officials in Mississippi, Missouri, Texas, and Virginia on malaria-control methods, Roanoke Rapids represented the Service’s most direct and sustained intervention in the southern malaria problem outside of its cooperative work with the International Health Board. PHS involvement in Electric Mills, Mississippi was less extensive.

in coordinating with local governments to control the disease.²⁶⁹ Along with the PHS's early field demonstrations and surveys, leading Public Health Service officers had been involved in the efforts of the U.S. Army's William Gorgas to protect workers in the Panama Canal Zone. PHS sanitary engineer Joseph A. LePrince, in control of anti-malaria efforts in the extra-cantonment zones, had been General Gorgas's "right hand" first in Havana and then in the Panama Canal Zone. LePrince's 1915 book, *Mosquito Control in Panama*, was "to remain a bible for mosquito control workers for many years."²⁷⁰ Although little had been done to confront the problem of malaria in the American South before 1917, the PHS possessed much of the expertise necessary to begin to control the disease in limited areas such as the extra-cantonment zones.

In the Camp Shelby extra-cantonment zone, the Public Health Service hired workers to drain mosquito breeding areas, remove obstacles from waterways, and channel and clean ditches. "Oiling operations were carried on, using a truck on which was mounted a 200-gallon tank for the general distribution of oil, and by trained negroes supplied with knapsack sprayers."²⁷¹ The Service's success in limiting malaria transmission during the war was significant: in 1919, Hattiesburg physicians reported a nearly 90 percent reduction of malaria incidence in the area.²⁷² Overall, the PHS concluded that its wartime malaria control programs resulted in the elimination of *anopheles* mosquito breeding from over 1,200 square miles.²⁷³

²⁶⁹ *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1917*, p. 20; *The Rockefeller Foundation International Health Board, Third Annual Report, January 1, 1916- December 31, 1916*, p. 20.

²⁷⁰ The "right hand" quotation is from the introduction, by the Department of Agriculture's L.O. Howard, of Joseph A. LePrince and A.J. Orenstein, *Mosquito Control in Panama: The Eradication of Malaria and Yellow Fever in Cuba and Panama* (New York: G.P. Putnam's Sons, 1916). On LePrince's wide-ranging and impressive career, see "LePrince, Malaria Fighter," *Public Health Reports* 71, no. 8 (1956).

²⁷¹ Watkins, "Extra-Cantonment Zone Sanitation, Camp Shelby, near Hattiesburg, Miss," p. 2157.

²⁷² *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1919*, p. 92.

²⁷³ Bolduan, "War Activities of the United States Public Health Service," p. 1248-49. A description of the PHS's wartime anti-malaria work may be found in LePrince, "Mosquito Control About Cantonments and Shipyards."

Table 9. “Extra-Cantonment Areas in which antimalarial work was conducted; the total number of miles of territory under supervision in each extra-cantonment zone, as well as the number of mile of ditches dug, rechanneled, relined, cleared, etc...”

Extra-Cantonment Area	Area Controlled (Mi. ²)	Ditches Dug (Miles)	Reclined, Cleared (Miles)	Oil Used (Gal.)
Alexandria, LA	57	51.25	257	26,558
Alexandria, VA	20	1.7	28.1	3,610
Americus, GA	13.5	22.5	0	12,200
Anniston, AL	50	128	0	12,000
Atlanta, GA	50	128	0	12,000
Augusta, GA	25	169	0	30,000
Ayer, Mass.	4.5	9.5	0	3,000
Charleston, SC	50	50.5	54.5	10,000
Chattanooga, TN	55	20	0	10,000
Columbia, SC	25	276	0	23,323
Columbus, GA	14.5	18.7	0	8,210
Englewood, NJ	11.5	26	0	<i>Furnished by Army</i>
Fayetteville, NC	28	53.6	0	2,000
Fort Worth, TX	38	11.3	100	7,000
Greenville, SC	25	20	46	1,585
Gulfport, MS	27	105.8	129.2	16,600
Hattiesburg, MS	28.5	117	29	52,000
Houston, TX	35	87	14.5	10,200
Jackson, MS	9	65	0	<i>Furnished Locally</i>
Jacksonville, FL	12	106	0	2,500
Lake Charles, LA	15	11	18	2,500
Little Rock, AR	65	252	0	75,732
Lonoke, AR	12	76	0	10,345
Louisville, KY	75	52	0	1,500
Macon, GA	26	92	35.5	39,132
Millington, TN	16	6	30	30,000
Montgomery, AL	85	129	177	23,260
Muscle Shoals, AL	57	11.1	35.7	14,500
Nashville, TN	<i>Control exercised within city/area about Old Hickory powder plant</i>			
Newport News, VA	50	50	110	15,000
Odenton, MD	20	17.7	16.3	<i>Furnished by Army</i>
Petersburg, VA	10	32	74	763
Portsmouth, VA	23.3	71	65.3	1,830
Raleigh, NC	16	22.9	67.7	10,000
San Antonio, TX	52	4.3	70	650
Spartanburg, SC	20	12.8	45	5,000
Waco, TX	72	7.8	0	1,372
West Point, MS	20	37	0	8,000
Wilmington, NC	15	37.23	17.56	0
Total	1,227.80	2,441.68	1,420.36	289,754

Source: Surgeon General's Annual Report, Fiscal Year 1919, p. 102.

Throughout the South, the Public Health Service found local governments happy to cooperate in anti-malaria efforts. Southern towns, “as well as the counties in which they are located, contributed liberally toward mosquito-control measures in order to protect our military forces and make camp life pleasant for our sailors and soldiers.” “The support given by the public of the South and the officials who represent them, even in the relatively poor and sparsely settled districts” the PHS concluded, “deserves highest commendation.” Railroad corporations, similarly, “gave strong support and willingly did such drainage work as was requested.”²⁷⁴

For communities and businesses constrained by the unwillingness of outsiders to expose themselves to malaria and the severe effects of the disease on worker productivity, the economic benefits of permanent mosquito control through engineering often represented a compelling reason to cooperate with the PHS.²⁷⁵ Corporations, PHS sanitary engineer LePrince reported, “are fully aware that an absence of mosquitoes has an important bearing on the availability and efficiency of skilled and unskilled labor as well as on the proper development of real-estate values.”

In an argument that was quickly becoming commonplace, LePrince maintained that “it often costs a community, and the citizens of it personally, much more to support a mosquito nuisance than to eliminate it.” “The president of a large association of cotton-mill interests,” he continued, “has stated that the elimination of mosquitoes near the mill properties has paid a higher return on the money expended than any other investment that the corporation has ever made.”²⁷⁶ Malaria control efforts in coastal

²⁷⁴ LePrince, “Mosquito Control About Cantonments and Shipyards,” p. 552; *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1919*, p. 93.

²⁷⁵ LePrince, “Mosquito Control About Cantonments and Shipyards,” p. 548; *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1918*, p. 105. “In those cantonment towns whose normal growth was seriously retarded by malaria, accompanied by the mosquito pest” the PHS reported in 1918, “the business interests have seen thousands of American soldiers live among them with practically no malaria and now understand that the labor forces of industrial plants can be kept in similar efficient condition at a reasonably low cost.”

²⁷⁶ LePrince, “Mosquito Control About Cantonments and Shipyards,” p. 552, 53.

Mississippi, LePrince predicted, would soon make “the local advantages of that residential area... more apparent to the public at large. It is now the longest known stretch of our southern seacoast practically free from the malaria-conveying mosquito, and without doubt this far-sighted, progressive, and patriotic policy [of local financial support] will soon pay well as a financial investment, as it has done in many instances elsewhere.”²⁷⁷

THE LEVER RURAL HEALTH BILL: “INTERSTATE” DISEASE,
ECONOMIC DEVELOPMENT, AND NATIONAL DEFENSE

Like the Rockefeller Foundation before it, the Public Health Service learned from experience the ongoing nature of “the problem of rural sanitation” and came to recognize the need for permanent public health infrastructure. Already at the forefront of research into diseases such as pellagra and malaria, members of the Service perceived an opportunity to retain and even expand the PHS role in rural sanitation once the demand for an emergency effort had passed. During the war, cooperation and funding from local governments proved crucial to the success of public health efforts in the extra-cantonment zones. In some counties, a special appropriation from Congress for “special studies of and demonstration work in rural sanitation,” originally intended to fund sanitary surveys and temporary demonstration projects in disease control, had been used to help secure local matching funds for projects such as

²⁷⁷ Ibid.: p. 548. Elsewhere, LePrince wrote that, as northerners who had witnessed the containment of malaria in the extra-cantonment zones assumed positions of influence in society, “The business interests of the North will be quick to see that if we reduce malaria in the South by 100,000 or 1,000,000 or more cases, that just so much more earning capacity (now dormant) will be created. It will mean just so much more money earned daily. The Northern manufacturer will have an increased market for his products and the Northern laborer will prosper. It is high time that the representatives of the Northern states comprehend that this improved health problem of the South is closely related to business interests of Northern states, and that malaria should be considered not as a sectional but as a national problem.” See J.A. LePrince, “The Aftermath of Malaria Control in Extra-Cantonment Areas,” *Southern Medical Journal* 13, no. 6 (1920).

the construction of sanitary privies.²⁷⁸ Achieving noticeable results and stimulating local interest in public health, Public Health Service officers came to believe that wartime cooperation between the federal government, states, and counties could be extended into peacetime in a federal program for promoting the growth of county health departments similar to that of the International Health Board.²⁷⁹

In the immediate aftermath of the war, PHS officers began to push openly for an expanded federal government role in public health at the local level. With the support of the American Conference of State and Provincial Health Authorities, the American Public Health Association, and a few sympathetic members of Congress, the PHS offered a strong critique of the overall lack of coordination in American public health. During the war, movement of troops, civilian populations, and the need to quickly establish partnerships between local officials, the Public Health Service, and the Red Cross had exposed grave weaknesses in the existing system. The “Spanish” influenza pandemic, ongoing during the winter of 1918-1919, further highlighted the need for coordination between state, federal, and local authorities. In addition, some health-related functions, notably the collection of mortality statistics and regulation of

²⁷⁸ *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1918*, p. 51; *Rural Sanitation: Hearings before the Committee on Agriculture of the House of Representatives, Sixty-Fifth Congress, Third Session, February 17, 1919*, (Washington, D.C.: Government Printing Office, 1919), p. 14-15; L.L. Lumsden, *Public Health Bulletin No. 94: Rural Sanitation: A Report on Special Studies Made in 15 Counties in 1914, 1915, 1916* (Washington, D.C.: Government Printing Office, 1918), p. 22, 37-38; ———, "Cooperative Rural Health Work of the Public Health Service in the Fiscal Year 1920," *Public Health Reports* 35, no. 40 (1920): p. 2329; Bolduan, "War Activities of the United States Public Health Service," p. 1246. Beginning in 1917, the “demonstrations in rural sanitation” appropriation required that cooperating counties and states cover 50% of costs in order for federal money to be used.

²⁷⁹ *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1919*, p. 17-18, 51; L.L. Lumsden, "Rural Hygiene," *Public Health Reports* 34, no. 45 (1919): p. 2532; Lumsden, "Cooperative Rural Health Work of the Public Health Service in the Fiscal Year 1920," p. 2334; *Rural Sanitation: Hearings before the Committee on Interstate and Foreign Commerce of the House of Representatives, Sixty-Fifth Congress, Third Session, on H.R. 3549, December 10, 1918*, (Washington, D.C.: Government Printing Office, 1918), Testimony of Dr. L.L. Lumsden, p. 20, 21; B.S. Warren, "A Unified Health Service," *Public Health Reports* 34, no. 9 (1919): p. 378.

food and drugs, remained under the control of federal agencies other than the Public Health Service. President Wilson, PHS officers noted, had acknowledged the potential danger of this situation. Recognizing that “unless some plan of effective coordination was devised, there would be much duplication and waste of effort in this important field,” Wilson had issued an executive order in July 1918 placing the PHS in charge of all non-military federal public health functions.²⁸⁰ A return to the *status quo* might mean that the nation would be unprepared the next time it faced an unanticipated health emergency.

Little over a week after the war’s end, the Public Health Service’s leaders signaled their intentions. “It seems essential at this time,” Treasury Secretary William McAdoo, President Wilson’s son-in-law and the Surgeon General’s immediate superior, wrote Wilson on November 21, 1918, “that the Federal Government assume some measure of leadership in aiding and stimulating States, counties, and municipalities in improving their sanitary conditions, especially as the Public Health Service in its work of supervising sanitary conditions in extra cantonment and industrial areas has greatly extended and crystallized its experience in the best measures for improving the sanitary conditions of communities.” “While the war has revealed the deplorable conditions of the public health and has accentuated the need of corrective measures,” McAdoo continued, “these conditions have not changed since the signing of the armistice, and the need for their correction is just as great, if not greater than ever.”²⁸¹

On December 3rd, the Public Health Service presented its plan for an expanded post-war federal presence in public health to the Congress. Relying on the experience

²⁸⁰ Bolduan, "War Activities of the United States Public Health Service," p. 1244; B.S. Warren, "Coordination and Expansion of Federal Health Activities," *Public Health Reports* 34, no. 49 (1919): p. 2763.

²⁸¹ Warren, "Coordination and Expansion of Federal Health Activities," p. 2772, reprint of letter from Secretary McAdoo to President Wilson, originally sent November 21, 1918.

of the PHS in coordinating with local officials during the war, part of the Service's plan called for "Federal aid extension for establishment and maintenance of adequate county health organizations," dependent on a matching funds formula similar to that of the Rockefeller International Health Board. The county and state would provide half of the money, and the federal government the rest. Federal expertise would be employed in the development of county health practices, and, following the pattern of legal integration of federal and state roles adopted during the war, the county health officer would be appointed "as field agent of the Public Health Service at [a] nominal salary." The rudiments of an integrated national public health system, resting on county health boards, would be built from the bottom up. The Public Health Service would act as an initial source of funding, a source of practical expertise, and a clearinghouse for state and national health data.²⁸²

Dr. Leslie Lumsden, the native Virginian who had been in charge of cooperative extra-cantonment work funded with the PHS's "rural sanitation" appropriation during the war, explained the necessity of a more permanent program to the House Committee on Interstate and Foreign Commerce on December 10th in words reminiscent of the earlier findings of the Rockefeller Sanitary Commission: "We have concluded, that what is needed is not one whirlwind campaign- after which the people are left to forget the teaching- but a persistent campaign, and to have this it is necessary to have in the county a permanent health organization, directed by a man there with proper knowledge and proper qualifications to do the work, to look after the health interests of the community."²⁸³

²⁸² *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1919*, p. 18.

²⁸³ *Rural Sanitation: Hearings before the Committee on Interstate and Foreign Commerce of the House of Representatives, Sixty-Fifth Congress, Third Session, on H.R. 3549, December 10, 1918*, p. 28.

In Congress, South Carolina Representative Asbury Lever, the Chairman of the House Agriculture Committee, was eager to expand upon wartime sanitary improvements in his home state and to continue the flow of federal resources into the South. Lever followed up on the PHS initiative by introducing a bill modeled on the Service's proposal for federal grants-in-aid in support of county health work.²⁸⁴ A driving force behind the 1914 Smith-Lever Agricultural Extension Act, which "provided for a 'cooperative' effort between the federal government and state land-grant universities to carry practical scientific information about farming and home economics to farm families," Representative Lever embraced the PHS's contention that the lack of public health capacity in rural America could be addressed through a similar cooperative program.²⁸⁵ His proposed Rural Health Act would authorize an initial appropriation of \$250,000 for cooperative health work, which would in time grow to \$1 million a year.²⁸⁶ The federal government's role in protecting health in the wartime extra-cantonment zones, if the Lever bill passed, would be expanded into a permanent role in the development of county health services.²⁸⁷

²⁸⁴ See *Rural Sanitation: Hearings before the Committee on Agriculture of the House of Representatives, Sixty-Fifth Congress, Third Session, February 17, 1919*; ———, "Coordination and Expansion of Federal Health Activities," p. 2767; *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1919*, p. 18. The Lever Bill, initially H.R. 13342, was introduced on December 12, 1918; the PHS had presented its post-war plan on December 3rd.

²⁸⁵ This description of the Smith-Lever Act is from Sanders, *Roots of Reform*, p. 392. Lever's attitude toward federal power and money is neatly summarized in a statement quoted by Sanders: "When there is a great general good to be accomplished by legislation, I am not so squeamish about the Constitution." George Tindall classifies Representative Lever as a "radical agrarian" thorn in the side of the Wilson administration. On Lever, see Tindall, *Emergence of the New South*, p. 10; Arthur S. Link, *Woodrow Wilson and the Progressive Era, 1910-1917* (New York: Harper and Brothers, 1954), p. 225-26; Sanders, *Roots of Reform*, p. 302, 260; Carpenter, *Forging of Bureaucratic Autonomy*, p. 246; Dewey W. Grantham, *The South in Modern America: A Region at Odds*, ed. Henry Steele Commager and Richard B. Morris, The New American Nation Series (New York: HarperCollins, 1994), p. 70.

²⁸⁶ *Rural Sanitation: Hearings before the Committee on Agriculture of the House of Representatives, Sixty-Fifth Congress, Third Session, February 17, 1919*, p. 8.

²⁸⁷ See the testimony of Dr. W.S. Rankin, director of the North Carolina State Board of Health and President of the Conference of State and Provincial Health Authorities of North America, in *Ibid*. Rankin uses his experience with the International Health Board in North Carolina to describe to the Agriculture Committee how the federal cooperative plan would work in practice.

Attempting to justify the creeping expansion of the Public Health Service's activities and persuade Congress to support its cooperative county health plan, PHS officers emphasized the "interstate" nature of disease, the retarding economic effects of endemic disease, and the impact of ill health on the ability of the nation to raise an army in time of war.

Disease, high-ranking PHS officers maintained, was an interstate matter, inherently of interest to the federal government. Speaking before the Birmingham, Alabama Civic League, Assistant Surgeon General Benjamin Warren made the case against the functional separation of federal and state power. "A case of typhoid fever in a remote rural district of Alabama," Warren argued, "is a matter of joint interest to the county, State, and Federal health authorities. The typhoid germ does not recognize county or State lines and may find its way into intra and interstate traffic and cause the loss of many human lives and the expenditure of large sums of State and Federal funds." The nation's disorganized public health activities, he concluded, needed to be integrated. "The rational procedure would be to form the partnership [of county, state, and federal health agencies] and prevent or control all preventable diseases at the source."²⁸⁸

Well-developed over the course of the hookworm campaign, the economic rationale for public health measures gained additional prominence as a result of the

²⁸⁸ Warren, "A Unified Health Service," p. 381. See also, for example, *Rural Sanitation: Hearings before the Committee on Agriculture of the House of Representatives, Sixty-Fifth Congress, Third Session, February 17, 1919*, "Statement of Dr. J.W. Schereschewsky, Assistant Surgeon General of the United States Public Health Service," p. 11-12; "Malaria: A Serious Health Problem of Nation-Wide Concern," *Public Health Reports* 34, no. 12 (1919): p. 544; *Rural Sanitation: Hearings before the Committee on Interstate and Foreign Commerce of the House of Representatives, Sixty-Fifth Congress, Third Session, on H.R. 3549, December 10, 1918*, Testimony of Dr. Leslie Lumsden, p. 28; Lumsden, *Report on Special Studies in 15 Counties*, p. 17-18; Warren, "Coordination and Expansion of Federal Health Activities," p. 2769. "The health condition of our counties," Dr. Lumsden told the Committee on Interstate and Foreign Commerce in a typical statement of the "interstate disease" argument, "is important from an interstate or national standpoint, and we believe for that reason that the National Government has a responsibility in assisting the local authorities to control local health conditions." A diagram used by the PHS demonstrated graphically the "Agencies through which infections are conveyed across interstate lines from rural districts to cities."

apparent positive economic impact of anti-malaria programs in the wartime extra-cantonment zones. Getting rid of disease, PHS officers confidently explained, would more than pay for itself through improvements in worker productivity. “It may be safely stated,” Assistant Surgeon General Warren maintained, “that if Alabama would free itself from malaria the increase in the taxable values of the State would meet all the expenses.”²⁸⁹

The prevention of malaria, Dr. Leslie Lumsden told an Agriculture Committee hearing on Representative Lever’s Rural Health Act, “is tremendously important to the agricultural interests of this country. A man with chronic malaria, though able to keep going, only goes at half-speed.” “There have been various estimates of how much malaria costs in the way of decreasing producing power in the infected districts. The annual loss in this country from malaria and typhoid fever alone has been estimated at \$900,000,000.”²⁹⁰ Surgeon General Rupert Blue, speaking before the sympathetic American Public Health Association, explained that endemic malaria in the South “interferes, to an extent but little appreciated, with the economic development of the nation.”²⁹¹

Data collected by the Public Health Service in the preceding years gave weight to these claims. “Recent surveys in the South,” the Service reported in March, “show that the crop yield by plantations where malaria prevails is only a fraction of what it

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²⁹⁰ Lumsden went on to describe the effects of hookworm disease, concluding that “I do not know of anything, from an economical standpoint, that we can make as strong an argument for as we can for this health business.” See *Rural Sanitation: Hearings before the Committee on Agriculture of the House of Representatives, Sixty-Fifth Congress, Third Session, February 17, 1919*, Testimony of Dr. L.L. Lumsden, Assistant Surgeon General, United States Public Health Service, p. 31. See also, for instance, *Public Health Bulletin No. 105: Transactions of the Seventeenth Annual Conference of State and Territorial Health Officers with the United States Public Health Service, Held at Washington, D.C. June 4 and 5, 1919.*, “Malaria: Its Importance, National and State Problems Involved, p. 40-41; *Rural Sanitation: Hearings before the Committee on Interstate and Foreign Commerce of the House of Representatives, Sixty-Fifth Congress, Third Session, on H.R. 3549, December 10, 1918*, Testimony of Dr. L.L. Lumsden, p. 9.

²⁹¹ Rupert Blue, “Urgent Public Health Needs of the Nation,” *American Journal of Public Health* 9, no. 2 (1919): p. 98.

normally should be. Just at the time when the crops need most attention, chills and fever keep a large number of laborers from work.” Fairly straightforward control measures, such as oiling and drainage, would quickly benefit malarious southern communities. In areas where lumber companies had initiated anti-malaria measures, there had been “a marked increase in the output of lumber with practically the same overhead charges.”

Before the Civil War, the widespread presence of malaria had often been called upon as justification for the enslavement of blacks, who, it was argued, were better suited to work in malarial conditions than whites. Now, longstanding beliefs about the relationship between malaria and race were deployed to justify public health interventions likely to benefit all southerners. The economic prosperity of southern whites, the PHS report on malaria concluded, was particularly constrained by the geography of malaria. “There is practically no instance known,” the Service found, “of a white community thriving where malaria seriously prevails.”²⁹²

Assistant Surgeon General Henry Rose Carter, a veteran of the yellow fever and malaria control efforts in Havana and Panama, Nobel Prize nominee, and leading figure in the Service’s anti-malarial efforts, elaborated this point. While whites had been able to prosper in Yellow Fever-stricken cities such as Havana and New Orleans, they were incapable of flourishing where malaria prevailed: “I defy you to show me one single place inhabited by white people where malaria seriously prevails which is prosperous. It does not exist. It eliminates the white population and leaves a sparse settlement of blacks, whom we find extremely backward and ignorant, partly from their segregation and partly from the fact that practically all their childhood, when

²⁹² "Malaria: A Serious Health Problem of Nation-Wide Concern," p. 545.

they should be at school, is spent shaking with chills. It ruins a community.”²⁹³

Controlling malaria would open large parts of the South to further settlement and allow white southerners to make the most of the region’s natural resources.

Beyond the increasingly undeniable economic effects of disease, the recent military draft had made clear the effects of ill health on the nation’s military preparedness. The Service’s plan for its own post-war expansion, as presented to Congress, placed this issue front and center. The urgency of the nation’s health problems, the proposal’s introduction plausibly maintained, was “indicated by the fact that in the recent draft over 34 per cent of all registrants were rejected by examining boards on account of physical defects and diseases.”²⁹⁴

Military officials had quickly noticed that southern troops appeared more susceptible to contagious diseases than those from the rest of the nation. Rates of disease varied vastly among camps, and army officials soon determined that “high disease and death rates were almost exclusively confined to troops from the Southern States.” In part, this was because southern troops, who came largely from rural areas, had not been exposed to the respiratory ailments carried by troops from the urban North. Beyond this, the Army’s Surgeon General reported, “Southern troops appear

²⁹³ Ibid.: “Malaria: Its Importance, National and State Problems Involved,” p. 42. Carter also served on the Rockefeller Foundation’s Yellow Fever Commission. In 1938, the PHS named a new laboratory dedicated to malaria control in Savannah, Georgia after Carter, who died in 1925.

²⁹⁴ *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1919*, p. 17. The Rockefeller Foundation, similarly, pointed to the severe effects of disease evidenced during the war. In 1919, the Rockefeller International Health Board reported that the “examinations for hookworm disease made among United States soldiers confirmed in a striking way the Board’s experience of the past few years, and demonstrated that even light hookworm infections are of great importance. Judged by the Benet-Simon [a test of cognitive ability] and other tests, many full-grown soldiers who harbored comparatively few hookworms had the mentality of persons only twelve years of age. The mentality of 10,000 white men at Camp Travis who harbored the disease was about 33 per cent below normal. Negroes were infected quite as frequently as whites, but they appeared to be relatively immune to the serious effects of the disease and did not show the same predisposition to other diseases or the same reduction in mentality.” See *The Rockefeller Foundation International Health Board, Fifth Annual Report, January 1, 1918- December 31, 1918*, p. 31. A newspaper account of this finding may be found in *The New York Times*, “Draft Army Proved Hookworm A Blight,” November 28, 1919.

physically less robust than those from other sections, doubtless due in part to the widespread dissemination among them of such debilitating diseases as hookworm, malaria, and pellagra.” Already weakened by disease, southern troops proved “relatively less familiar with the fundamental elements of personal hygiene and sanitation than are those from other sections of the country.”²⁹⁵

Dr. Leslie Lumsden, writing in November 1919, summarized both the scope of the problem and the rationale for federal intervention by tying together rural health, the health of the nation, and military preparedness: “The cross section of our health conditions, furnished by the physical examination of the draftees, presents evidence which should be convincing even to the most obtuse that we- and by ‘we’ I mean the individual, the community, and the local, State, and National Governments- have seriously and fearfully neglected the most important factor in our national development- our human power.”

Poor sanitary conditions in the rural areas of one state, Lumsden wrote, “are, through commerce and otherwise, a menace to contiguous States especially; and, on account of modern transportation facilities, a menace to the whole country. Having such an important bearing on the character of farm products shipped from one State to others, and having such an important bearing on the ability of our whole Nation to raise and maintain armies for the common defense, the problem of rural sanitation appears to be one with which the National Government under constitutional authority may deal, and one with which the National Government from a standpoint of general welfare should deal.”²⁹⁶

²⁹⁵ *Report of the Surgeon General, U.S. Army, to the Secretary of War, Fiscal Year Ended June 30, 1918*, (Washington, D.C.: Government Printing Office, 1918), p. 280-81.

²⁹⁶ Lumsden, "Rural Hygiene," p. 2524-24.

Despite high hopes, the Lever Rural Health Bill did not move quickly through Congress. Though members of the Public Health Service and other supporters of the bill, such as prominent North Carolina health officer Dr. Watson Rankin, appeared before Representative Lever's Agriculture Committee in February 1919 and received a generally warm reception, the end of the war found Congress eager to cut back government spending and programs, rather than expand them. In June, Dr. Rankin urged his fellow state health officers, gathered for their annual conference with the Public Health Service in Washington, to take the time to lobby their senators and congressmen on behalf of the bill.²⁹⁷

Rather than rallying the nation's collected health officers to the cause of cooperative rural sanitation, however, Rankin's speech prompted Dr. Eugene Kelley, health commissioner of Massachusetts, to remind his colleagues of sectional differences in the need for federal help in public health work. While he personally supported the bill, Kelley told his fellow health officers, he understood why his state's political representatives were unlikely to back it in Congress. "To be perfectly frank between ourselves," he continued, "there are some States that are not financially benefited from this act. My state is one them. We stand to lose. Practically all the other large industrial States are in the same position... You can not expect and it is not human nature to expect [urban and industrial states] to get highly enthusiastic over the principles contained in the Lever Bill."²⁹⁸

Ohio's public health commissioner, Dr. Allen Freeman, who had served as the director of the Rockefeller Sanitary Commission's anti-hookworm effort in Virginia before moving to Ohio, acknowledged and attempted to justify the apparent sectional

²⁹⁷ *Public Health Bulletin No. 105: Transactions of the Seventeenth Annual Conference of State and Territorial Health Officers with the United States Public Health Service, Held at Washington, D.C. June 4 and 5, 1919.*, "Report of Committee on Rural Sanitation," p. 15.

²⁹⁸ *Ibid.*, p. 16.

nature of the Rural Health Act.²⁹⁹ “So far as Federal Aid is concerned,” Freeman told his fellow state health officers, “I think we can get along in Ohio without it.” Still, he realized, “having worked a large part of my time in the South, that a Federal subsidy supplemented by a State subsidy is of the greatest value in stimulating the progress of the work.”

“There are many counties in the South,” Freeman continued, “whose economic condition is such as to make it wholly impossible for them, without some sort of aid, to sustain an adequate health administration.” Following up on the argument of PHS Officer J.W. Schereschewsky, who had responded to Dr. Kelley of Massachusetts’s comments by reasserting the Service’s stance that disease incidence in any one state inevitably affected all others, Dr. Freeman attempted to bolster the claim that the Rural Health Act would benefit the entire nation: “it is not a question of north or south. Rhode Island and South Carolina and Ohio and Texas are all tied together in the same bag, and we are going to progress in sanitation as in every other line just so far as we progress together.”³⁰⁰ Federal money would head south, but it would do so for the benefit of the nation.

Hoping to patch over the evident differences among his colleagues, Colorado’s health officer launched into a speech detailing the interconnectivity of urban and rural America, including mention that a grapefruit he had eaten for breakfast “a week or two ago” in New York City “was doubtless raised in a grapefruit grove in a rural district in Florida,” while the butter on his toast “probably came from a rural district in Illinois.” Despite his best efforts, however, the southern tilt of the legislation remained

²⁹⁹ Ettling, *Germ of Laziness*, p. 136. After leading one of the nation’s leading state departments of health in Ohio, Freeman went on to become a professor of public health at Johns Hopkins. In 1935, he testified before the House Ways and Means Committee in favor of the inclusion of federal grants-in-aid to states for public health work in the Social Security Act.

³⁰⁰ *Public Health Bulletin No. 105: Transactions of the Seventeenth Annual Conference of State and Territorial Health Officers with the United States Public Health Service, Held at Washington, D.C. June 4 and 5, 1919.*, p. 18-19.

unmistakable. Although other parts of the nation, particularly the West, were likely to benefit from federal intervention in local public health matters, it was the southern United States where the public health threat was most severe, and it was the southern United States where local governments were least capable of confronting threats to public health.

THE PUBLIC HEALTH SERVICE'S RURAL COOPERATIVE INITIATIVE

While the Lever Rural Health Act stalled in Congress, Public Health Service officers did what they could to keep their relationships with state and county governments alive. Using money from the \$150,000 wartime appropriation for “studies and demonstrations in rural sanitation,” rural sanitation director Dr. Leslie Lumsden and his subordinates continued to pursue cooperative projects with local public health authorities after the war’s end in November 1918. Granted during the preceding summer, this money was also being used to fund ongoing studies of malaria.³⁰¹ It seemed increasingly unlikely, however, that the hoped-for Rural Health Act would be passed in time for the upcoming fiscal year, which would begin in July 1919. The Sundry Civil Bill for Fiscal Year 1920, which contained the ongoing appropriation for “rural sanitation,” was delayed long enough that uncertain PHS officers found it difficult to plan for even a limited federal-state-county cooperative program. Worse, when the appropriation came, in July 1919, it became evident that PHS expansion into cooperative rural health projects was slated to become a victim of post-war retrenchment. The appropriation for “studies in rural sanitation,” which

³⁰¹ See *Hearings before Subcommittee of House Committee on Appropriations in Charge of Sundry Civil Bill for 1919*, (Washington, D.C.: Government Printing Office, 1918), p. 248.

Service officers had hoped might be as high as \$500,000, had been reduced to only \$50,000.³⁰²

“On account of the reduction in the appropriation,” a somewhat irritated Leslie Lumsden wrote, “the work in a considerable number of areas in which it was yielding excellent results had to be discontinued.”³⁰³ Nonetheless, receiving any appropriation was something of a victory. The end of the war and absence of an unambiguous mandate, such as passage of the Lever Rural Health Bill, from Congress, cast some doubt on the legitimacy of the Public Health Service’s ongoing cooperative initiative. Beginning in 1914, the “rural sanitation” appropriation had been used to survey sanitary conditions in rural areas throughout the United States. Intended to be national in scope, the PHS effort surveyed seven southern counties and eight counties outside of the region.³⁰⁴ Following American entry into the war, however, this appropriation was transformed into a means for pursuing cooperative programs almost exclusively in southern extra-cantonment zones.³⁰⁵

³⁰² *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1919*, p. 52; Lumsden, "Cooperative Rural Health Work of the Public Health Service in the Fiscal Year 1920," p. 2334. On June 24, 1919, only a few days before the end of the fiscal year, Surgeon General Rupert Blue and Assistant Surgeon General J.W. Schereschewsky appeared before the Senate Appropriations Committee to ask for \$150,000 for rural sanitation rather than the \$50,000 allowed by the House. The committee appeared indifferent. After being warned that “we have a list of engagements and ask you to be as brief as possible,” Blue and Schereschewsky made extremely brief statements, although Schereschewsky managed to mention both the interconnection between rural communities and the rest of the nation and the economic impact of malaria. They received only one question, from Senator Reed Smoot, a well-known opponent of federal expansion in the field of public health: “You want \$150,000 instead of \$50,000?” See *Hearings before the Subcommittee on Appropriations, United States Senate, Sixty-Sixth Congress, First Session, on H.R. 6176, a Bill Making Appropriations for Sundry Civil Expenses of the Government for the Fiscal Year Ending June 30, 1920 and for Other Purposes*, (Washington, D.C.: Government Printing Office, 1919), p. 25-26.

³⁰³ Lumsden, "Cooperative Rural Health Work of the Public Health Service in the Fiscal Year 1920," p. 2334.

³⁰⁴ Counties were surveyed in Alabama (2), Georgia (1), Illinois (1), Indiana (1), Iowa (1), Kansas (1), Maryland (2), Mississippi (1), Missouri (1), North Carolina (1), South Carolina (1), Tennessee (1), and West Virginia (1).

³⁰⁵ The only non-southern “rural sanitation” cooperative program undertaken during the war was in Polk County, Iowa, during the 1918 fiscal year. A cooperative effort was also initiated in Mason County, Kentucky, which was not within an extra-cantonment zone. See *Rural Sanitation: Hearings before the Committee on Agriculture of the House of Representatives, Sixty-Fifth Congress, Third Session, February 17, 1919*, p. 14, 15.

Questioning Surgeon General Rupert Blue and Assistant Surgeon General J.W. Schereschewsky in the summer of 1918, South Carolina Representative James Byrnes noted that the appropriation for rural sanitation did not appear to be being used for its original purpose: “Then, you have really abandoned the idea of investigating the questions of rural sanitation, and have been using this fund in extra-cantonment work?”³⁰⁶ Although the Service had secured far less money than it had hoped for to pursue the new initiative and possessed at best a vague mandate from a largely indifferent Congress, the PHS had not been forced to completely abandon the rural health efforts pioneered during the war.³⁰⁷

Leslie Lumsden’s experiences in and dedication to rural health work made him a strong advocate for the continuation of the precarious PHS cooperative program. Along with the Public Health Service’s Norman Roberts and Charles Wardell Stiles, Dr. Lumsden had helped to design the “L.R.S.” sanitary privy, the model for privy construction employed by the Rockefeller Foundation, state health boards, and the Public Health Service in anti-hookworm and anti-typhoid efforts.³⁰⁸ During 1911, in a pioneering PHS demonstration effort in Yakima County, Washington, Lumsden had helped to create one of the nation’s first full-time county health departments. Since then, the Yakima health department had flourished, and a county once ravaged by

³⁰⁶ *Hearings before Subcommittee of House Committee on Appropriations in Charge of Sundry Civil Bill for 1919*, p. 248.

³⁰⁷ Almost from the beginning, PHS officers maintained that authorization for the rural sanitation initiative was derived from the 1893 and 1912 laws expanded the Service’s jurisdiction and, more immediately, from the annual authorization and appropriation. See for instance *Rural Sanitation: Hearings before the Committee on Agriculture of the House of Representatives, Sixty-Fifth Congress, Third Session, February 17, 1919*, Testimony of Dr. J.W. Schereschewsky, p. 20. On the “rural sanitation” appropriation as an alternative means for funding cooperative programs “in case the Lever bill should fail to pass,” see *Public Health Bulletin No. 105: Transactions of the Seventeenth Annual Conference of State and Territorial Health Officers with the United States Public Health Service, Held at Washington, D.C. June 4 and 5, 1919.*, p. 16.

³⁰⁸ L.L. Lumsden, "Preliminary Note on a Simple and Inexpensive Apparatus for Use in Safe Disposal of Night Soil."

typhoid was now comparatively healthy.³⁰⁹ Having next supervised surveys of sanitary conditions in rural America and then supervised federal-county cooperative agreements during the war, Lumsden was intensely, and perhaps surprisingly, optimistic about the potential for good represented by federal money and expertise.

In many rural communities, he believed, individuals were simply unaware of the role that unsanitary conditions played in causing disease. Speaking before the House Committee on Interstate and Foreign Commerce, Lumsden detailed conditions in one southern county surveyed by the Public Health Service. Seventy-three percent of the homes were “without a toilet of any kind. Grown women went to the brush or behind the barn to respond to the calls of nature. The matter was left on the surface of the ground; flies had immediate access to it... It was left there, and if some one on the place happened to be a carrier of the hookworm the eggs were left there to develop into the infective stage of the worm, which might crawl into the skin of the bare hand or bare foot that came along.”

“This was a county of good people,” he told the committee, “the salt of the earth, people who were intelligent about most things that concerned them; good farmers among them, raising good crops, but they didn’t know about the essential principles of home sanitation. They had never heard of them.” Revolutionary advances in scientific knowledge of the diseases that plagued the county, such as hookworm, typhoid, and malaria, had not yet reached its residents. This county, Lumsden reported, was typical of much of rural America. Asked why their neighbors had developed typhoid fever, he continued, the “answers varied from ‘The Lord sends it’

³⁰⁹ On the significance of the work in Yakima from the perspective of Lumsden, see John Ferrell and Pauline Mead, *Public Health Bulletin No. 222: History of County Health Organizations in the United States, 1908-33* (Washington, D.C.: United States Government Printing Office, 1936), p. 2-4.

to ‘the devil brings it,’ and between those two extremes we had almost every conceivable answer in canvassing 100,000 homes in different parts of the country.”³¹⁰

Lumsden viewed an understanding of local conditions as crucial for the success of public health work. Ideally employing as health officer a “properly qualified man” from the county, who “knows the people and knows the general conditions,” Lumsden believed that Public Health Service-backed health departments would be able to gain the trust of local communities and persuade residents to begin altering their daily habits and living conditions. After rural residents experienced the good that could come from public health interventions such as anti-malaria work, he explained, they “realize that the money they pay in taxes for a real health adviser is a good investment.”³¹¹ Ultimately, the worth of federally-stimulated county health departments would be measured by their ability to prevent, rather than treat, disease: “The object of this whole business is to teach the people what they can do to protect themselves against disease so they will not have diseases which are common and which should be matters of history.”³¹²

Beginning in July 1919, the Public Health Service devoted its first postwar “rural sanitation” appropriation to funding cooperative work in thirty-one counties, all but three located in the South.³¹³ Along with the \$50,000 allotted by Congress, the PHS had “about \$9,000 unexpended under previous contracts” to dedicate to the program. County and State governments put up an additional \$175,093, while “civic sources, such as local health associations, Red Cross chapters, and the [Rockefeller]

³¹⁰ *Rural Sanitation: Hearings before the Committee on Interstate and Foreign Commerce of the House of Representatives, Sixty-Fifth Congress, Third Session, on H.R. 3549, December 10, 1918*, p. 26-27.

³¹¹ *Ibid.*, p. 22.

³¹² *Ibid.*, p. 29, 38.

³¹³ The exceptions were Cherokee County, Kansas, Greene County, Missouri, and Jasper County, Missouri.

International Health Board” provided approximately \$54,000 to back up the PHS’s work. That local governments had dedicated so much money to the effort, Lumsden wrote proudly in his first annual report on the cooperative work, “indicates unmistakably that such investment of Federal funds stimulates to a significant degree State, county, and municipal governments to invest in the business of rural health promotion.”³¹⁴

A full-time county health officer headed all of the PHS-supported cooperative county health efforts; the officer’s staff typically consisted of a full-time sanitary inspector and nurse. In all but eleven counties, located in Virginia, the county health officer was a physician.³¹⁵ Following the precedent set during the war, the county health officer was also “given a status of field agent in the Public Health Service and... a status of deputy State health officer.” “Thus,” Lumsden explained, “his position is an example of common-sense coordination of the administrative features of the activities of the properly constituted local, State, and National governmental health agencies.” As long as the counties and states consented to the agreement, federal, state, and local public health authority would be functionally consolidated and any ongoing uncertainty about the proper limits of federal intervention in local public health matters could be brushed aside.

“In every instance,” Lumsden wrote, hammering home the point that the program did not represent an intrusion on state police power, “the cooperation of the Public Health Service is extended only in response to formal requests from the proper governmental authorities of the county and from the State health department.” Moreover, Lumsden argued, demanding that the county health officer meet federal

³¹⁴ Lumsden, "Cooperative Rural Health Work of the Public Health Service in the Fiscal Year 1920," p. 2334.

³¹⁵ In these counties, discussed below, the health officer was not a physician, but rather a trained sanitarian.

standards, rather than simply enjoy the favor of the local county commissioners or other notables, would ensure that the post would be somewhat depoliticized.³¹⁶

Cooperative health work began with a county survey, conducted by a representative of the State Board of Health, a Public Health Service representative, or both together. After assessing the situation, the nascent county health board began implementing rural health measures developed by the Public Health Service in an order suited to the particular circumstances of the county. In determining the priority and sequence of public health measures, the county health officer enjoyed “the advantage of advice and counsel from broadly experienced representatives of the State board of health and the Public Health Service.” County work included “safeguarding of water and food supplies, sanitary excreta disposal, fly control, antimalarial measures, infant hygiene, school inspection, antituberculosis and antivenereal disease measures, [and] industrial hygiene.”³¹⁷

Much of the effort consisted of sanitary inspections of private homes, schools, churches, and stores. From July 1919 to July 1920, PHS-directed public health workers examined 32,663 southern schoolchildren. Health officers and public health nurses also tried to spread knowledge of sanitary measures and other means of preventing disease through public lectures and home visits. Meanwhile, anti-malarial

³¹⁶ Lumsden, "Cooperative Rural Health Work of the Public Health Service in the Fiscal Year 1920," p. 2335. On the depoliticization of the post of health officer, a claim routinely made by Lumsden, see for instance *Rural Sanitation: Hearings before the Committee on Interstate and Foreign Commerce of the House of Representatives, Sixty-Fifth Congress, Third Session, on H.R. 3549, December 10, 1918*, p. 11; ———, "Rural Hygiene," p. 2533; L.L. Lumsden, "Cooperative Rural Health Work of the Public Health Service in the Fiscal Year 1921," *Public Health Reports* 36, no. 40 (1921): p. 2480. "Since the appointees must be acceptable to each of the cooperating agencies," Lumsden wrote in November 1919, "the county authorities in making the appointments are relieved of local political embarrassment." He continued to make this claim year after year in his annual reports on the progress of the cooperative program.

³¹⁷ Lumsden, "Cooperative Rural Health Work of the Public Health Service in the Fiscal Year 1920," p. 2335; ———, "Cooperative Rural Health Work of the Public Health Service in the Fiscal Year 1921," p. 2481.

Table 10. Public Health Service Cooperative Work in the South, Fiscal Year 1920.

Lectures Given	823
Homes Inspected	144,648
Schools Inspected	1,085
Churches Inspected	95
“Stores, Markets, etc.” Inspected	16,190
School Children Examined	32,663
Visits by Public Health Nurses	19,044
Typhoid and Smallpox Immunizations	28,168
Hookworm Treatments	840
Venereal Disease Treatments	18,304
Visits by P.H. Officer or His Assistant	3,509
Sanitary Privies Installed	15,422
New Sewer Connections	1,568
New Water Connections	622

Source: Adapted from Lumsden, “Cooperative Rural Health Work,” 1920, p. 2330-2333.

work remained a high priority.³¹⁸ Venereal disease control, an important consideration in the wartime extra-cantonment zones, also remained prominent in the postwar cooperative efforts.³¹⁹ From July 1919 to July 1920, county health authorities treated 18,304 cases of venereal disease in southern counties participating in the cooperative program. The new county health organizations also engaged in and encouraged preventive measures such as the construction of sanitary privies and inoculation for typhoid and smallpox.

³¹⁸ Lumsden, "Cooperative Rural Health Work of the Public Health Service in the Fiscal Year 1920." Unfortunately, the PHS's methods for reporting the anti-malaria work of federally-backed county health departments were generally vague. Of 14 southern counties where the amount of work was classified as either "none, little, or considerable," for fiscal year 1920, the amount was "considerable" in nine, "little" in three, and "none" in two. In Wake and Durham counties in North Carolina, not included in these numbers, the PHS reported that local property owners had been persuaded to contribute "\$14,400 for ditching and oiling to prevent breeding of potentially malaria-carrying mosquitoes." It is clear that the PHS viewed malaria as a primary cause for federal intervention. In 1927, for instance, the Service reported that "Since 1919 there have been developed in the southern malarious States numerous county health departments for the primary purpose of controlling malaria." See *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1927*, (Washington, D.C.: Government Printing Office, 1927), p. 39.

³¹⁹ Under the 1918 Chamberlain-Kahn Act, the Service was charged with distributing funds to the states for venereal disease control. See Hamowy, *Government and Public Health in America*, p. 29.

In eleven Virginia counties, the Public Health Service implemented a bare-bones cooperative county health plan, “formulated with a view to accomplishing on the most economical basis possible the most important results of sanitation in counties unable or (at the beginning) unwilling to expend much for health service.”³²⁰ After negotiating arrangements for funding the plan with Virginia’s State Board of Health, the PHS worried that these impoverished counties would prove “reluctant to appropriate county money to enter into the cooperative health project.” When PHS officers presented the plan to local authorities, to prominent citizens, and in public meetings, however, they found that the response was similar to that in the counties they had approached with more money to devote to public health: “it was discovered with surprise and, because of the popular interest indicated, with gratification that every county to which the proposition had been presented was offering to participate, and the requests from counties for the cooperation soon exceeded the limits of the combined fund from State and National Government sources.”³²¹

In the eleven Virginia counties, the Public Health Service contributed \$500, the State Board of Health another \$500, and the county \$1,000. In place of physicians who served as county health officers in other PHS-backed county programs, “a man trained in the fundamental principles of health work was engaged as a sanitary demonstrator.”³²² While the overall plan of action, beginning with a sanitary survey, was broadly similar to PHS-backed efforts in other counties, these counties concentrated on the efforts that the Service believed would have the most immediate tangible benefits: “sanitary disposal of human excreta, protection of drinking-water

³²⁰ Lumsden, "Cooperative Rural Health Work of the Public Health Service in the Fiscal Year 1920," p. 2336-37. In the fiscal year 1920, the counties were Alleghany, Bath, Chesterfield, Greensville, Henry, Lunenburg, Mecklenburg, Orange, Rockbridge, Roanoke, and Warren.

³²¹ Ibid.: p. 2337.

³²² Ibid; L.L. Lumsden, "Cooperative Rural Health Work of the Public Health Service in the Fiscal Year 1930," *Public Health Reports* 45, no. 43 (1930): p. 2627.

supplies against dangerous contamination, and to a less extent, control of mosquito breeding.”³²³ The counties were placed in three groups, with each county sanitary officer supervised by a Public Health Service Officer who planned the work, helped to keep local authorities supportive of the projects, and attempted to “stimulate popular cooperation.”³²⁴ Beginning in 1925, the bare-bones cooperative plan was extended to Tennessee. By the end of the decade, it was being carried out in eleven Virginia counties and eight counties in Tennessee.³²⁵

The expansion of the Public Health Service’s cooperative rural health efforts during the 1920s was largely a result of the entrepreneurial efforts of Leslie Lumsden and his subordinates.³²⁶ By persuading local elites, particularly county commissioners, of the significance of poor health and the economic benefits of public health work, Public Health Service officers were able to secure the initial appropriation of tax dollars from the county. “Oftentimes,” Assistant Surgeon General W.F. Draper noted while explaining to the Senate Agriculture Committee in 1931 how increased funding for “rural sanitation” would be put to use, “even though health conditions are very bad [the county people] have no conception of the real situation. We would endeavor to give them a true picture of their situation and persuade them to do everything they properly could with reference to their need to the end of providing the necessary service of their own.”³²⁷

³²³ Lumsden, "Cooperative Rural Health Work of the Public Health Service in the Fiscal Year 1920," p. 2337.

³²⁴ *Ibid.*: p. 2338.

³²⁵ ———, "Cooperative Rural Health Work of the Public Health Service in the Fiscal Year 1930," p. 2627.

³²⁶ Writing in 1930, Charles Wardell Stiles described Moses as the “patriarch of rural sanitation” and Leslie Lumsden as his “successor.” See Charles Wardell Stiles, "Decrease of Hookworm Disease in the United States," *Public Health Reports* 45, no. 31 (1930): p. 1773.

³²⁷ *Emergency Appropriation for Cooperation with State Health Departments in Rural Sanitation, Etc., Hearing before the Committee on Agriculture and Forestry, United States Senate, Seventy-First Congress, Third Session, on S. 5440, a Bill to Authorize an Emergency Appropriation for Special Study of, and Demonstration Work in, Rural Sanitation*, (Washington, D.C.: Government Printing Office, 1931), p. 15.

A crucial first step, the decision by county officials to allocate funds for public health work would have had little effect had the Public Health Service not offered a genuinely valuable service that proved compatible with local social, political, and economic relationships. Where implemented, the cooperative rural health plan was likely to foster political legitimacy and popular support: “Through good business management,” Leslie Lumsden wrote in 1926, “every dollar invested in the enterprise can be made to yield a remarkable dividend in the protection and promotion of human health, and in a money saving to the community amounting to many times the cost of the service.” Ideally, county residents would recognize the benefits of public health work and offer ongoing support for county health boards.

In the years following World War I, the PHS proved itself capable of generating both results and legitimacy in disease-plagued counties throughout the region. Developed within the context of the rural South, the cooperative rural health effort required the blessing of county commissioners in each county before it could be implemented, which helped to ensure that the program represented no threat to local power relationships.³²⁸ Relying on arguments about the effects of disease on economic development in the South and employing native southerners as county health officers, the PHS presented itself as an agency of medical professionals sympathetic to the concerns of white southern elites.

DEVELOPMENT OF MALARIA CONTROL

Closely related to its expansion into active support for the development of county health departments, the Public Health Service continued to engage in a variety

³²⁸ Lumsden described the plan’s flexibility in 1926: “This plan of cooperative rural health work,” Lumsden explained, “has been evolved in the course of field experience and has been tested under a wide range of local conditions.” L.L. Lumsden, “Cooperative Rural Health Work of the Public Health Service in the Fiscal Year 1926,” *Public Health Reports* 41, no. 43 (1926): p. 2383.

of field experiments in practical measures for limiting the transmission of malaria. In 1920, the PHS's malaria research and control office, headquartered in Memphis, entered into a cooperative agreement with state and local health departments and the Rockefeller International Health Board, "for the purpose of promoting and accelerating the control of malaria in the United States." Participating states and localities provided as much money as they were capable of for the project, while the International Health Board provided the rest. For its part, the PHS "was expected to make malaria surveys, prepare estimates of cost of malaria-control measures, and furnish supervision of the control demonstrations."³²⁹ Sanitary Engineer Joseph A. LePrince, previously supervisor of malaria-control measures in the wartime extra-cantonment zones, now headed up the PHS's portion of the effort.

Following an initial survey of 133 communities, anti-malaria activities were undertaken in 45 towns in 10 southern states during the summer of 1920. "The results," the PHS reported, "were immediate and impressive."³³⁰ "House-to-house canvasses in several of the towns in which cooperative malaria control demonstrations were conducted revealed the fact that the economic loss directly due to malaria, including doctors' fees, medicine bills, and wages lost by forced absence from work were so greatly reduced that the investment for malaria control resulted in an actual

³²⁹ *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1920*, (Washington, D.C.: Government Printing Office, 1920), p. 20; *The Rockefeller Foundation International Health Board Seventh Annual Report, January 1, 1920- December 31, 1920*, p. 15-16; J.A. LePrince, "Co-Operative Antimalaria Campaigns in the United States in 1920," *Southern Medical Journal* 14, no. 4 (1921). Quotations are from the Surgeon General's *Annual Report*.

³³⁰ *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1923*, (Washington, D.C.: Government Printing Office, 1923), p. 13. Both the PHS and IHB were vague in reporting their findings. Data collected by the PHS suggested "reductions in malaria incidence in 1920 of over 75 per cent in many of these towns and of over 90 per cent in some of them, as compared with the 1919 malaria rate. The International Health Board, meanwhile, reported that "Malaria cases in these communities were reduced from 30 to 98 per cent." See *Annual Report of the Surgeon General of the Public Health Service for the Fiscal Year 1921*, (Washington, D.C.: Government Printing Office, 1921), p. 21-22; *The Rockefeller Foundation International Health Board, Eighth Annual Report, January 1, 1921- December 31, 1921*, (New York: The Rockefeller Foundation, 1922), p. 16.

saving of several times the amount expended for this purpose.”³³¹ Publicizing these beneficial results was deemed crucial. Where the information was available, the Rockefeller Foundation produced graphs, detailing apparent economic savings and reductions in physicians’ visits. These findings were “given wide publicity.” “The effect,” the Foundation optimistically claimed, “has been the creation of a sustaining and even aggressive public opinion which would seem to guarantee the permanency of the work.”³³² In its annual report for 1922, the Rockefeller International Health Board featured a photograph of a sign, erected by the Brewton, Alabama Chamber of Congress, publicizing the malaria control efforts going on in the town. “Malaria Being Controlled!” the sign declared, “Locate With Us for Health and Prosperity.”

Pleased with the success of the cooperative project in controlling malaria in southern towns, Public Health Service officers were, nonetheless, acutely aware that malaria was a largely rural disease.³³³ Though the PHS had proven adept at confronting the disease in southern towns, extra-cantonment zones, and other geographically limited areas, bringing the disease under control throughout the rest of the South presented significant technical and financial challenges.³³⁴ After 1923, the PHS ceased active efforts in southern towns in order to concentrate on the problem of

³³¹ *Annual Report of the Surgeon General of the Public Health Service for the Fiscal Year 1921*, p. 22.

³³² *The Rockefeller Foundation International Health Board, Eighth Annual Report, January 1, 1921-December 31, 1921*, p. 16-17. Joseph A. LePrince told the 1920 meeting of the Southern Medical Association that “Public sentiment unquestionably is favorable to the control of malaria by drainage on a big scale; and drainage supplemented by fish control [fish were used to eat *anopheles* larvae] and other measures is not only feasible, but it will be done because it is what the people desire.” See LePrince, “Co-Operative Antimalaria Campaigns in the United States in 1920.” In 1923, the PHS similarly claimed that its officers “felt that the people had been so thoroughly educated in urban malaria control that they would demand it of their health authorities when needed and support it for themselves.” See *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1923*, p. 14.

³³³ Maxcy, “The Distribution of Malaria in the United States as Indicated by Mortality Reports,” p. 1133.

³³⁴ See for instance C.P. Coogle, “Preliminary Report of Screening Studies in Leflore County, Miss.,” *Public Health Reports* 42, no. 15 (1927): p. 1101. Coogle estimated that in “many agricultural districts it may be a number of years before sufficient drainage is secured to cause *Anopheles* mosquitoes to become very scarce.”

Table 11. Cooperative Anti-Malaria Demonstrations, 1920.

	Demonstration Towns	Area Controlled (Sq. Miles)	Population Affected	Cost
Alabama	6	26	27,057	\$18,218
Arkansas	4	15	15,225	8,964
Georgia	3	24.5	21,659	9,191
Louisiana	3	17.5	35,673	15,325
Mississippi	5	13.3	20,024	12,664
North Carolina	3	11	19,100	24,018
South Carolina	3	22.5	12,100	42,091
Tennessee	2	8.9	9,604	4,227
Texas	14	49	36,813	20,179
Virginia	2	4.2	2,475	6,250
Total	45	191.9	199,730	\$161,128

Source: Adapted from Surgeon General's *Annual Report*, Fiscal Year 1921, p. 21.

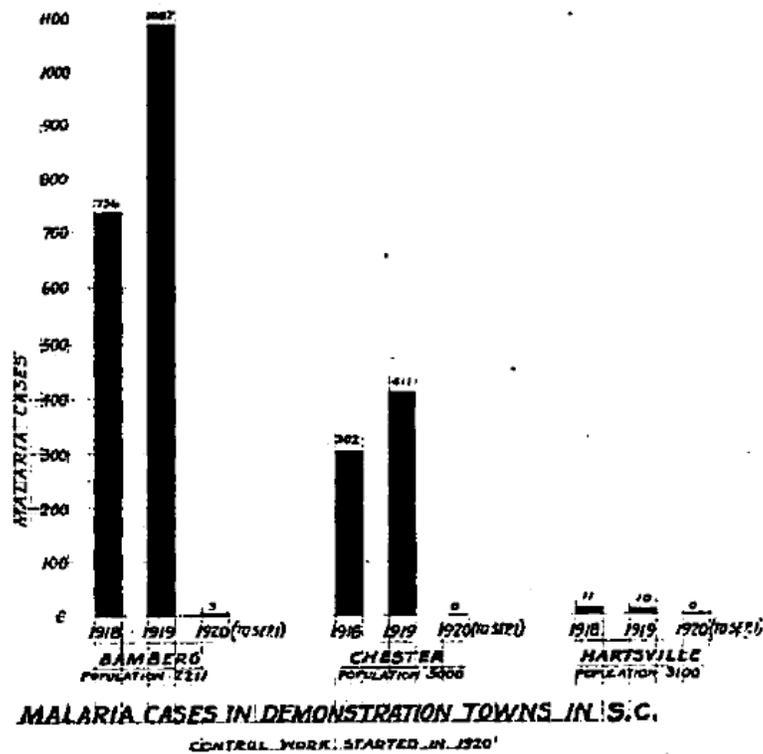


Figure 12. Example of Charts Used to Demonstrate Effectiveness of Rockefeller Foundation- Public Health Service Cooperative Anti-malaria efforts. Source: LePrince, "Co-Operative Antimalaria Campaigns," p. 302.

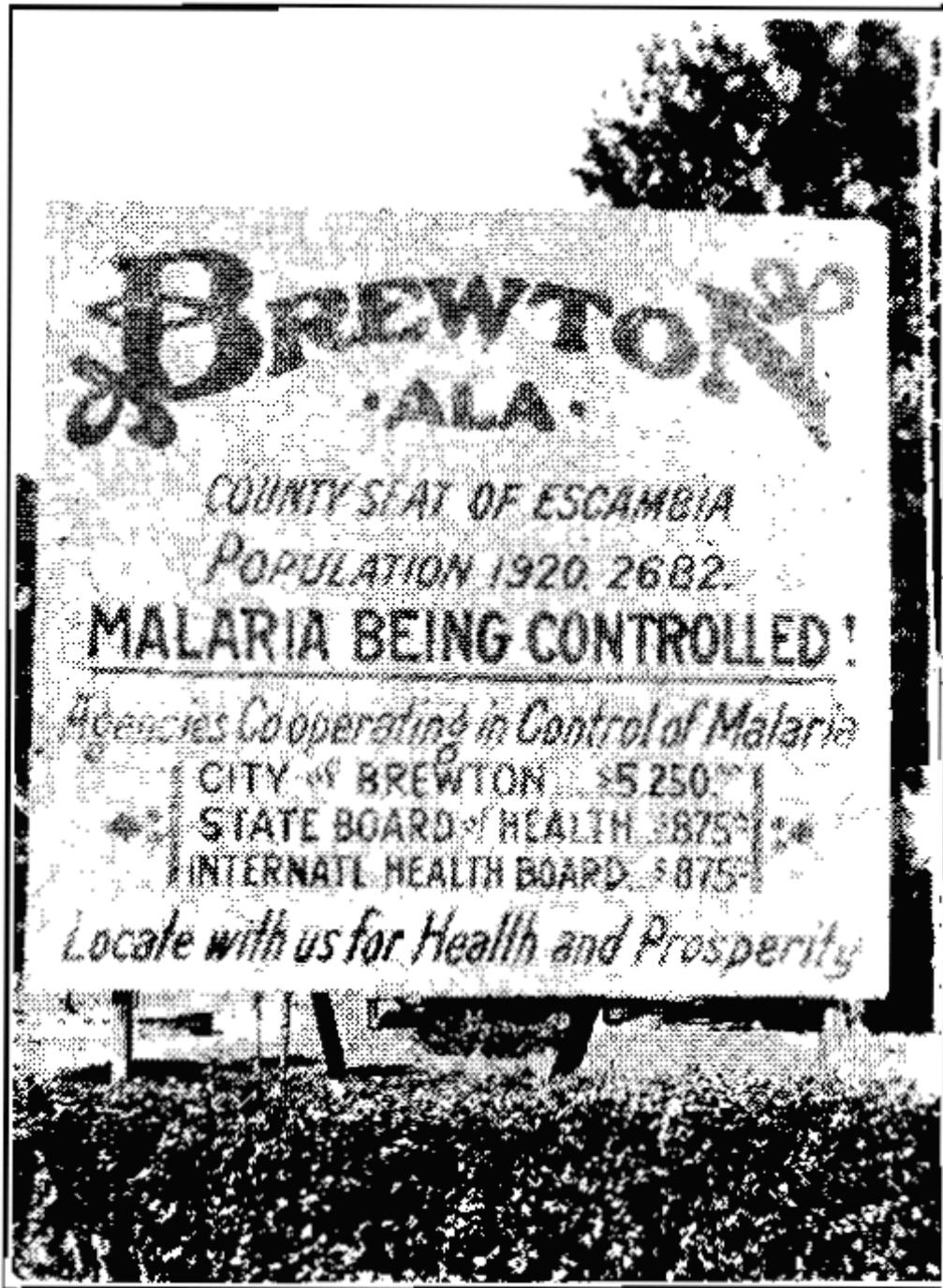


Illustration 1. “Sign erected by the Brewton (Alabama) Chamber of Commerce.”
Source: Rockefeller International Health Board, *Ninth Annual Report*, January 1, 1922-December 31, 1922, p. 111.

malaria in the rural South. In many instances, “it was possible to continue the investigations in the same locality without interruption by merely shifting the field personnel from urban demonstrations to rural investigations.” “The county,” the PHS’s 1923 annual report explained, “is considered the unit of study because it is the unit of government in the South, and whatever methods of rural malaria control are found successful must be applied by county health organizations.”³³⁵ Throughout the 1920s, both the Public Health Service and the International Health Board continued to explore a variety of non-drainage anti-malaria strategies, including attempting to limit outbreaks with quinine, deploying fish that devoured *anopheles* larvae, and attempting to persuade rural southerners to screen their homes against mosquitoes.

The PHS’s investigations into the screening of tenant homes shed some light on the confluence of technical and social challenges that the Service confronted in further working out its approach to malaria. Screening windows, many PHS officers believed, represented a potentially powerful means of limiting transmission of the malaria parasite in areas where attempting to control mosquito breeding through drainage might prove prohibitively difficult or expensive.³³⁶ The often poor quality construction and irregular measurements of southern tenant homes, however, appeared to present a significant obstacle. In addition, whether sharecroppers and tenant farmers

³³⁵ *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1923*, p. 14.

³³⁶ See for instance D.L. Van Dine, "The Destruction of Anopheles in Screened Dwellings," *Southern Medical Journal* XIV, no. 4 (1921): p. 20. Discussing Van Dine’s paper at the 1920 meeting of the Southern Medical Association, PHS Surgeon Dr. T.H.D. Griffiths, stationed in Norfolk, made the case for screening: “When we consider that malaria is essentially a rural problem, and is in many parts of the country where drainage is not feasible, or not economically possible; when we consider that the administration of quinine, however efficient, is, more or less, a temporary make-shift, we must finally come back to screening the houses of the people and keeping the mosquito away from them.”

would prove receptive to screening their homes and then maintaining the screening remained, for public health workers, an open question.³³⁷

D.L. Van Dine, of the Department of Agriculture's Bureau of Entomology, stated the problem as it was generally understood: "Screening is not open to argument... If you will screen properly, then you have done a great thing in preventing malaria." "It is the application or extension of the method," he continued, "that is open to discussion and investigation. If you take a typical negro cabin with an open floor, no two windows alike, a big fireplace going down through the middle and screen it as well as you can, you can not compare the results obtained with those in a well-screened modern dwelling occupied by white people who understand, and who are alert to the danger."³³⁸

Similarly, Joseph A. LePrince noted that the Public Health Service had looked "with care into the screening of negroes' houses. It is a very important subject. It means a profit or loss to the farmer of the South. We have attempted time and time again to screen the negro quarters in the same way we screen the white quarters."³³⁹ For public health workers eager to find a cheaper approach to combating malaria than drainage projects, the problem of poorly constructed homes, combined with uncertainty over whether tenants would prove responsible caretakers of screening, represented a significant obstacle. Large-scale screening attempts, many believed, might ultimately prove prohibitively difficult.

³³⁷ In his study of screening, PHS officer C.P. Coogle broke the problem down into ten questions. See Coogle, "Preliminary Report of Screening Studies in Leflore County, Miss.."

³³⁸ Dine, "The Destruction of Anopheles in Screened Dwellings," p. 296. Van Dine's comments are contained in the discussion of his paper, which occurred at the 1920 meeting of the Southern Medical Association.

³³⁹ Ibid.: p. 295. LePrince's comments were made in the discussion of Van Dine's paper. On the problem of screening poorly constructed homes, as understood in the early 1920s, see also Jr. L.L. Williams, "Current Malaria Studies, with Special Reference to Control Measures," *Public Health Reports* 44, no. 33 (1929): p. 2002.

Field experiments, however, soon demonstrated the workability of screening as a preventive measure. In spring 1924, Acting Assistant Surgeon Dr. C.P. Coogle, who served as the county health officer in Leflore County, Mississippi, discussed the likely response of tenants to a screening initiative with more than fifty large landowners in the Mississippi Delta. Over the course of his survey, Dr. Coogle encountered widespread skepticism: “It appears to be a common opinion among the planters that farm-tenant families will not take care of screens, that they willfully destroy the screens, and that proper interest in the care of screening, at least by the general run of tenants, is not to be expected. Little encouragement was derived from these interviews.” “The planters,” he concluded, “have had experience with screening on a small and expensive scale, and their belief in its inefficiency is widespread and firmly fixed.”³⁴⁰

Despite this response, Coogle initiated a small-scale study the effectiveness of screening, intended to assess whether screening could be economically implemented and whether southern tenant farmers could be relied on to participate in screening measures and then perform screen upkeep. In 1924, twenty “tenant houses were screened and accurate data collected on cost of materials and on cost of labor.” The PHS inspected screened homes as well as nearby unscreened homes throughout the malaria season. In 1925, Coogle added an additional twenty tenant homes to the study. Following on the successes of the first two years of his study, Coogle persuaded a local plantation owner, W.L. Craig, to cooperate in the screening of all sixty-four tenant homes on his property in 1926.³⁴¹ The project was a clear success: the “malaria sick rate of persons living in the screened houses for more than four months during the

³⁴⁰ Coogle, "Preliminary Report of Screening Studies in Leflore County, Miss.." See also *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1925*, (Washington, D.C.: Government Printing Office, 1925), p. 23.

³⁴¹ See *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1925*, p. 24.

malaria transmission season was only 29 per cent of that of the group living in the unscreened homes of the control group.”³⁴²

Coogle’s detailed analysis of the practicality of screening allowed the Public Health Service some insight into the potential responsiveness of both plantation owners and rural black and white tenant farmers to a concerted effort to screen the South. In an area like the Delta, persuading landowners would represent a necessary condition of any screening effort. In many cases, the landowner would likely have to provide either the needed materials or a means of acquiring them. Their incentives, Coogle reported, were fairly easy to grasp. “Planters,” he explained in his report on the screening demonstration, “are business men, and it must be realized that they are not in the farming business to accommodate the tenants. The tenants are on the plantations to supply the labor, and the tenant house is for the purpose of keeping the labor close to the crop.”³⁴³

Since the planter “often appeared to be more concerned about the gnats and flies pestering his mules,” than about the welfare and comfort of his tenants, it seemed unlikely that humanitarian appeals would carry much weight. More realistically, he suggested, “One can always expect the planter to be on the alert and ready to invest in screening if it can be shown to be to his advantage.” Collecting accurate data on the effectiveness of screening and its impact on “the actual savings in man hours of labor, which is the essential unit of measurement on which the planter bases his profits and losses,” Coogle argued, would likely prove the most effective means of mobilizing southern landowners to support, financially and otherwise, any large-scale effort to screen the homes of tenant farmers.

³⁴² Coogle, "Preliminary Report of Screening Studies in Leflore County, Miss.," p. 1104.

³⁴³ *Ibid.*: p. 1105.

Despite the preconceptions of landowners, Coogle found, black tenant farmers were eager to participate in screening efforts. “The investigations,” he reported, “indicated that negro tenants readily acquire an interest in and desire for mosquito protection, and, generally speaking, a large percentage of them would do the work effectively themselves if they thoroughly understood what it was for, and if they could get the screening materials.” “The colored tenant,” he continued, offering an explanation for black participation, “is largely guided by the plantation manager.”

White tenants, he reported, were more reluctant to participate. The “white tenant,” Coogle wrote with some condescension, “thinks he can plan his own destiny and often finds he is mistaken.” As a result of this attitude, he believed, whites were more likely to leave the plantation at the end of the season. Moreover, the “white tenant also usually complains more about his housing conditions than does the negro tenant. The latter seems to be more appreciative of his screens and takes better care of them than does the white tenant under similar circumstances.”

Far from rural blacks being resistant to screening efforts, as Coogle had apparently expected, it was whites who might prove to be a problem: “The negro looks forward to having his home inspected, and it is not difficult to teach him to repair minor breaks in the screens. The white tenant is usually more delinquent about repairs and often seems to be slightly resentful of house inspections. He would rather tell about the screens while at a distance from the house than have the conditions of the screens inspected on the premises.”³⁴⁴ Already by December 1925, the PHS felt confident enough in Coogle’s findings to report that “Experiments recently conducted by the service indicate that colored farm tenants can be induced to take excellent care of the screening of their homes.”³⁴⁵

³⁴⁴ Ibid.: p. 1107.

³⁴⁵ *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1925*, p. 24.

Beyond establishing that southern blacks would prove responsive to screening measures, and ultimately of more importance, Coogle's study demonstrated unequivocally that the irregularly constructed tenant homes of the South could be adequately screened.³⁴⁶ He detailed the costs and materials necessary for adequately screening tenant homes, and produced instructions for properly constructing relatively inexpensive screen doors. The screening study, Coogle concluded, "appears to indicate that practically all inhabitable tenant houses can be effectively screened, although it will frequently be necessary to do more or less chinking work to close the numerous cracks, knot holes, and misfit joints in walls and ceilings."³⁴⁷ Between 1924 and 1926, Coogle refined his methods, bringing the cost of screening an individual home down from an average of \$18.55 to \$8.51.³⁴⁸ By appealing to the economic interests of landowners, the health concerns of tenants, and showing that screening could be done both effectively and inexpensively, Coogle's report suggested, public health workers could make significant headway in combating malaria.

CONSOLIDATION AND EXPANSION OF FEDERAL INTERVENTION IN THE AFTERMATH OF THE 1927 MISSISSIPPI FLOOD

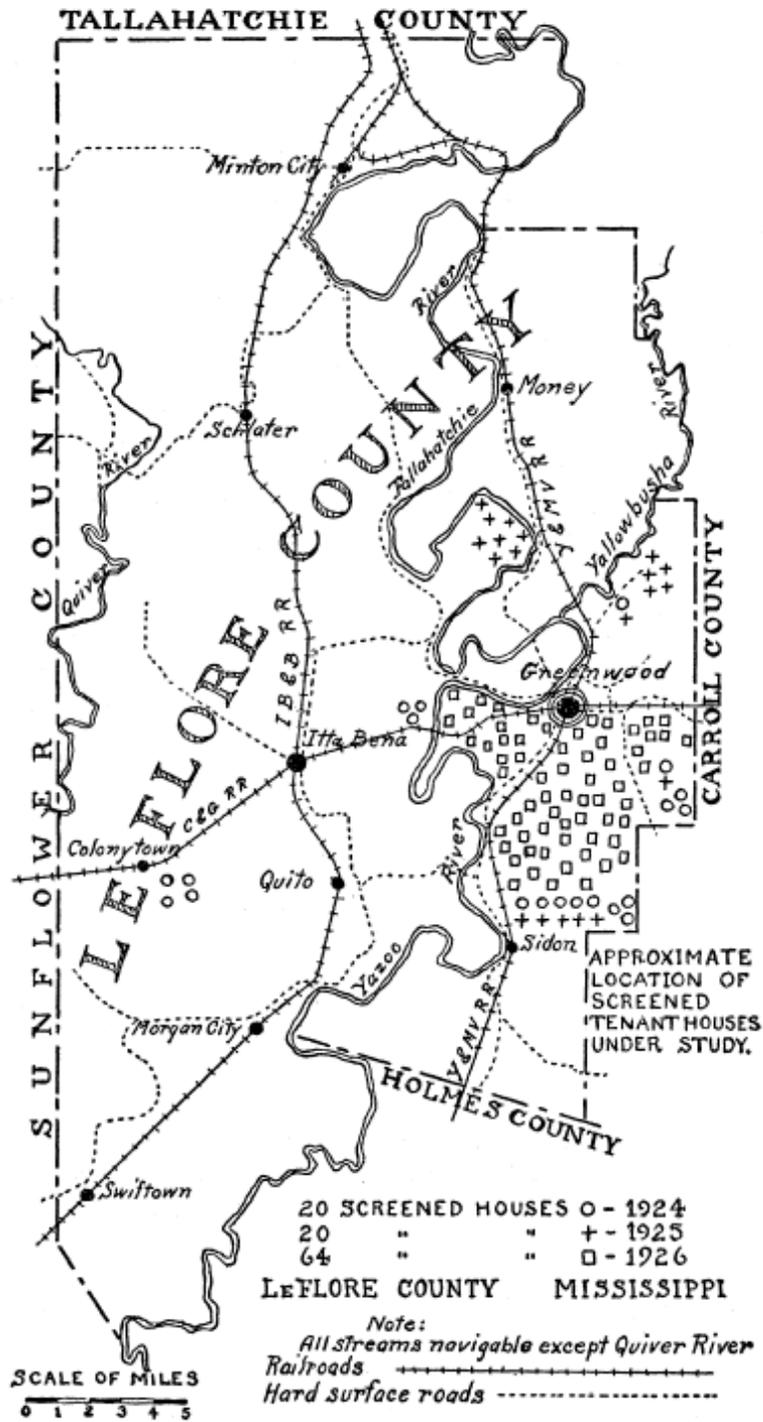
In the spring of 1927, following a period of heavy rain, a massive flood overtook the lower Mississippi Valley. The flood covered 27,000 square miles, putting "as much as 30 feet of water over lands where 931,159 people" previously lived.³⁴⁹ In the aftermath of the flood, the knowledge, practical experience, and infrastructure that

³⁴⁶ See L.L. Williams, "Current Malaria Studies, with Special Reference to Control Measures," p. 2002-03. "Screens," Williams told the 1929 annual meeting of the State and Territorial Health Officers with the PHS, "have been utilized by the well-to-do for years; but, because of their cost, they have not been put on the poorly-built farm homes or rickety tenant shacks. The problem of screening such homes was attacked by Coogle with splendid results well known to all of you."

³⁴⁷ Coogle, "Preliminary Report of Screening Studies in Leflore County, Miss.," p. 1105.

³⁴⁸ *Ibid.*: p. 1109, 11, 12.

³⁴⁹ John M. Barry, *Rising Tide: The Great Mississippi Flood of 1927 and How It Changed America* (New York: Simon and Schuster, 1997), p. 285.



Map showing location of houses screened

Figure 13. The LeFlore County Screening Study, 1924-1926. Source: Coogle, "Preliminary Report of Screening Studies," p. 1103.

the Public Health Service had developed over the preceding decade became of immediate and crucial importance. The Service's knowledge of malaria and pellagra was translated into direct action in the flood zone. Still under the direction of Leslie Lumsden, the federal-state-county cooperative program that had developed out of the wartime extra-cantonment zones quickly emerged as the institutional basis and model for federal efforts to tame the public health catastrophe resulting from the social and economic dislocations caused by the flood.

As the magnitude of the disaster in the lower Mississippi valley became clear, the Public Health Service coordinated its response with Secretary of Commerce Herbert Hoover, who had been dispatched to the flood zone by President Coolidge, the American Red Cross, the Rockefeller International Health Board, and state and county boards of health. In an impressive effort, the Red Cross set up 149 camps for displaced individuals and families in Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee. State boards of health and the Rockefeller Foundation provided medical and other emergency relief personnel. The Public Health Service, meanwhile, dispatched twenty-four medical officers, eight sanitary engineers, and five "scientific assistants" to the flood zone.³⁵⁰

With money furnished by the Red Cross, Joseph A. LePrince supervised attempts to limit the inevitable tide of malaria through a massive emergency screening effort. "The distance from the north to the south end of the entire project," the PHS reported, "was about 320 miles, and the homes to be screened were scattered over 36 counties of four States." Throughout the lower Mississippi valley, in Arkansas, Louisiana, Mississippi, and Tennessee, teams of inspectors provided by the Red Cross and state health departments went door-to-door, attempting to establish where carriers

³⁵⁰ J.G. Townsend, "The Full-Time County Health Program Developed in the Mississippi Valley Following the Flood," *Public Health Reports* 43, no. 20 (1928): p. 1201, 00.

Table 12. Public Health Service-supervised screening efforts following the 1927 Mississippi Flood.

	Arkansas	Louisiana	Mississippi	Tennessee	Total 4 States
Flooded counties in which homes were screened	15	8	9	4	36
Number of homes screened	2,348	653	3,276	483	6,760
Number of doors screened	7,304	2,193	10,238	1,440	21,175
Number of windows screened	12,200	2,777	12,931	2,387	30,295
Average cost per farm-tenant home	\$9.67	\$13.99	\$11.07	\$11.68	\$11.02
Total cost	\$22,707.35	\$9,883	\$36,254.39	\$5,630.87	\$74,475.60

Source: Williams, “Full-Time County Health Program,” p. 1201, from field report by J.A. LePrince.

of malaria were living. When they found an individual or family with malaria, the inspectors “took measurements of doors and sent them to a central point in the State where screen door were made in conformity with such measurements and shipped to the communities in carload lots.” Within approximately 90 days, public health workers were able to screen nearly 7,000 homes, helping to deny *anopheles* mosquitoes access to malaria carriers and significantly limiting the intensity of the outbreak.³⁵¹

³⁵¹ Ibid.: p. 1200-01. In Louisiana, the screen doors were produced at the State Boys’ Industrial School in Monroe. In Mississippi, they were produced in Greenwood, the seat of Leflore County. In Arkansas,

C.P. Coogle's Leflore County screening study, the Public Health Service reported in the aftermath of the flood, "has been the deciding factor in determining the type of malaria relief to be carried out in the recently flooded area. The only practicable scheme of widespread malaria control over a large area in times of emergency must be screening. Except for the [Leflore County study], it would have been thought impossible to use this method of control in large-scale relief work effectively and at a sufficiently reasonable cost."³⁵²

In the wake of 1921 backlash following President Warren G. Harding's comments about the menace of "famine and plague" in the South, the Public Health Service's Dr. Joseph Goldberger had continued his research into the control of the South's pellagra problem. Over time, Goldberger had tempered his critique of the southern political economy with an increasing emphasis on practical methods of forestalling the disease. His claim that pellagra was caused by a dietary deficiency, still controversial in 1921, was accepted by the vast majority of the medical profession by 1927. Just as the Public Health Service had made important improvements in its capacity to combat malaria during the years preceding the flood, Goldberger's research now demonstrated that brewer's yeast contained the "pellagra-preventive" vitamin, later discovered to be niacin. Distributing the yeast to rural southerners, rather

they were produced at the Boys' Industrial School in Pine Bluff. In Tennessee, meanwhile, "the manual training department of the public schools at Dyersburg did the work." See also William Deklein, "Recent Health Observations in the Mississippi Flood Area," *American Journal of Public Health* 18, no. 2 (1928): p. 148.

³⁵² *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1927*, p. 39. A detailed account of the logistics involved in the PHS's post-flood screening effort, with discussion from southern state health officers, C.P. Coogle, and Joseph A. LePrince, may be found in C.P. Coogle, "Methods and Costs of Screening Farm Tenant Homes in Mississippi: Post Flood Malaria Control," *Southern Medical Journal* (1928). See also **MS Biennial 26th ... p. 250-260**

than a wholesale transformation of the southern economy, represented a potentially workable solution to the pellagra problem.³⁵³

Alerted to the potential for a pellagra outbreak following the flood by Goldberger and the Public Health Service, the American Red Cross followed Goldberger's suggestions, distributing brewer's yeast in its camps and supplying the yeast to state boards of health and county health departments in the flood zone, to some extent beating back a mounting pellagra epidemic. Farm demonstration agents from the Department of Agriculture and a variety of local organizations helped in the effort to distribute yeast.³⁵⁴ Meanwhile, Goldberger traveled extensively in the flooded area, attempting to document the disaster's impact on the rate of pellagra. Of the four states worst hit, he noted, only Mississippi had "anything like complete official morbidity reports of pellagra." Following the flood, however, "even in that state the morbidity reports for the counties affected by the overflow were very incomplete or altogether lacking."³⁵⁵

Though concrete information was scarce, it was clear to Goldberger and other observers that pellagra incidence had skyrocketed. The disease had already been a growing problem in the flood area in the years before 1927. As a result of "dietary habits" and the "availability of supplies of various foods which, in turn, is influenced by the one-crop type of agriculture, with the consequent lack of diversification,"

³⁵³ DeKruif, *Hunger Fighters*, p. 365-66. Goldberger's initial experiments with brewer's yeast were conducted on dogs. Inspired by an article by two Yale professors and an encounter with a fox hound owner in Georgia who had lost a dog after feeding it nothing but corn bread in order to "thin her down for the hunt," Goldberger established that "black tongue" was the canine version of pellagra. Although he continued to export his findings to southern orphanages, experimenting with dogs allowed Goldberger quite a bit more leeway. In his first canine experiment, Goldberger fed dogs the diet he had given the prisoners at the Rankin Prison Farm. As Paul DeKruif wrote in 1928, "It killed them."

³⁵⁴ Townsend, "The Full-Time County Health Program Developed in the Mississippi Valley Following the Flood," p. 1206; Deklein, "Recent Health Observations in the Mississippi Flood Area," p. 150.

³⁵⁵ Joseph Goldberger and Edgar Sydenstricker, "Pellagra in the Mississippi Flood Area: Report of an Inquiry Relating to the Prevalence of Pellagra in the Area Affected by the Overflow of the Mississippi and Its Tributaries in Tennessee, Arkansas, Mississippi, and Louisiana in the Spring of 1927," in *Goldberger on Pellagra*, ed. Milton Terris (Baton Rouge: Louisiana State University Press, 1964), originally published in *Public Health Reports*, vol. 42, no. 44 (November 4, 1927), p. 271-272.

Goldberger noted, the lower Mississippi valley was particularly hospitable to pellagra. Unprofitable cotton crops in 1925 and 1926 meant that the “financial resources of the cotton planters... were already severely strained... and the economic status of the tenant population was already considerably below that of 1922 and 1923.” The dislocations resulting from the flood, including a decrease in the milk supply due to the drowning of milk cows, destruction of “home-owned poultry and swine” that might have provided fresh meat and eggs, and destruction of gardens that might have provided vegetables, virtually guaranteed that many living in an area already on the brink would succumb to pellagra.³⁵⁶

In Mississippi, the Public Health Service recorded 6,000 cases of pellagra between July and October 1927. “Only 2,800 cases were reported for the corresponding period in 1926.”³⁵⁷ Relying on mortality data, Goldberger and PHS statistician Edgar Sydenstricker estimated that, in 1926, there had been 37,000 cases of pellagra in Arkansas, Louisiana, Mississippi, and Tennessee. During 1927, they believed, it was likely that there were between 45,000-50,000 cases.³⁵⁸

Despite the increase in pellagra following the flood, the Red Cross-backed distribution of brewer’s yeast as means of warding off pellagra appeared to demonstrate that a viable alternative existed to the more fundamental political-economic changes that Goldberger had long noted might free the South of the burden of pellagra. Any understanding of pellagra, Goldberger explained again in his report on the aftermath of the flood, required an appreciation of its deep interconnections with the southern system of mono-crop agriculture. “Thus,” he wrote, “it may appear

³⁵⁶ Ibid., p. 276-77.

³⁵⁷ Townsend, “The Full-Time County Health Program Developed in the Mississippi Valley Following the Flood,” p. 1206.

³⁵⁸ Sydenstricker, “Pellagra in the Mississippi Flood Area,” p. 275. In Sunflower County, Mississippi, the county with the “only objective index of this that seems worthy of presentation,” Goldberger and Sydenstricker reported that the pellagra incidence rate was approximately 24.4 per 1,000. See ———, “Pellagra in the Mississippi Flood Area,” p. 274.

at first glance that any attempt to remove the conditions which are fundamentally responsible for the prevalence of pellagra would involve a revolution of dietary habits and of the entire economic and financial system as it now exists.”³⁵⁹ His experiences since taking over as head of the PHS’s pellagra effort in 1914, however, suggested that such a political-economic “revolution” was not on the immediate horizon.

Planting small gardens and owning milk cows offered some hope of weakening the grip of the disease, but Goldberger recognized that such apparently straightforward measures would prove difficult for many southern tenants. Plantations owners, he wrote, tended to discourage both. Gardens “use space which otherwise might be planted in cotton” and require “labor on the part of the tenant and his family during the season when all the labor possible is required in the cotton fields.” Similarly, “Because of the desire to use all the land for cotton, pasturage is not furnished” for cows. Along with concerns about land usage, landowners worried that tenants were “prone to divert feed destined for mules and horses to feeding their cows.”³⁶⁰

Personally moved by the suffering of southern victims of pellagra, Goldberger had no illusions about his own ability to alter the underlying causes of the disease. In an interview with the writer Paul DeKruif following the flood, Goldberger reflected on the poverty of the South and on the widespread lack of knowledge of pellagra and its causes. Ultimately, he concluded, the underlying causes of pellagra were beyond his reach: “I’m only a bum doctor.”³⁶¹ Mono-crop agriculture would continue to play a dominant role in the region’s economy, and, for the time being, only the distribution of baker’s yeast offered the prospect of a reduction in pellagra. The response to the 1927 flood, despite the pellagra increase in the flood zone, represented an initial

³⁵⁹ Sydenstricker, “Pellagra in the Mississippi Flood Area,” p. 290.

³⁶⁰ *Ibid.*, p. 279.

³⁶¹ “Goldberger, who, because of the desperate tricks he turned with the lives of other men and with his own,” Paul DeKruif wrote, “you might take for a Messiah, had no Messianic delusions.” See DeKruif, *Hunger Fighters*.

demonstration of this approach's potential effectiveness. In the years following the flood, Brewer's Yeast would become an increasingly prominent tool in the efforts of southern public health workers. When Goldberger died of cancer in 1929, the transformative promise of his findings was already on the verge of being fulfilled.

The crowning achievement of the Public Health Service's intervention in the area flooded by the Mississippi River was the rapid extension of the cooperative plan for developing full-time county health departments throughout the flood zone. In spring 1927, only 18 of the 103 flooded counties in six states had full-time county health departments. Their worth, however, appeared to have been proven by their performance in the aftermath of the flood. According to rural sanitation director Leslie Lumsden, certainly not a neutral observer, full-time county health officers "as a rule, performed with remarkable promptness and efficiency in the organization of working forces and in the carrying out of measures for both immediate and post-flood sanitary protection of the stricken people." The difference between these counties and those without health departments with a full-time officer, he claimed, "stood out sharply."³⁶²

J.H. O'Neil, the Louisiana State Board of Health's sanitary engineer, concluded similarly that "the value of the full-time county organization... had been strikingly demonstrated during the flood."³⁶³ Full-time health departments, the PHS argued, were necessary "to carry on to a logical conclusion the preventive measures started [following the flood]."³⁶⁴ Nonetheless, the PHS reported that, given lack of funds, the likelihood of the affected states and counties creating new health

³⁶² L.L. Lumsden, "Cooperative Rural Health Work of the Public Health Service in the Fiscal Year 1927," *Public Health Reports* 42, no. 42 (1927): p. 2594-95.

³⁶³ J.H. O'Neill, "Relief Measures During and Following the Mississippi Valley Flood," *American Journal of Public Health* 18, no. 2 (1928): p. 159.

³⁶⁴ Townsend, "The Full-Time County Health Program Developed in the Mississippi Valley Following the Flood," p. 1202.

departments without outside help was “slight.”³⁶⁵ The obvious solution was an expansion of the Service’s existing rural sanitation program.

In June 1927, representatives of the Public Health Service and the International Health Board, meeting in New Orleans, agreed to attempt to expand their county health programs to reach all of the counties devastated by the flood. County governments quickly proved amenable to their efforts. By the end of October 1927, sixty-seven new counties had entered into cooperative agreements with either the Public Health Service or the International Health Board. Within a year of the flood, 78 counties, “or about 92 per cent of the total with which contact was made [by agents of the PHS and IHB]” had signed on the program.³⁶⁶ Where county money was too scarce for even a small appropriation, the PHS and IHB, along with state boards of health, wholly “financed the projects temporarily with a limited personnel. In many counties, the work was made possible by donations from the local Red Cross chapters, municipalities, chambers of commerce, and civic organizations.”³⁶⁷

In the short term, the Public Health Service paid for the expansion of its county health efforts in the lower Mississippi valley with money released from its “epidemic fund,” designated for use in emergency situations.³⁶⁸ Congress, meanwhile, proved responsive to requests from the Public Health Service for increased funding.

³⁶⁵ Ibid.

³⁶⁶ Ibid.: p. 1202-03. See also *The Rockefeller Foundation, Annual Report for 1927*, (New York: The Rockefeller Foundation, 1927), p. 145; O'Neill, "Relief Measures During and Following the Mississippi Valley Flood," p. 159.

³⁶⁷ Townsend, "The Full-Time County Health Program Developed in the Mississippi Valley Following the Flood," p. 1203.

³⁶⁸ *First Deficiency Appropriation Bill, 1928: Hearing before the Subcommittee of House Committee on Appropriations in Charge of Deficiency Appropriations, Seventieth Congress, First Session*, (Washington, D.C.: Government Printing Office, 1927), p. 631; *Flood Control: Hearings before the Committee on Flood Control, House of Representatives, Seventieth Congress, First Session, on the Control of the Destructive Flood Waters of the United States*, (Washington, D.C.: Government Printing Office, 1928), p. 3074; Mead, *Public Health Bulletin No. 222: History of County Health Organizations in the United States, 1908-33*, p. 5. \$180,740 was released from the “epidemic fund” for the development of county health departments in the flood zone. The use of this money was authorized by Secretary of the Treasury Andrew Mellon and President Coolidge.

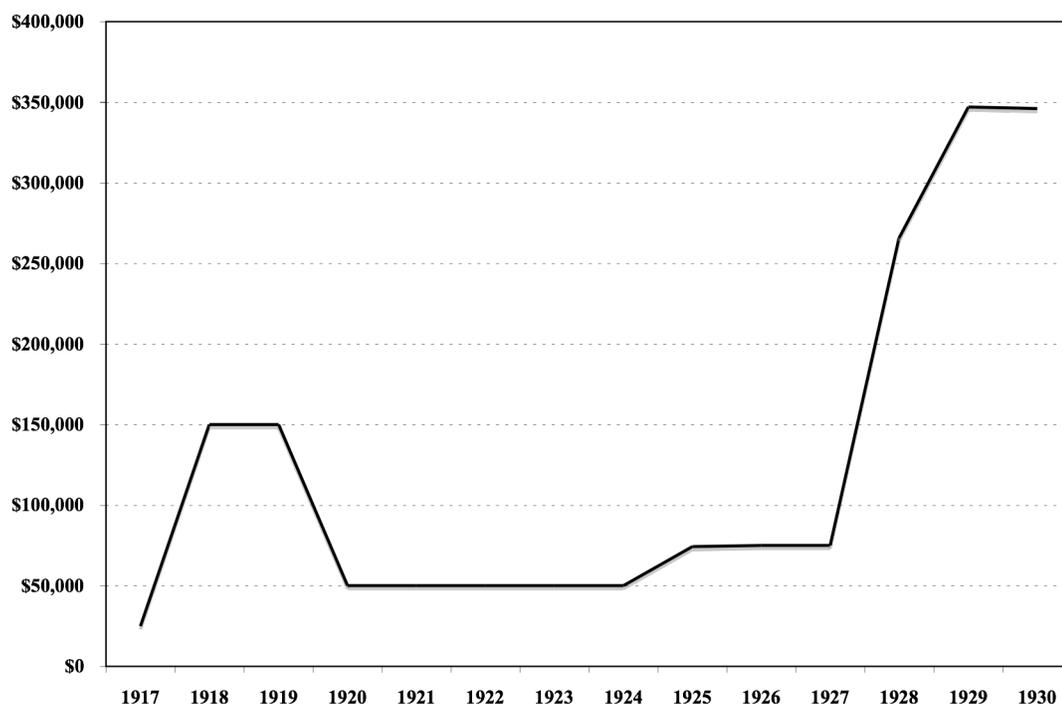


Figure 14. The Impact of World War I and the 1927 Mississippi Flood on appropriations for “Special Studies of and Demonstration Work” in Rural Sanitation, Fiscal Years 1917-1930. Source: Adapted from *Public Health Bulletin No. 222: History of County Health Organizations*, p. 5.

Note: The 1928 appropriation includes \$180,740 “released from appropriation for the prevention of the spread of epidemic diseases and applied to county health work in the Mississippi flood area.” The initial appropriation was \$85,000.

Impressed with the PHS’s response to the disaster and willing, given the emergency circumstances, to endorse its continued involvement, Congress more than quadrupled the annual appropriation for “special studies of and demonstration work in rural sanitation” in the next fiscal year. Beginning in the summer of 1928, Leslie Lumsden had a \$347,000 appropriation at his disposal, up from an initial appropriation of \$85,000 in the preceding fiscal year. Of the new appropriation, \$85,000 was slated for “general use” and the remaining \$262,000 was earmarked for use in designated counties within the Mississippi flood zone.³⁶⁹

³⁶⁹ L.L. Lumsden, “Cooperative Rural Health Work of the Public Health Service in the Fiscal Year 1928,” *Public Health Reports* 43, no. 48 (1928): p. 3154.

Public Health Service officials could barely contain their excitement. “While deploring the frightful disaster of last spring,” J.G. Townsend wrote in the Service’s report on the county health program’s post-flood expansion, “some comfort may be obtained in the knowledge that better communities are builded on the ruins of those destroyed, and, as a rule, a better public-health regime may be inaugurated. Surely in this experience there has developed another flood- a flood of sanitation development which has placed us many years ahead of our old program of full-time county health service.”³⁷⁰

Rather than endorsing a massive and permanent expansion of the county health program, however, members of Congress had intended to respond to an emergency situation. Convenience was a far greater factor in congressional approval than the arguments of Public Health Service officers, which continued to center on the interstate threat of disease and its economic impact. Questioning Assistant Surgeon General W.F. Draper as he appeared before a House Appropriations Subcommittee, Indiana Republican William R. Wood highlighted the gap between the Public Health Service’s actions and reigning conceptions of the appropriate role of the federal government: “Have [the states in the flood zone] shown that they were unable to take care of the situation without Federal aid?” Told that they had, Wood wondered whether the states had given the PHS “an account of the money that they have available for state expenses, etc.?”

³⁷⁰ Townsend, “The Full-Time County Health Program Developed in the Mississippi Valley Following the Flood,” p. 1207. Testifying before the House Committee on Flood Control, Surgeon General Hugh Cumming suggested that “largely due to the action taken there has been actually in many respects an improved health condition.” In response to Cumming’s enthusiasm, Chairman Frank Reid felt in necessary to caution Cumming that he had not intended to prompt the Surgeon General “to give the impression that the flood was good for the health of the people there.” See *Flood Control: Hearings before the Committee on Flood Control, House of Representatives, Seventieth Congress, First Session, on the Control of the Destructive Flood Waters of the United States*, p. 3074-75.

“Here is the trouble,” Representative Wood told Dr. Draper: “When these disasters come, of course we help them in every instance, but they ought to understand that they ought not to abuse the generosity of the Government by using the Federal Government to do for them what they ought to do for themselves when the disaster is over.”³⁷¹

To Representative Wood, whatever health benefits the PHS effort was bringing to the region appeared to be outweighed by its significant risks, particularly the likelihood that the federal government was “establishing some very dangerous precedents by doing this sort of thing.” Although Assistant Surgeon General Draper detailed the economic benefits of public health work and sought to reassure the committee that the Public Health Service’s involvement would not be indefinite, Representative Wood was unwilling to endorse the expansive vision of the Public Health Service’s role that the county health effort represented. “You want to encourage these people,” he concluded, “to help themselves and make them understand that the Government is not going to keep doing this for them forever. If we are, we are going to exhaust the Treasury before long.”³⁷²

Initially intended for funding surveys of the extent of disease in rural America and temporary “demonstration” projects, the Public Health Service’s appropriation for “rural sanitation” had been transformed into a means of funding work in extra-cantonment zones during World War I. In the ensuing decade, under the leadership of Dr. Leslie Lumsden, public health service officers had worked with county governments throughout the South, as well as the Rockefeller International Health

³⁷¹ *Second Deficiency Appropriation Bill, 1928: Hearing before the Subcommittee of House Committee on Appropriations in Charge of Deficiency Appropriations, Seventh Congress, First Session*, (Washington, D.C.: Government Printing Office, 1928), p. 466.

³⁷² *Ibid.*, p. 469.

Board, to develop methods for successfully limiting the region's debilitating disease burden. Along with methods of disease control, the Public Health Service fostered networks of local support and political legitimacy. The propriety of federal intervention in public health efforts at the local level was endorsed by county governments throughout the region, both through the embrace of PHS expertise and through the allocation of local tax revenues. In 1927, when disaster struck, the Public Health Service proved itself impressively capable of responding and willing to seize the opportunity to cement the gains of the previous decade. During the 1930s, these gains would be further consolidated, and the diseases that had prompted outside intervention in southern public health would increasingly become a thing of the past.

CHAPTER 4

Depression, Drought, and Social Security

Drought overcame large swaths of the South during the spring of 1930. Concentrated in Arkansas, a state still reeling from the 1927 flood and hit hard by the onset of the Great Depression, the drought stretched across the Ohio River Valley and as far east as Virginia. The Department of Agriculture described it as the “worst drought ever recorded in this country.”³⁷³ Particularly in the lower Mississippi Valley, the drought had severe effects for farm families counting on a decent harvest to pay back the debts they had incurred both to survive and to plant the year’s cotton crop.

Over the course of the summer, Arkansas recorded only 35 percent of its average rainfall. Kentucky, meanwhile, recorded 43 percent, Mississippi 47 percent, Tennessee 50 percent, and Louisiana 56 percent. In Arkansas, the cotton harvest reached only 48 percent of the average yield.³⁷⁴ Yields were also diminished further west in Oklahoma, which had its smallest harvest since 1923, and in Texas, which produced its smallest crop since 1925.³⁷⁵

Following a substantial delay, during which President Herbert Hoover favored minimal federal intervention in the drought area and a reliance on the Red Cross, Congress began passing relief measures for the drought area. After passing legislation

³⁷³ Milton E. Eisenhower, ed. *United States Department of Agriculture, Yearbook of Agriculture 1931* (Washington, D.C.: Government Printing Office, 1931), p. 1.

³⁷⁴ Nan Elizabeth Woodruff, *As Rare as Rain: Federal Relief in the Great Southern Drought of 1930-31* (Urbana and Chicago: University of Illinois Press, 1985), p. 5.

³⁷⁵ Eisenhower, ed. *United States Department of Agriculture, Yearbook of Agriculture 1931*, p. 7. Despite the drought, 1930 crop, as a whole, was 14,486,000 bales, only slightly down from 14,828 the previous year. This relative stability resulted from a good cotton year in the southeast, where, the USDA reported, the severe winter and dry early summer had kept the boll weevil in check and from expanded cotton production in the western states of New Mexico, Arizona, and California.

authorizing loans for feed and seed to farmers in the drought area, Congress extended and expanded the Public Health Service's program for creating county health boards. The basis of this expansion was the precedent of federal intervention following the 1927 flood, widespread local support for federal public health measures, and the support of southern members of Congress. Local support and political legitimacy, generated at the county level throughout the South, became the bedrock of support from national-level politicians. Beginning in 1933, public health measures, supervised by the Public Health Service, were carried out by the public works agencies created under the auspices of the New Deal. In 1935, the PHS's federal-state-county cooperative program was included, on the basis of both precedent and the apparent importance of health for economic security, in the Social Security Act.

INITIAL FEDERAL RESPONSE TO THE 1930-31 DROUGHT

Discussions about the federal response to the southern drought quickly became inseparable from the emerging debate over the appropriate national government response to the Depression as a whole. President Herbert Hoover, well-regarded for his skillful management of the response to the 1927 flood as Secretary of Commerce and earlier famine relief work in Europe during and after World War I, was reluctant to mount a large-scale federal relief effort in drought area. Doing so, he worried, might lead the nation closer to embracing direct benefits such as unemployment relief from the national government for victims of the Depression.

In his December 1930 State of the Union Address, a year into the Depression, the President emphasized the importance of cooperation and volunteerism in confronting the crisis. "Economic depression," he told Congress and the nation, "cannot be cured by legislative action or executive pronouncement." Instead, he argued, "each community and each state should assume its full responsibilities for

organization of employment and relief of distress with that sturdiness and independence which built a great nation... The best contribution of government lies in encouragement of this voluntary cooperation in the community.” Briefly addressing the southern drought, Hoover endorsed federal loans to affected farmers for the purchase of seed for the next year’s crop and feed for animals. The Red Cross, he suggested, would prove capable of supplying food to individuals in the drought area without federal assistance.³⁷⁶

Secretary of Agriculture Arthur Hyde elaborated the thinking behind the administration’s support for animal feed loans and opposition to food aid. “There are a great many objections to the government making loans for human food,” he explained. “From a national point of view, this latter class of loans approaches perilously near the dole system and would be a move in the wrong direction.” Opposed to measures that the President believed might foster dependency, the administration nonetheless endorsed an increase in public works projects in the affected areas. Road projects, Secretary Hyde continued, had “been proposed with the object in view of giving the farmers an opportunity to find employment during the Winter and thus provide for themselves their food and clothing.”

Together, feed and seed loans, temporary public works projects, and the efforts of the American Red Cross would tide over farmers in the drought area. “Direct” relief was out of the question: “There is no more justification for the government to furnish food for farmers in the drought area,” Secretary Hyde maintained, acknowledging the implications of the drought for the wider depression, “than there would be in furnishing food to any other section of the United States or to any other class of our people who may be in distress... If we go beyond the established precedents of loans

³⁷⁶ *The Wall Street Journal*, (New York), “Cites Factors for Optimism: Chief Executive Says U.S., As Always, Will Lead Prosperity March,” December 3, 1930; *The New York Times*, “Full Text of President Hoover’s Message to Congress,” December 3, 1930.

for seed, feed for work animals and fertilizer, we are treading on dangerous ground from a national and governmental viewpoint, and in the long run will be doing great injury to the agricultural industry.”³⁷⁷

Members of Congress from the drought area had little cause to accept either the Hoover administration’s optimistic assessment of existing relief efforts or its insistence on federal restraint. Already by August of 1930, the Red Cross had documented severe food shortages in affected areas and an increased incidence of pellagra, particularly in eastern Arkansas and northern Mississippi. In Kentucky, fresh vegetables were “more scarce than in Winter. There is no water in the country, and most towns are curtailing the water supply, some to the extent that water is only turned on in the mains during certain hours during each day.” As a result of water shortages, typhoid was becoming prevalent in many communities.³⁷⁸

As the crisis wore on, cold weather, dwindling food and water supplies, and the accelerating collapse of the banking system fueled a growing sense of desperation.³⁷⁹ On January 3rd, the *New York Times* reported that “Five hundred or more farmers and their wives... stormed the business section” of England, Arkansas, “demanding food and threatening to forcibly seize it in [the] event it was not forthcoming.” More than three hundred people, the *Times* reported, were given food by frightened local merchants.³⁸⁰ The *Washington Post* described the England incident

³⁷⁷ *The New York Times*, “First Relief Bills Ready, But Walsh Hits Program, Hyde Warns Against Dole,” December 9, 1930.

³⁷⁸ *Ibid.*, “Disease Strikes in Several Places: Red Cross Reports Pellagra, Typhoid, and Other Maladies in South and West,” August 12, 1930.

³⁷⁹ Beginning in Louisville during November 1930, a severe liquidity crisis quickly spread through the Midwest and South. In December, New York’s Bank of the United States failed. See David M. Kennedy, *Freedom from Fear: The American People in Depression and War, 1929-1945*, ed. C. Vann Woodward, *The Oxford History of the United States* (New York: Oxford University Press, 1999), p. 66-67.

³⁸⁰ *The New York Times*, “500 Farmers Storm Arkansas Town Demanding Food for Their Children,” January 4, 1931.

in similarly disturbing terms: “The merchandise amounted to \$3 a person, most of them heads of large families and 90 per cent of them white. Many of them were armed. Weeping women were scattered through the crowd of grim-faced farmers.”³⁸¹

Though the details and severity of the England incident were quickly called into question by the administration, the specter of rural unrest drew the attention of Congress. Arkansas Senator Thaddeus Carraway responded to reports of the England riot by calling for \$15 million in federal food loans for the drought area. “There has got to be more relief. While the people are grateful for the Red Cross relief, it is wholly inadequate.” The problem, Carraway continued, went far beyond Arkansas: “The administration has not treated the suffering resulting from unemployment sympathetically, but I believe that when members of Congress return, after having learned of the conditions in their districts, there will not be any niggardly action by Congress.”³⁸²

Secretary of Agriculture Hyde, following a discussion with the chairman of the Red Cross, reasserted administration’s position that “the Red Cross has the funds and the ability and the organization to take care of the situation.”³⁸³ Meanwhile, press coverage of the situation in Arkansas emphasized the potential for violence. “Unless measures for the betterment of the situation are taken,” an England-area lawyer and plantation owner told a reporter from the Associated Press, “the merchants must either put their stocks in the street or mount machine guns before their stores.”³⁸⁴

From Arkansas, the *Times* reported that “many tenants are so ‘broke’ that they could not pay for the food and clothing advanced by the furnisher or planter, and their mules and tools are mortgaged. The share cropper made nothing last year, owes the

³⁸¹ *The Washington Post*, “Ample Relief at England Promised by Red Cross,” January 5, 1931.

³⁸² *The New York Times*, “Arkansas to Urge More Aid in Drought,” January 5, 1931.

³⁸³ *The Washington Post*, “Caraway Demands New Drought Help,” January 5, 1931.

³⁸⁴ *The New York Times*, “Farmers Quiet at England: But Arkansas Merchants Fear Further Demands for Food,” January 5, 1931.

planter for his food and clothing and must hope to work it out this year.” A prominent northeastern Arkansas banker was quoted as saying that “there would have been bloodshed here if the Red Cross had not intervened.” “Nutritional troubles,” the *Times* reported, “are numerous. Pellagra is common, and yeast is being used to avert some of these diseases.”³⁸⁵ According to another account, recipients of relief in the drought area walked “miles on foot to obtain food, and with their feet wrapped in sacks for lack of shoes.”³⁸⁶

Returning to Washington following their winter break, southern members of Congress pressed for a drought relief bill with a renewed sense of urgency. Disputes between the House and Senate, between representatives of urban and rural constituencies, and over the question of direct food aid, however, slowed passage of the relief plan.³⁸⁷ Though much of the Democratic caucus in the Senate supported a plan through which the federal government would donate funds to the Red Cross for food aid, Arkansas Senator and Democratic Minority Leader Joseph Robinson decided to temporarily postpone the push for food, backing instead a relief plan likely to secure the speedy backing of the Hoover administration and Senate Republicans.³⁸⁸ As a

³⁸⁵ Ibid., “Must Feed Arkansas For 3 Months More: Red Cross Finds Seed Loan Will Not Avert Famine Among Drought Sufferers,” January 31, 1931.

³⁸⁶ Ibid., “\$962,000 is Obtained For Drought Relief,” January 22, 1931. Writing in 1952, Herbert Hoover highlighted the importance of the drought in providing a rationale for congressional Democrats, aided by the sympathetic Idaho Republican William Borah, to press for direct federal relief. The Democrats, Hoover wrote, “saw great political grist in emotional appeals to presumed sympathy- or human greed.” Dismissing the England incident as an “alleged riot by ‘starving people,’” Hoover wrote that publicity over the episode “offered an opportunity to some Democratic members of Congress and to Senator [William] Borah. They gladly seized upon it.” See Herbert Hoover, *The Memoirs of Herbert Hoover: The Great Depression, 1929-1941* (New York: The MacMillan Company, 1952), p. 54-55.

³⁸⁷ See for instance *The New York Times*, “Drought Relief Bill Accepted by Senate, New Battle Looms,” January 15, 1931.

³⁸⁸ Senator Robinson and the President had discussed the general outlines of an acceptable relief bill in a November 30, 1930 meeting. See *The Washington Post*, “Democratic Leader and President Agree in Part on Aims,” December 1, 1930. *The New York Times*, “Hoover and Robinson Agree on Eve of Congress Session to Expedite Relief Bills,” December 1, 1930.

result, the legislation signed by President Hoover on January 15, 1931 consisted entirely of a loan program for feed and seed in the drought area.³⁸⁹

Congress, however, continued to consider additional relief proposals. Among them was a Robinson-sponsored bill, soon reported out of the Senate Agriculture Committee, authorizing \$3 million for “an emergency appropriation for special study of, and demonstration work in, rural sanitation.”³⁹⁰

FEDERAL INTERVENTION IN SOUTHERN PUBLIC HEALTH: LOCAL SUPPORT AND POLITICAL LEGITIMACY

Largely ignored by Congress during the years following World War I, the Public Health Service’s cooperative “rural sanitation” initiative had achieved a degree of national legitimacy following the Mississippi flood. Arguing for its enlargement as part of the federal response to the drought, the program’s proponents could now rely on evidence of its success in limiting disease, a broad base of local popular and political support, and, crucially, the example of 1927. As Dr. Arthur T. McCormack, Kentucky’s state health officer, explained to the Senate Agriculture Committee, the precedent for federal intervention in public health in the drought area was unambiguous: “This proposal is based upon the action taken during the Mississippi flood under the leadership of President Coolidge and Secretary of Commerce Hoover.”³⁹¹

³⁸⁹ *The New York Times*, “\$25,000,00 For Food Speeded in Senate, Drought Act Signed, January 16, 1931; *The Washington Post*, “Hoover Signs Drought Loan Appropriation,” January 16, 1931.

³⁹⁰ *Emergency Appropriation for Cooperation with State Health Departments in Rural Sanitation, Etc., Hearing before the Committee on Agriculture and Forestry, United States Senate, Seventy-First Congress, Third Session, on S. 5440, a Bill to Authorize an Emergency Appropriation for Special Study of, and Demonstration Work in, Rural Sanitation*. A detailed discussion of the debate over the drought relief program may be found in Woodruff, *As Rare as Rain*, p. 66-95.

³⁹¹ *Emergency Appropriation for Cooperation with State Health Departments in Rural Sanitation, Etc., Hearing before the Committee on Agriculture and Forestry, United States Senate, Seventy-First Congress, Third Session, on S. 5440, a Bill to Authorize an Emergency Appropriation for Special Study of, and Demonstration Work in, Rural Sanitation*, “Statement of Dr. A.T. McCormack,” p. 2. The apparent contrast between Hoover’s role during 1927 as Secretary of Commerce and his administration’s restrained approach to the 1930-1931 drought crisis was often referenced by the

Asked whether there was any local “opposition to Federal work of this kind,” Dr. McCormack replied that “There is the general opposition to Federal aid of any kind. But there is no specific opposition, and so great was the improvement in the situation following this other work [in the aftermath of the 1927 flood] that in no county in the flood area during this period has there been any opposition to this work by anybody.”³⁹²

As McCormack, Surgeon General Hugh Cumming, Assistant Surgeon General W.F. Draper, and Arkansas state health officer C.W. Garrison testified before the Senate Agriculture Committee, their descriptions of the Public Health Service’s actions in the South were met with knowing recognition. At one point, Arkansas Senator Thaddeus Caraway interrupted Assistant Surgeon General Draper to extol the virtues of the federal-state-county cooperative program. Praising the efforts of the Public Health Service following the 1927 flood, Senator Caraway declared that he was “so thoroughly persuaded that there is no work the Government does which pays such a dividend as this in the matter of public health, that I feel there could be no objection to it, because a strong healthy population is most important... It contributes more to the national welfare than otherwise could be contributed. I live in the valley of the Mississippi, and we know of what tremendous importance this is.”³⁹³

proponents of a more vigorous federal response. “If the President of the United States could be fully informed as to conditions,” Joseph Robinson said in a statement taking issue with the chairman of the Red Cross’s assertion that the agency could handle the situation in the drought area, “if the Secretary of Agriculture would do what President Hoover did as Secretary of Commerce in 1927- go in person to the regions, visit the homes of the people, confer with those familiar with conditions- we wouldn’t be disputing in the Senate and conflicts would not arise between the two houses of Congress as to what means are desirable for relief.” See *The New York Times*, “Robinson Pleads for Drought Area,” January 8, 1931.

³⁹² *Emergency Appropriation for Cooperation with State Health Departments in Rural Sanitation, Etc., Hearing before the Committee on Agriculture and Forestry, United States Senate, Seventy-First Congress, Third Session, on S. 5440, a Bill to Authorize an Emergency Appropriation for Special Study of, and Demonstration Work in, Rural Sanitation*, p. 6.

³⁹³ *Ibid.*, p. 16.

Kentucky Senator Ben Williamson told the committee that, in his own home county, the similar cooperative initiative of the Rockefeller Foundation's International Health Board had provided funding for the development of a county health board. The board, Williamson informed his fellow senators, had been a great success. Following an initial period of support from the Rockefeller Foundation, it had emerged fully independent, supported by local and state funds. In the aftermath of the flood, "our county health organizations were called on to go into this flood area, and they went in, and it was a wonderful thing to have had that."³⁹⁴

A large collection of letters, solicited by Dr. C.W. Garrison, Arkansas state health officer and head of the Conference of State Health Authorities of North America, further demonstrated the growing breadth of local support for the Public Health Service's cooperative program. In letter after letter, state and county officials testified to the urgency of the public health situation and need for federal support. James M. Smith, a county judge from Desha County, Arkansas, explained that his home county needed money to continue to pay for a health officer, nurse, sanitary inspector, vaccines and antitoxins for typhoid and diphtheria, and brewer's yeast, which was quickly becoming an established public health expenditure for the prevention of pellagra throughout the South.

The people of Desha County, Judge Smith wrote, "have begun to appreciate" the importance of the county's public health programs. "We feel sure that the death rate has been lowered considerably during the past three years." What advances had been made, Smith believed, were likely to be lost if the county's public health board was allowed to be discontinued: "During the next few months the undernourished condition of a great number of our people will make it almost imperative that every possible precaution be taken to prevent the spread of communicable diseases. Pellagra

³⁹⁴ Ibid., p. 17.

is already on the increase, and no one knows what could happen before the middle of next year. Insanity, said to be due largely from pellagra, is again on the increase.”

Evoking the long-established reasoning of the Rockefeller hookworm campaign and arguments of Public Health Service officers during the 1920s, Judge Smith drew attention to the economic significance of disease. “I feel reasonable sure,” he wrote, “that a continuation of the health program in this county would be worth \$3 for every dollar it might cost. Well and healthful people are not only able to earn more money and produce a great deal more crops, but there is a great saving in doctor bills, medicine bills, and funeral expenses.” “I cannot help but feel,” he continued, “that our own Senator Robinson, with the able assistance of our other Senator and Congressmen, will be able to convince the Congress that the physical welfare of our people is a matter of grave and paramount importance.”³⁹⁵

On February 6, 1931, in a show of confidence in the Public Health Service’s cooperative rural sanitation initiative, Congress appropriated an additional \$2 million for its operation in the drought-stricken areas. The existing appropriation for the 1931 fiscal year had been for only \$338,000.³⁹⁶ Acknowledging the weak economic condition of participating counties and states, the new authorization did not require local matching funds for “cooperative” projects.³⁹⁷ The Public Health Service quickly telegraphed officials from states in the drought area defined by the Department of Agriculture and, on February 10th, held a meeting in Memphis with representatives

³⁹⁵ Ibid., “Letter from James M. Smith to Dr. C.W. Garrison, dated December 28, 1930,” p. 165. In addition to being submitted and reprinted along with the other letters from local public health officials, Smith’s letter was read aloud by Dr. C.W. Garrison during his testimony.

³⁹⁶ Mead, *Public Health Bulletin No. 222: History of County Health Organizations in the United States, 1908-33*, p. 5.

³⁹⁷ *Annual Report of the Surgeon General of the Public Health Service for the Fiscal Year 1931*, (Washington, D.C.: Government Printing Office, 1932), p. 87-88.

from twenty states deemed affected.³⁹⁸ Some county health work funded by the new appropriation was underway as early as March 1931.³⁹⁹

When it came time to reauthorize the Public Health Service effort in the drought area a year later, the enthusiasm of many members of Congress for the program was palpable. Senators Alben Barkley of Kentucky and Josiah Bailey of North Carolina testified to the need for the continuation and expansion of the cooperative program, while Oregon Republican Charles McNary, chair of the Senate Agriculture Committee, wondered aloud whether the program should be extended into the Northwest. Questioning the Surgeon General, McNary asked whether it was “essential that something of this kind should be done elsewhere than originally planned, and if so, should it be nation-wide and embrace all of the states?” Somewhat hesitant, Dr. Cumming expressed his belief that the senators “need no longer attribute the need for the work to drought conditions alone.” Restrictions on the destination of the federal money previously earmarked for the drought area, he suggested, should be removed, “so that there may be more elasticity in our work with counties and states which for reasons other than drought need the work.”⁴⁰⁰

Pressed on his understanding of the proper role of the federal government in public health, Surgeon General Cumming attempted to articulate the ideas underlying the Public Health Service cooperative program: “We believe that very little good is accomplished if the Federal Government contributes everything and the States and counties do not contribute anything. We also have the belief, which is shared by the

³⁹⁸ *Demonstration Work in Rural Sanitation: Hearings before the Committee on Agriculture and Forestry, United States Senate, Seventy-Second Congress, First Session, on S. 1234, a Bill to Authorize an Emergency Appropriation for Special Study of and Demonstration Work in Rural Sanitation*, (Washington, D.C.: Government Printing Office, 1932), “Statements of Dr. Hugh S. Cumming and Dr. Clifford E. Waller,” p. 807.

³⁹⁹ *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1932*, (Washington, D.C.: Government Printing Office, 1932), p. 88.

⁴⁰⁰ *Demonstration Work in Rural Sanitation: Hearings before the Committee on Agriculture and Forestry, United States Senate, Seventy-Second Congress, First Session, on S. 1234, a Bill to Authorize an Emergency Appropriation for Special Study of and Demonstration Work in Rural Sanitation*, p. 808.

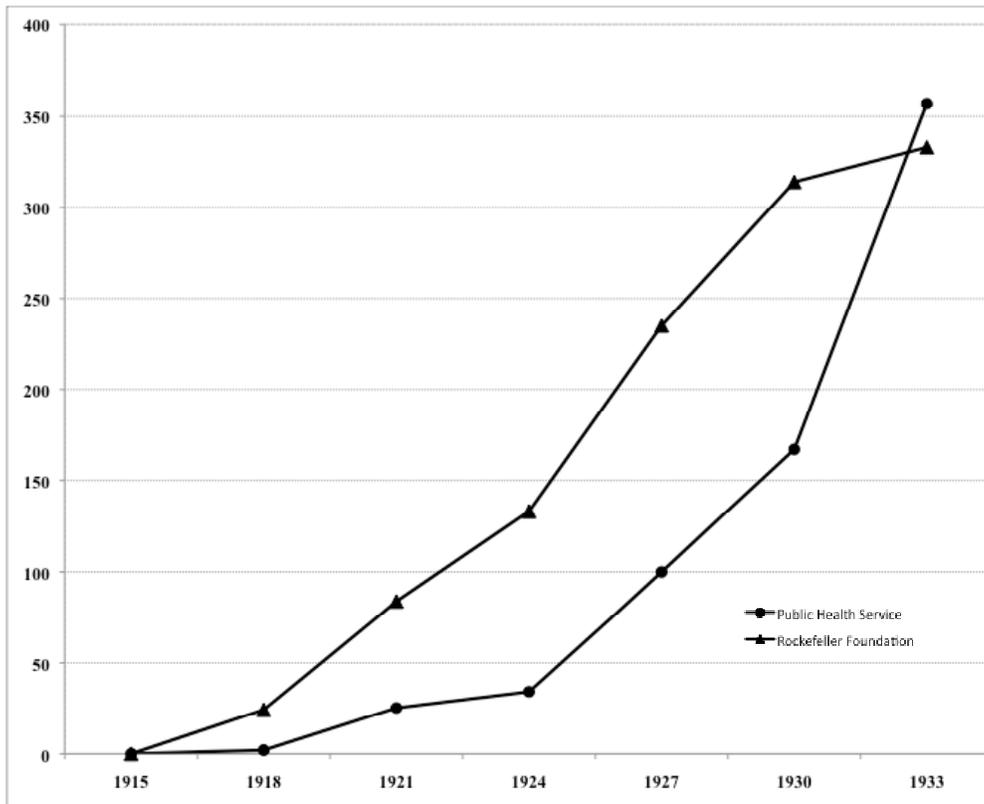


Figure 15. The Cumulative Number of Southern County Health Boards Receiving Assistance from the United States Public Health Service and the Rockefeller Foundation, 1915-1933. Source: Adapted from *Public Health Bulletin No. 222: History of County Health Organizations*.

Rockefeller Foundation, and we work along the same policy, that it is wise to attempt to go into a county and with this cooperation, build them up for a period of from three to five years, at which time it should be self-supporting. That is the general rule, but there are exceptions to every rule, and there are some parts of the country that will never be able to get taxes enough to carry on an efficient health department. As to them it is a great problem for the Federal Government to know what it shall do.⁴⁰¹

⁴⁰¹ Ibid., p. 819.

The confluence of war, natural disaster, and bureaucratic will had, by the early 1930s, drawn the federal government into increasingly close cooperation with southern state and county governments in pursuit of public health goals. By highlighting the precedent of 1927 and portraying federal intervention as a temporary measure, necessitated by the humanitarian disaster in the drought area, the proponents of federal-state-county cooperation in public health further consolidated the institutional gains made during the 1920s. Political legitimacy, generated by federal public health workers at the local level, had helped to persuade national-level politicians to support an increase in the Public Health Service's rural cooperative efforts. Still, neither the Congress nor the President had endorsed such efforts as a permanent goal of federal public policy. Within a few years, however, as the power of the federal government expanded in a number of fields, the issue of "health security" would be taken up in earnest by the authors of the Social Security Act.

THE NEW DEAL

The election of Franklin D. Roosevelt in 1932 made southern Democrats members of a winning presidential coalition for the first time since the reelection of Woodrow Wilson. In charge of the House of Representatives following the 1930 midterm elections, Democrats now also controlled the Senate. Wildly popular in the South, the new president appeared an adept negotiator of the cleavages between the northern and southern wings of his party. Well aware of the unemployment, poverty, and hunger that haunted the nation's cities, Roosevelt possessed a deep commitment, expressed time and again in his campaign against Herbert Hoover, to addressing the hardships that had plagued rural America beginning with the agricultural depression of 1921 and throughout the industrial boom of the 1920s.

The Agricultural Adjustment Act, signed into law in May 1933, was the centerpiece of the Roosevelt administration's plan to stabilize and hopefully reinvigorate American agriculture. The representatives of southern agricultural interests eagerly supported the bill. Since the fall of 1929, when cotton sold for between 16 and 18 cents per pound, its price had dropped to around six and a half cents.⁴⁰² The worldwide economic depression combined with ongoing competition from other cotton producers, such as India, to curtail the demand for American cotton. Meanwhile, the incentive structure for southern farmers continued to push them towards growing as much cotton as possible, bringing prices further downward. The Agricultural Adjustment Act aimed to halt American agriculture's self-defeating tendencies. "The sole aim and object of this act," AAA administrator George Peek explained, "is to raise farm prices... It is to enable [farmers] to do what all other producing social groups do, and that is... not to produce and send to market more goods than consumers at home and abroad want and have money to pay for."⁴⁰³

The ideas underlying the AAA were an outgrowth of attempts to develop a plan for limiting overproduction or restoring "parity" between agriculture and industry during the 1920s.⁴⁰⁴ The Act's core principle was straightforward: by inducing farmers to limit the size of their crops, the AAA would raise the prices of depressed commodities. In the South, farmers would be given the option of taking either a cash payment, based on expected yield, to release cotton acreage from production, or a smaller cash payment combined with an option to purchase government-owned cotton

⁴⁰² Wright, *Old South, New South: Revolutions in the Southern Economy since the Civil War*, p. 227; Eisenhower, ed. *United States Department of Agriculture, Yearbook of Agriculture 1931*, p. 11.

⁴⁰³ *The Wall Street Journal*, "Peek Stresses Aim of Farm Relief Act," May 17, 1933.

⁴⁰⁴ John Mark Hanson, *Gaining Access: Congress and the Farm Lobby, 1919-1981* (Chicago: The University of Chicago Press, 1991), p. 79; Arthur M. Schlesinger Jr., *The Crisis of the Old Order, 1919-1933*, vol. I, *The Age of Roosevelt* (Boston and New York: Mariner Books, 2003), p. 106-10. The McNary-Haugen Bill, which proposed, as part of a protectionist plan for increasing domestic farm commodity prices, federally-administered export of the nation's surplus crops, was the most prominent such proposal during the 1920s. The bill was based on a plan designed in part by the AAA's new administrator, George Peek.

“at six cents a pound in amounts equaling their crop reduction.”⁴⁰⁵ Since the new growing season was already underway when the AAA was signed into law, much of the crop already planted had to be uprooted. By the end of August 1933, the Department of Agriculture could report that over 10,000,000 acres of cotton had been destroyed.⁴⁰⁶ Previously languishing at 6½ cents, cotton prices rose to just over ten cents a pound.⁴⁰⁷

The Agricultural Adjustment Administration operated a broadly similar program for reducing the South’s yield of tobacco, which had undergone a price collapse mirroring that of cotton. Together, these programs set in motion fundamental shifts in the southern political economy. In addition to bringing an end to regional overproduction, they laid the groundwork for the ultimate demise of the system of tenancy and sharecropping that had dominated the region since Reconstruction. By reducing the size of the cotton crop, the Agricultural Adjustment Act set in motion a process that, in the long run, almost guaranteed the displacement of the families that grew it. For the time being, however, southern agriculture remained unmechanized, guaranteeing a strong demand for workers to pick cotton at the end of the growing season and limiting the ability of landowners to get rid of tenants. The federal relief agencies helped to ensure the availability of this labor supply, regularly releasing workers from the relief rolls in order to provide landowners with labor at harvest time.⁴⁰⁸

⁴⁰⁵ *The New York Times*, “Wallace Outlines Cotton Crop Slash: Cut of 25% Will Be Made in 1933 Acreage if Enough Growers Agree,” June 20, 33; Wright, *Old South, New South: Revolutions in the Southern Economy since the Civil War*, 227.

⁴⁰⁶ *The Washington Post*, “Pledge to Plow Cotton Under Being Observed: U.S. Aids to Destroy Part of Crops if Farmers Fail to Do So,” August 26, 1933; *The New York Times*, “King Cotton’s New Adventure,” August 27, 1933.

⁴⁰⁷ Wright, *Old South, New South: Revolutions in the Southern Economy since the Civil War*, p. 227.

⁴⁰⁸ See *Ibid.*, p. 235; Bruce J. Schulman, *From Cotton Belt to Sunbelt: Federal Policy, Economic Development, and the Transformation of the South, 1938-1980* (New York: Oxford University Press, 1991), p. 31.

Already growing in stature as a result of its response to the 1927 flood and the 1930-31 drought, the Public Health Service's efforts at building local public health infrastructure were further strengthened by the Roosevelt administration's expanded vision of the role of the federal government. In October 1933, the creation of the Civil Works Administration, a short-lived public works program, quickly directed the energy of thousands of out-of-work southerners towards public health efforts in the region. Asked to suggest efforts in which Civil Works Administration workers "might be profitably employed," the Public Health Service proposed a malaria-control drainage program, a large-scale privy building campaign, surveys of typhus fever, and an effort to seal abandoned coal mines. Employing funds channeled through the states by the Civil Works Administration, the anti-malaria effort had at its disposal, as it began, approximately \$4.5 million to devote to labor costs. The directors of the privy building project controlled around \$5 million in funds for paying CWA laborers.⁴⁰⁹

Between December 1933 and February 1934, when the Civil Works Administration was discontinued, the agency spent a little less than half of the money set aside for anti-malaria and privy-building efforts. At one point, during January 1934, the Public Health Service estimated that "the number at work on malaria drainage... was over 130,000 laborers," though the average for the period between December and March was likely around 64,000 workers.⁴¹⁰ By March, the Public Health Service had recorded the construction of more than 200,000 privies and

⁴⁰⁹ *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1934*, (Washington, D.C.: Government Printing Office, 1935), p. 58.

⁴¹⁰ *Ibid.*, p. 59. The 64,000 worker estimate is from Louis L. Williams, "Civil Works Administration Emergency Relief Administration Malaria Control Program in the South," *American Journal of Public Health* 25, no. 1 (1935): p. 59. In Mississippi, the State Board of Health reported that 4,665 acres were drained by the CWA between December 1933 and March 1934. An additional 3,483 acres were reported drained under FERA between April 1934 and June 1935. See *Report of the Board of Health of the State of Mississippi*, Twenty-Ninth Biennial Report, July 1, 1933- June 30, 35. The Alabama State Board of Health, meanwhile, estimated that a total of 28,863 acres had been drained by CWA drainage projects. According to the Board, a total of 650 drainage projects were completed in 65 counties. See *Annual Report of the State Board of Health of Alabama*, 1934, p. 21, 147.

estimated that CWA workers had “constructed or partially completed” an additional 25,000 more.⁴¹¹

Ultimately of more importance, cooperation between the Civil Works Administration and the Public Health Service proved only the beginning of the relationship between the Public Health Service and the new federal public works agencies. The Federal Emergency Relief Agency, which had overseen the CWA, soon opted to continue backing the Public Health Service-directed anti-malaria and privy-building projects.⁴¹² At the same time, FERA took on the responsibility for funding the Public Health Service’s county health program, which had appeared briefly to be in danger as the drought appropriation expired and the Depression made it increasingly difficult for county governments to provide funding to support the effort.⁴¹³

INSTITUTIONALIZATION: PUBLIC HEALTH AND THE SOCIAL SECURITY ACT

Already by the end of 1934, steps were being taken that would guarantee the permanence of the Public Health Service’s county health initiative as well as the expansion of its scope and influence into a set of institutions and programs that, in time, helped make the federal government the principle force in the direction of public health policy throughout the nation.⁴¹⁴ Charged with investigating “problems relating to the economic security of individuals,” the presidentially-appointed Committee on

⁴¹¹ *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1934*, p. 60. For a description of CWA activities in Louisiana, including photos of drainage projects and diagrams of privies, see Virgil L. Mitchell, *The Civil Works Administration in Louisiana: A Study in New Deal Relief, 1933-1934*, ed. Glenn R. Conrad, The University of Southwestern Louisiana History Series (Lafayette, LA 1976).

⁴¹² *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1934*, p. 68.

⁴¹³ *Ibid.*, p. 67-68.

⁴¹⁴ See William Shonick, *Government and Health Services: Government's Role in the Development of U.S. Health Services, 1930-1980* (New York: Oxford University Press, 1995), p. 81.

Economic Security drew up the proposals that would become the Social Security Act of 1935.⁴¹⁵ Dr. Edgar Sydenstricker, Joseph Goldberger's collaborator in the investigation of pellagra in South Carolina mill villages during the 1910s, was placed, along with Dr. Isidore Falk, in charge of the study of "risks to economic security arising out of ill health."⁴¹⁶ Initially envisioning the role of their subcommittee to be the development of ideas about how a national health insurance plan might work, Sydenstricker and Falk quickly broadened their focus. Personally an advocate of a national system of insurance, Sydenstricker was forced to acknowledge that significant barriers, particularly the opposition of many physicians and the American Medical Association, stood in the way of any insurance legislation. Even the Committee on Economic Security's health subcommittee appeared irreconcilably divided over the insurance issue.⁴¹⁷

Nonetheless, Sydenstricker recognized that there were other, less controversial, ways that the emerging Social Security Act could positively benefit the nation's health. The health advisory committee included physicians with intimate knowledge of the Public Health Service's rural county cooperative program. Dr. Allen Freeman, now a professor of public health at Johns Hopkins, had directed Virginia's hookworm campaign during the 1910s and, as Ohio's state health officer, had urged his fellow state officers to support the failed Lever Rural Health Bill in 1919.⁴¹⁸ Dr. Felix

⁴¹⁵ Edwin E. Witte, *The Development of the Social Security Act: A Memorandum on the History of the Committee on Economic Security and Drafting and Legislative History of the Social Security Act* (Madison: The University of Wisconsin Press, 1962), "Appendix I: Executive Order Establishing the Committee on Economic Security and the Advisory Council of Economic Security," p. 201-02.

⁴¹⁶ "Public Health in the Program for Economic Security," *The Milbank Fund Quarterly* 13, no. 2 (1935): p. 149; Witte, *Development of the Social Security Act*, p. 172.

⁴¹⁷ Edgar Sydenstricker, "Public Health Provisions of the Social Security Act," *Law and Contemporary Problems* 3, no. 2 (1936): p. 264-65.

⁴¹⁸ See *Economic Security Act: Hearings before the Committee on Ways and Means, House of Representatives, Seventy-Fourth Congress, First Session, on H.R. 4120, a Bill to Alleviate the Hazards of Old Age, Unemployment, Illness, and Dependency, to Establish a Social Insurance Board in the Department of Labor, to Raise Revenue, and for Other Purposes*, (Washington, D.C.: Government Printing Office, 1935), p. 505.

Underwood, Executive Director of the Mississippi State Board of Health since 1924, was a firm advocate of the Public Health Service's efforts in his state and respected public health voice in the region as a whole.⁴¹⁹

"It was not long," Sydenstricker wrote, "before the technical staff to which the subject of health was specifically assigned realized that health insurance was only one method by which certain risks to economic security might be lessened."⁴²⁰ For the members of Sydenstricker and Falk's health advisory subcommittee, an expansion of the Public Health Service's program of stimulating the development of county health departments appeared to make both practical and political sense. Ongoing since World War I, federal-state-local cooperation had a deep well of local support and longstanding record of success. Rather than provoking opposition, it seemed likely that an expansion would help to ease political tensions over the massive expansion of federal power being contemplated by the Committee on Economic Security.

Within the health advisory subcommittee itself, the proposed expansion of the county cooperative program swiftly gained the support of both proponents and opponents of national health insurance. Edwin Witte, the Committee on Economic Security's Chairman, noted that "Some members believed that much more good could be accomplished through an extension of public health work and public medical services than through health insurance." At the same time, "a somewhat larger group,

⁴¹⁹ In keeping with the long-standing tradition of public health workers to compare the concern of governments with the health of people to that of their concern for livestock, Dr. Underwood later told the Senate Finance committee, as it considered the legislation that became the Social Security Act, that "Congress was very wise in making many investments that have been made- prevention of scabies in sheep and screwworm control in cattle, cholera in hogs; yet I feel that while Congress is protecting the citizens' livestock, the citizen himself and his family certainly should have equal protection- I think better protection." See *Economic Security Act: Hearings before the Committee on Finance, United States Senate, Seventy-Fourth Congress, First Session, on S. 1130, a Bill to Alleviate the Hazards of Old Age, Unemployment, Illness, and Dependency, to Establish a Social Insurance Board in the Department of Labor, to Raise Revenue, and for Other Purposes*, (Washington, D.C.: Government Printing Office, 1935), p. 415; Lucie Robertson Bridgforth, "The Politics of Public Health Reform: Felix J. Underwood and the Mississippi State Board of Health, 1924-58," *The Public Historian* 6, no. 3 (1984).

⁴²⁰ Sydenstricker, "Public Health Provisions of the Social Security Act," p. 263.

who were strongly opposed to health insurance, looked upon increased appropriations for public health work as a means of killing the proposal for health insurance.”⁴²¹

The Committee on Economic Security’s report, containing the proposals of Sydenstricker and Falk’s health subcommittee, was issued in January 1935. Endorsing a substantial expansion of the Public Health Service’s federal-state-county cooperative program, the report explained that there were “well-established precedents for Federal aid for State health administration and for local public facilities, and for the loan of technical personnel to States and localities. What we recommend involves no departure from previous practices, but an extension of policies that have long been followed and are of proven worth.” The ideal outcome was stated clearly: “What is contemplated is a nation-wide public health program, financially and technically aided by the Federal Government, but supported and administered by the State and local health departments.”⁴²²

Eventually codified as Title VI of the Social Security Act, the expanded cooperative program “was drafted to suit the wishes of the United States Public Health Service.”⁴²³ As Committee on Economic Security director Edwin Witte explained, the “authorized appropriations for public health work... were throughout the congressional consideration of this measure a source of strength for the bill.” In line with the geographical origins of federal involvement in the development of local public health capacity, Title VI was aimed in large part at addressing the health needs of the South. “The aids provided in this title,” Witte wrote, “were understood to be

⁴²¹ Witte, *Development of the Social Security Act*, p. 172-73. Witte’s comments are contained in a footnote.

⁴²² *The Report of the Committee on Economic Security of 1935 and Other Basic Documents Relating to the Development of the Social Security Act*, 50th Anniversary ed. (Washington, D.C.: National Conference on Social Welfare, 1985), p. 40-41.

⁴²³ ———, *Development of the Social Security Act*, p. 173.

primarily for states in which public health work had been backward, due largely to state poverty. These were particularly the southern states, and the heads of the state departments of health in nearly all these states appeared before the congressional committees to endorse this part of the bill.”⁴²⁴

During the congressional hearings, Title VI was routinely characterized as an unobjectionable extension of existing federal activities. “This program,” Assistant Surgeon General C.E. Waller told the House Ways and Means Committee, “will not set up new activities in the Public Health Service. It will simply enable us to extend cooperative activities with the States that we have carried on for a number of years.”⁴²⁵

Similarly, Surgeon General Hugh Cumming informed the Senate Finance Committee that the proposal was “treading no new ground; it is an extension of an attempt on the part of the Federal Government many years ago which has been eminently successful. It is not a problematical thing.”⁴²⁶ Kentucky Congressman Fred Vinson, describing his personal experience of the Public Health Service’s cooperative activities, remarked that “they carry this preventive medicine into the roots of our rural society and, to my mind, it is the most splendid work that the Federal Government participates in.”⁴²⁷

The active support and professional prestige of southern public health workers helped to solidify the support of southern members of Congress. Southern state health officers, Edwin Witte wrote, “gave very strong testimony regarding the need for

⁴²⁴ Ibid., p. 171.

⁴²⁵ *Economic Security Act: Hearings before the Committee on Ways and Means, House of Representatives*, p. 318.

⁴²⁶ *Economic Security Act: Hearings before the Committee on Finance, United States Senate*, p. 408. Cumming’s testimony followed that of Assistant Secretary of the Treasury Josephine Roche, who had explained that the emerging Social Security Act’s public health title would involve “no new procedure or plan. It provides merely for progress along lines thoroughly tested and proved of great value in conserving human life and health.” See *Economic Security Act: Hearings before the Committee on Finance, United States Senate*, p. 374.

⁴²⁷ *Economic Security Act: Hearings before the Committee on Ways and Means, House of Representatives*, p. 316.

additional public health work in the South and these arguments strongly appealed to members of Congress from this section, many of whom were very influential in the two committees considering this legislation.”⁴²⁸

Passed into law as part of the Social Security Act on August 14, 1935, the new legislation authorized an ongoing appropriation of \$8 million for “the purpose of assisting States, counties, health districts, and other political subdivisions of the States in establishing and maintaining adequate public-health services.” The new authorization also allowed for this funding to be used for “the training of personnel for State and local health work.” Money for the development of public health infrastructure, which was placed under the administrative control of the Public Health Service, would be appropriated on the basis of population, “special health problems,” and the “financial needs” of the states.⁴²⁹ Title VI, Edwin Witte remarked, vested “broader discretionary power in the United States Public Health Service than is conferred upon any federal agency in any other title.”⁴³⁰

In the aftermath of the Social Security Act, the bureaucratic model of public health, centered around the county health board and backed by the federal government, was consolidated throughout the South. In 1936, as the federal government further expanded its role, the Rockefeller Foundation, central in the development of public health infrastructure since 1910, effectively pulled out of the region.⁴³¹ Its contribution, nonetheless, had been invaluable: employing methods

⁴²⁸ Witte, *Development of the Social Security Act*, p. 171-72.

⁴²⁹ *Report of the Committee on Economic Security*, p. 91.

⁴³⁰ ———, *Development of the Social Security Act*, p. 173.

⁴³¹ *The Rockefeller Foundation International Health Division, Annual Report, 1935*, (New York), p. 166-67. The Rockefeller Foundation had initially decided to cease its county health efforts in the South after FERA put \$1 million towards the Public Health’s Service’s effort near the end of 1934, covering the PHS’s work through June of 1935. At that point, “It had been anticipated that funds under the social security legislation would become available on July 1 for the continuance of this aid.” The Social Security appropriation, however, did not become available until February 1936. In the interim, the Rockefeller Foundation continued to provide funding for county health units.

developed by the Rockefeller International Health Board and the United States Public Health Service beginning in the 1910s, county health boards would provide the foundation for the permanent transformation of the disease environment in the southern United States. Adopting the model of the Rockefeller Foundation, the Public Health Service's federal-state-county cooperative initiative emerged from World War I under the leadership of Leslie Lumsden, expanded and gained national legitimacy following the 1927 flood and 1930-1931 drought, and finally was made, with the support of its southern constituency, the institutional bedrock of a new federal commitment to the health of individual citizens and communities throughout the nation.

CHAPTER 5

“The Religion of Mankind’s Future”

By 1937, as Franklin Roosevelt began his second term, the impact of New Deal public works projects and the Public Health Service’s attempts to build local public health infrastructure in the South was increasingly evident. Operating from a base of knowledge, practical experience, and institutional support developed beginning in the 1910s, public health workers achieved dramatic gains within an impressively short period of time. These gains were reinforced and cemented by the permanence, now guaranteed by the federal government, of state and local public health infrastructure. Over the course of the 1930s, the mortality rate for both pellagra and malaria dropped dramatically, never to increase again.

As the health status of the South made significant gains, the inconsistent ideological inclinations of the constituencies comprising the New Deal coalition became more and more apparent. President Roosevelt’s attempt to alter the composition of the Supreme Court in 1937 created an opening for southern Democrats wary of the expanding role of the federal government to openly criticize the President; later, his attempts to influence southern Democratic primary elections in 1938 both highlighted and exacerbated intra-party tensions. The emergence of the “conservative coalition” during Roosevelt’s second term highlighted the growing disconnect between southern dependence on federal aid and the historical concern of the South’s political leaders with states’ rights and local autonomy.

THE DECLINE OF HOOKWORM

Still an important problem, Hookworm was already greatly diminished in prevalence as a result of the efforts of the Rockefeller Sanitary Commission and the focus of southern county health departments on encouraging privy construction and shoe-wearing. As the disease receded, southern public health workers had turned increasingly towards attempting to deal with the threats posed by pellagra and malaria. Already in 1927, the Rockefeller International Health Board concluded, much to the dismay of hookworm discoverer Charles Wardell Stiles, that “At the present time it is fair to say that hookworm disease has almost disappeared from the United States.”⁴³²

When publicized, Stiles later wrote, this announcement “had the effect of still further decreasing the school interest in hookworm disease and, very unfortunately, in inducing many mothers to refuse to accept the diagnosis by physicians and consequently to decline to permit the children to be treated.” Nonetheless, Stiles believed, “very few” southern physicians southern “had taken the announcement in question seriously.”⁴³³ Now, in the face of federally-funded public works efforts to provide adequate privies for the South, hookworm retreated further to the periphery of southern society, persisting only lightly and in a few isolated pockets.⁴³⁴

THE DECLINE OF PELLAGRA

Despite the unfavorable economic conditions, pellagra incidence declined throughout the 1930s. In retrospect, it was clear that the 1927 Mississippi flood was a crucial turning point. In 1938, science writer Paul DeKruif, who had interviewed Joseph Goldberger following the flood, wrote that the response to the disaster “was the

⁴³² *The New York Times*, “Hookworm Menace Ended, Says Board,” August 22, 1927; Stiles, “Early History,” p. 305.

⁴³³ Stiles, “Early History,” p. 305.

⁴³⁴ See *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1936*, (Washington, D.C.: Government Printing Office, 1936), p. 72-75.

Table 13. Privies Installed under Civilian Works Administration, Emergency Relief Administration, and Works Progress Administration Programs, December 1933 through June 1937.

	No. of Privies
Alabama	8,251
Arkansas	63,341
Florida	13,195
Georgia	35,400
Kentucky	47,189
Louisiana	52,885
Mississippi	64,844
North Carolina	108,060
Oklahoma	83,620
South Carolina	76,624
Tennessee	106,630
Texas	90,817
Virginia	96,970

Source: Surgeon General’s *Annual Report for the Fiscal Year 1937*, p. 33-34.

first field test, under practical conditions, under the worst possible scientific surroundings,” of Goldberger’s finding that brewer’s yeast would cure pellagra. Following the flood, public health workers “began their sowing of the seeds of knowledge of this dirt-cheap science. It was the deepest down-to-the grass-roots mass sowing because only the lowest of the human mass was threatened.” “Yes,” De Kruif concluded, echoing the barely concealed enthusiasm of Public Health Service officers a decade before, “the flood was a good disaster.”⁴³⁵

Goldberger’s discovery that brewer’s yeast would prevent and cure pellagra meant that the disease could be confronted head on even in the context of the Depression. Knowledge of the cure could be spread through the growing system of county health departments. Since yeast was a commercially distributed product, there were also incentives for private companies, such as Fleischmann’s, to advertise its

⁴³⁵ Paul DeKruif, *The Fight for Life* (New York: Harcourt, Brace and Company, 1938), p. 16-17.

<p>Apples DOZEN 39c FLORIDA—JUICY, THIN SKIN</p> <p>Grapefruit EACH 5c FRESH TEXAS</p> <p>Spinach LB. 6c LARGE BUNCHES—FRESH</p> <p>Carrots BUNCH 6c FLORIDA—JUMBO STALK</p> <p>Celery STALK 9c No. 1 Green Mountain</p> <p>Potatoes 5 LBS. 13c</p>	<p>ROAST POUND 21c Sliced, Sugar-cured, Breakfast</p> <p>BACON POUND 29c Fresh</p> <p>SPARERIBS LB. 21c</p> <div style="border: 1px solid black; padding: 5px;"> <p><i>For Pellagra Treatment and Prevention</i></p> <p>FLEISCHMANN'S PURE DRY YEAST 1/4 OZ. CARTON 25c</p> <p><i>Dry Yeast is recommended by U. S. Public Health Authorities for the treatment and prevention of pellagra, and is obtainable at any A&P Store ON SPECIAL ORDER.</i></p> </div>
<p>Corn Meal 17c</p> <p>Corn Meal 33c</p> <p>Corn Meal 5 13c</p> <p>Grits 5 13c</p> <p>Spread 15c</p> <p>Chipso 2 15c</p> <p>Polish 19c</p>	<p>LAUNDRY SOAP</p> <p>OCTAGON</p> <p>3 SMALL BARS 10c</p>
	<p>PILLSBURY'S</p> <p>PANCAKE</p> <p>FLOUR</p>

Figure 16. A&P grocery advertisement emphasizing the Pellagra-Preventative qualities of yeast, 1931. Source: *Atlanta Constitution*, January 3, 1931.

health benefits. The spread of knowledge about the pellagra-preventative qualities of yeast was complimented by the changing face of the southern countryside: reduction of the cotton crop following the Agricultural Adjustment Act meant that families could begin to grow small gardens. The confluence of brewer's yeast, county health departments, and new opportunities to plant vegetables signaled the onset of pellagra's retreat.

Following up on his earlier writings on Goldberger's pellagra research, DeKruif traveled to Sunflower County, Mississippi in May 1937 with officers from the Public Health Service. With financial support from the Red Cross and the help of community groups, the PHS officers hoped to identify pellagra victims in a select group of Mississippi Delta counties. Within these model counties, the Public Health Service planned to wholly eliminate the disease by administering brewer's yeast and persuading residents to grow their own gardens.

Aware of the rapid decline of pellagra over the course of the preceding decade, DeKruif was nonetheless shocked by what he saw in Sunflower County. The county, he wrote, was "supposed the blackest pellagra spot remaining in Mississippi. This was where over thirteen hundred had been found pellagrous in 1931, and though the sickness had been since that on the downgrade, yet the number suffering in 1935 was formidable." By the time of DeKruif's visit in 1937, however, pellagra had nearly vanished. The disease "had become so no-account that it was not mentioned as a public health menace in County Health Officer Hugh Cottrell's report for 1936."⁴³⁶

The residents of Sunflower County, DeKruif found, were well-informed of both the menace of pellagra and proper methods of warding off the disease: "Did the Negro sharecroppers know about pellagra? Oh, yas, suh, we know pellagracy. Did they know about yeast? In leaky cabin after ramshackle shanty the dark people, mammies, aunties, told how 'east was mighty good for the pellagracy.'" In addition to consuming tablespoons of yeast mixed with water, it appeared that sharecroppers throughout the county were now growing vegetables in home gardens. Ten years before, Joseph Goldberger had noted that southern landowners, insisting that as much land as possible be dedicated to cotton, often prohibited tenants from planting gardens.

⁴³⁶ Ibid., p. 25.

Now, DeKruif wrote, “It was astounding to find so few cabins without their fenced-in patch of green. Here was Aunt Lyra, in her garden patch on a big plantation near Indianola. Yas, suh, she’d had the pellagracy. Not no more.”⁴³⁷

Having spent the day driving throughout Sunflower County looking for victims of pellagra, DeKruif and the Public Health Service officers found only one case, that of a white tenant farmer. Mississippi State Epidemiologist H.C. Ricks, Sunflower County Health Officer Hugh Cotrell, and a local public health nurse each offered DeKruif a similar explanation for pellagra’s decline, which was seconded by local planters and black sharecroppers: “pellagra was bad business, in the literal sense of the word business.” In blunt language that captured much of the reasoning long employed by public health workers in the South, Dr. Ricks explained to DeKruif that white landowners would cooperate with anti-pellagra efforts “because your planter wants his nigger to work.”⁴³⁸

The changes observed by DeKruif had an unmistakable institutional basis. Prior to 1927, Sunflower County had had no full-time county health department. The Rockefeller Sanitary Commission recorded treatment of only twenty-eight cases of hookworm between 1910 and 1914 in the lightly infected county, which also fell outside the jurisdiction of the Public Health Service’s efforts in the wartime extra-cantonment zones.⁴³⁹ Beset by both pellagra and malaria in average years, the county was hit hard by the 1927 Mississippi flood.⁴⁴⁰ A full-time county health department

⁴³⁷ Ibid., p. 25-26.

⁴³⁸ Ibid., p. 27.

⁴³⁹ Out of 1,858 school children survey by the Rockefeller Sanitary Commission in Sunflower County, only 27, or 1.45%, were found to be infected. RSC records show that a total of 28 people were treated for the disease. See *The Rockefeller Sanitary Commission for the Eradication of Hookworm, Fifth Annual Report*, p. 70, 72.

⁴⁴⁰ Public Health Service officer Kenneth Maxcy’s 1923 study of malaria incidence found that Sunflower County averaged a mortality rate of 10.9 per 10,000 population in 1919-1921, indicating a

was created in July 1927 as emergency funds from the Public Health Service and the Rockefeller Foundation became available. By the end of the year, the Public Health Service had spent \$2,063 in the county and the Rockefeller Foundation \$987. Meanwhile, the state government contributed \$1,375 and the county government allocated an impressive \$1,825. By 1933, in the depths of the Depression, the health department's annual budget stood at \$10,480.⁴⁴¹

DeKruif was impressed by the health department's efforts at community outreach. At a black church in Inverness, Mississippi, he observed a health clinic put on by County Health Officer Hugh Cottrell and the department's public health nurses. The mothers and children present, he wrote, were "participants in a service that was- to this reporter- prophetic of the religion of mankind's future." The children were given diphtheria antitoxin and vaccinations for smallpox and typhoid, while the mothers were instructed in "how to care for themselves before their babies came" and "the latest in the science of the feeding of their children, in little words that all could understand."

From DeKruif's perspective, "there was something the opposite of condescending or paternalistic in the atmosphere of that church clinic." Instead, he asserted that "Cottrell and his nurses, white people, highly educated, were exactly like older brothers and sisters teaching the great power of science- not the book knowledge of it but the actual use of it- to these childlike dark mothers." White scientific expertise, in the form of practical public health measures, represented a gateway to racial uplift and modernity: "it was plain that these present descendents of a people,

particularly severe malaria problem. See Maxcy, "The Distribution of Malaria in the United States as Indicated by Mortality Reports," p. 1129.

⁴⁴¹ Mead, *Public Health Bulletin No. 222: History of County Health Organizations in the United States, 1908-33*, p. 272. The county's health budget ranged from an initial point of \$6,250 in 1927 to a high of \$25,500 in 1931.

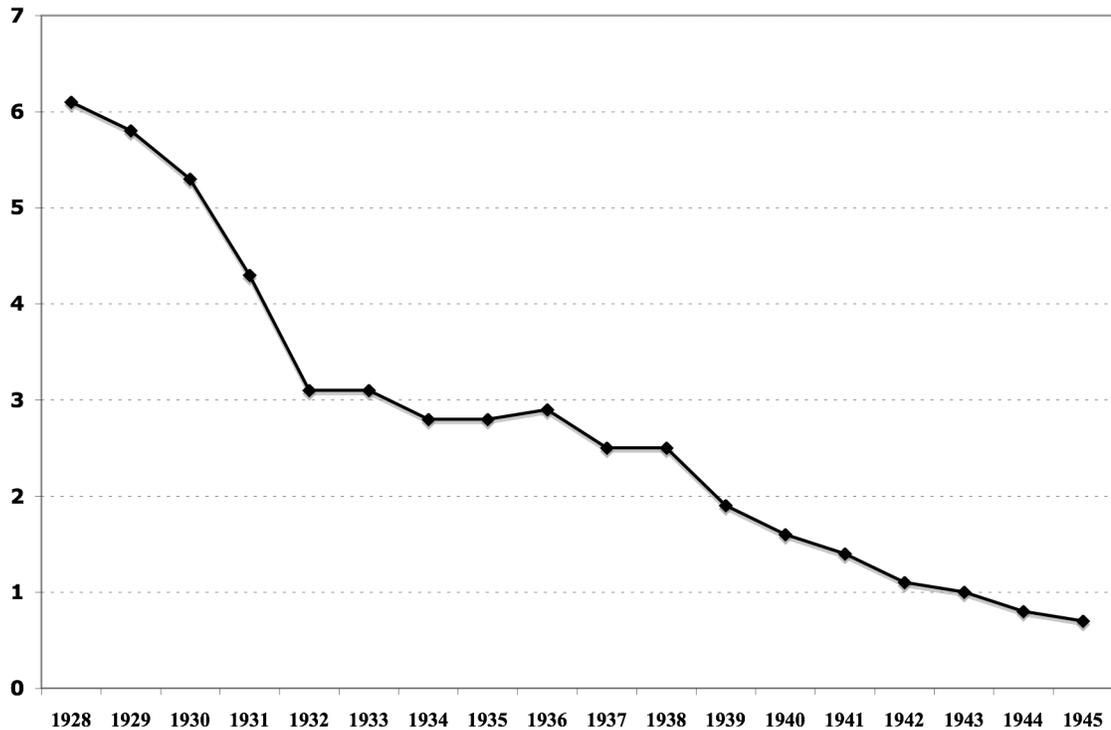


Figure 17. Pellagra Deaths per 100,000 Estimated Population (Entire United States). Source: Census Bureau, *Annual Mortality Statistics*, 1928-1936; Census Bureau and Public Health Service, *Vital Statistics*, 1937-1945.

benighted and savage two hundred years ago, were now beginning to understand this new magic, and to depend upon its life-giving power.”⁴⁴²

THE DECLINE OF MALARIA

Still an unwelcome presence in many southerners’ lives, malaria, like pellagra, was also falling victim to increasingly effective public health efforts. Under attack throughout the 1920s, the disease had entered a decline after 1933 from which it would never recover. Mortality statistics, the only reliable evidence of malaria rates during the 1930s, are an imperfect means of gauging the extent of malaria’s effect on

⁴⁴² DeKruif, *Fight for Life*, p. 27-28.

southern society, which, like pellagra, came largely in the form of sickness rather than death. Nonetheless, the decline in the death rate helps to illustrate the broader decline in malaria incidence: from 3.7 deaths per 100,000 Americans in 1933, the malaria mortality rate fell to 2.1 per 100,000 in 1937. By 1940, the rate had fallen to 1.1⁴⁴³ Given the context, the rate of decline is striking: malaria is a disease of poverty, and the rural South was hit hard by the Depression. The economic dislocation that affected many rural tenants in the aftermath of the Agricultural Adjustment Act, meanwhile, might reasonably have been expected to increase the prevalence of malaria in the region.⁴⁴⁴

The decrease in malaria incidence during the 1930s is largely attributable to the efforts of the federal public works agencies, supervised by Public Health Service officers, and the expansion of anti-malaria efforts centered in county health boards. By the end of June 1937, relief workers had drained an estimated 425,000 acres of *Anopheles* mosquito breeding grounds.⁴⁴⁵ Though less well-organized than the Public Health Service would have liked, these efforts made a quick impact.⁴⁴⁶ In reviewing

⁴⁴³ The methodology used to determine these rates and number of states (48) within the Death Registration Area remained consistent throughout this period. Texas, the final state to join the Registration Area, was first included in 1933. See *Mortality Statistics, 1933: Thirty-Fourth Annual Report*, (Washington, D.C.: Government Printing Office, 1936), p. 37; *Vital Statistics of the United States, Part I*, (Washington, D.C.: Government Printing Office, 1939), p. 24.

⁴⁴⁴ On the displacement of farmers, hastened by changes in the AAA contract for the 1934 growing season, see Wright, *Old South, New South: Revolutions in the Southern Economy since the Civil War*, p. 229-30.

⁴⁴⁵ *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1937*, (Washington, D.C.: Government Printing Office, 1937), p. 32.

⁴⁴⁶ For a particularly critical account of the public works efforts, see T.H.D. Griffiths, "Malaria Control-Comments on the Past and Future," *American Journal of Public Health* 27(1937). "Owing to the speed with which such employment was to be met and the continual indefiniteness during the periods of work," writes Griffiths, of the PHS 's Henry Rose Carter Laboratory in Savannah, "these efforts could not be regarded, by those professionally and by experience trained in malaria control, as a rounded *program* of malaria control, such as would have been set up under normal conditions, with equal funds available and a long period over which to plan and to execute anti-malaria drainage. The Primary purpose was 'putting men to work.'"

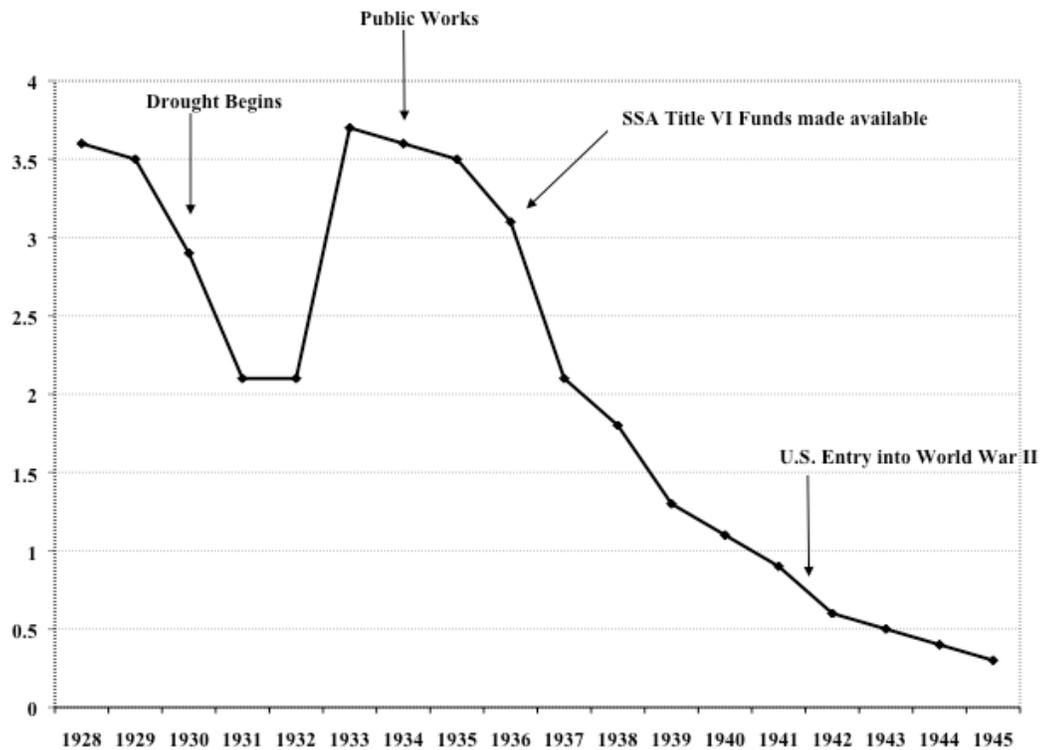


Figure 18. Malaria Death Rate per 100,00 Estimated Population (Entire United States). Source: Census Bureau, *Annual Mortality Statistics*, 1928-1936; Census Bureau and Public Health Service, *Vital Statistics*, 1937-1945.
Note: Texas became the last state to enter the Death Registration area in 1933, accounting for some of the spike between 1932 and 1933. The states included in the Registration area remained consistent from 1933-1945.

the Civil Works Administration’s anti-malaria effort during the winter of 1933-1934, the Public Health Service’s Dr. Louis L. Williams noted that many “projects during their inception were improperly planned by supervisors of limited experience and some even were constructed where work was unnecessary. Here and there ditches appeared that were almost impossible to maintain.” Nonetheless, Williams continued, “most of these errors were corrected, and those few remaining are on the program for proper reconstruction.” Based on the estimates of the PHS’s “most experienced men in

the field,” Williams believed it likely that “at least 90 per cent of the work has been good work.”⁴⁴⁷

The CWA’s drainage efforts were continued, with apparent success, first by the Federal Emergency Relief Agency and then by the Works Progress Administration. Surveying the efforts of the WPA in Mississippi, the Public Health Service’s Joseph A. Le Prince found that “Excellent supervisory judgment has been used, both as to the planning of the work and the economic methods of overcoming potential difficulties and particularly of making use of available low cost selected material.”⁴⁴⁸ By the end of the decade, the WPA and the PHS were increasingly focused on making improvements in drainage permanent by sealing projects with concrete and brick and mortar. Despite substantial early regional variation in the degree of the program’s impact, the overall malaria mortality rate began to drop in the summer of 1934, the first summer following the beginning of public works drainage projects, and never rose again.⁴⁴⁹

A more dramatic decrease in malaria mortality followed the release of Title VI funds at the beginning of 1936. From 3.1 deaths per 100,000 in that year, the malaria mortality rate declined to 2.1 in 1937. By 1940, the malaria mortality rate had declined to 1.1 per 100,000. By providing a more permanent and comprehensive basis for malaria control in the form of county health departments and money for the training of local public health workers in malaria control techniques, Title VI of the Social Security Act helped both to advance and solidify the gains already made by public

⁴⁴⁷ Williams, "Civil Works Administration Emergency Relief Administration Malaria Control Program in the South," p. 13.

⁴⁴⁸ *Report of the Board of Health of the State of Mississippi*, Thirtieth Biennial Report, July 1, 1935-June 30, 37, p. 99.

⁴⁴⁹ See C.C. Dauer and Ernest Carroll Faust, "Malaria Mortality in the United States, with Especial Reference to the Southeastern States," *Southern Medical Journal* 30, no. 9 (1937); ———, "Malaria Mortality in the Southern United States for 1934, with Supplementary Data for Previous Years," *Southern Medical Journal* 29, no. 7 (1936).

works efforts.⁴⁵⁰ State health department laboratories received funding to test blood samples for malaria, while laboratory technicians were given new training opportunities.⁴⁵¹ State and county departments coordinated malaria-control operations with the Works Progress Administration and Public Health Service, working with the PHS to develop long-term plans for eliminating the disease through drainage, screening, and larvicide. Meanwhile, public health workers from throughout the South were given Title VI funds to take short courses at the Rockefeller Foundation's malaria research lab in Tallahassee, the Public Health Service's facilities in Savannah, the Bureau of Entomology's lab in Orlando, and at the facilities of the Tennessee Valley Authority in Muscle Shoals.⁴⁵²

The South's debilitating diseases were increasingly the victims of a mounting revolution in public health, centered in the region's county health infrastructure. Wisely, many participants in this revolution expressed only a restrained optimism. The decline of malaria, in particular, appeared too good to be true. For some medical professionals, it seemed consistent with a broader cyclical pattern of malaria incidence. In 1938, prominent malariologist Ernest Carroll Fuast suggested that the malaria death rate, "which developed to a peak so suddenly in 1933," had "apparently reached its trough, and that, unless unusual circumstances supervene, an average rise

⁴⁵⁰ *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1937*, p. 31; Joseph W. Mountin and Emily K. Hankla, "Training Public Health Workers: Programs Sponsored by State Health Departments under Title Vi of the Federal Social Security Act and the Federal Venereal Disease Control Act (1936-44)," *Public Health Reports* 61, no. 21 (1946); Emily Hankla Joseph Mountin, and Georgie Druzina, *Ten Years of Federal Grants-in-Aid for Public Health, 1936-1946* (Washington, D.C.: Federal Security Agency, Public Health Service, 1948), p. 23. On the role of local public health workers trained in malariology by the PHS, see for instance *State Board of Health of North Carolina Biennial Report, Twenty-Seventh Biennial Report, July 1, 1936-June 30, 38*, p. 106.

⁴⁵¹ Joseph Mountin, *Ten Years of Federal Grants-in-Aid for Public Health, 1936-1946*, p. 23.

⁴⁵² *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1937*, p. 31. See also *Annual Report of the State Board of Health of Alabama*, for 1937 p. 179. Newly hired engineers from Alabama, for instance, spent four weeks in Savannah, two in Tallahassee, and four weeks at the facilities of the TVA before being assigned to individual counties.

in the rate may again be anticipated in 1938 or 1939.”⁴⁵³ That malaria remained an ongoing threat in the face of substantial federal spending suggested, in addition, that a resurgence might occur when spending was reigned in.⁴⁵⁴

SOUTHERN POLITICS AND THE NEW DEAL COALITION

As the beneficial effects of the federal government’s public health efforts began to be felt throughout the South, the relationship between southern members of Congress and President Roosevelt grew increasingly strained. Reelected in a landslide in 1936, Roosevelt began his second term with an assault on the existing makeup of the Supreme Court. In early February 1937, the President proposed that he be allowed to appoint one additional judge to the Supreme Court for every sitting judge over the age of 70, a plan unmistakably aimed at shifting the ideological makeup of the Court in favor of the New Deal.⁴⁵⁵

In a series of cases over the preceding years, the Court had declared key legislative components of the New Deal to be unconstitutional. The Court’s 1935 decision in *Schechter Poultry Corp. v. United States*, striking down parts of the National Industrial Recovery Act, called into question the expansive interpretation of the Constitution’s Interstate Commerce Clause that underpinned much of the New Deal’s attempt to regulate the American economy. In 1936, its ruling in *United States v. Butler* invalidated the Agricultural Adjustment Act. Regardless of his success at the

⁴⁵³ Ernest Carroll Faust, "Malaria Mortality in the Southern United States for the Year 1937," in *Malaria and Its Control: Some Papers Read at the 21st Meeting of the National Malaria Committee, Oklahoma City, Okla., Nov. 15-18, 1938* (Tallahassee: 1939), p. 4.

⁴⁵⁴ *Ibid.*, p. 8-9.

⁴⁵⁵ *The New York Times*, "President’s Message," February 6, 1937.

polls, it appeared that the Court might dismantle the bulk of Roosevelt's legislative accomplishments, including potentially the 1935 Social Security Act.⁴⁵⁶

Though a handful of congressional Democrats offered public support for the President's plan, most remained initially silent. In a sign of what was to come, Virginia Senators Carter Glass and Harry F. Bird "indicated fundamental opposition." North Carolina Senator Josiah Bailey, the most vocal early Democratic opponent of plan, announced that he would "do all that I can to preserve the independence of the judiciary and that respect for the judicial branch of the Government which always has been and always will be indispensable to the national stability."⁴⁵⁷

It soon became apparent that a number of congressional Democrats were at best skeptical of the President's plan to pack the Court with New Deal supporters. The misleading manner in which the President had justified the proposal only exacerbated the unease felt by many. For a key group of southern Democrats, already worried about the growing centralization of power in the federal government and wary of the strength of the executive branch, Roosevelt's plan represented an opportunity to speak out against a president still intensely popular in the region.

The Supreme Court began, for its part, began to move decisively away from the philosophy that had provoked the President in the first place. In late March, the Court ruled state minimum wage laws constitutional in *West Coast Hotel v. Parish*, signaling a major shift in its attitude towards government regulation of contracts. In April, the Court upheld the constitutionality of the 1935 National Labor Relations Act, inaugurating a trend of Supreme Court deference to legislative claims about the extent of Congress's power to regulate interstate commerce that soon placed the New Deal

⁴⁵⁶ Kennedy, *Freedom from Fear*, p. 330-31. See also, for instance, *The Washington Post*, "Death Blow to AAA Presages Like Fate for Other New Deal Measures," January 12, 1936; *The New York Times*, "Roosevelt Puts Court on Trial Before Nation," January 10, 1937.

⁴⁵⁷ *The Washington Post*, "Party Lines are Split as Democrats Attack Plan," February 7, 1937.

on solid constitutional ground. The threat to the Social Security Act and other New Deal legislation from Court had, over the course of a few months, disappeared.⁴⁵⁸

Roosevelt, however, was already paying the price for his miscalculation. His legislative agenda went nowhere during the spring and, as a new recession overtook the nation, an inter-party “conservative coalition” became increasingly emboldened and vocal. In a “conservative manifesto” made public in December 1937, a group comprised largely of southern Democrats and northern Republicans criticized the growing welfare state and called for a balanced budget, lower taxes, and a reinvigoration of states’ rights and home rule.⁴⁵⁹

Roosevelt responded by openly backing the primary challenges of pro-New Deal candidates against conservative Democrats during the 1938 midterm elections. Appearing in Georgia, the President deemed incumbent Senator Walter George “a dyed-in-the-wool conservative” and endorsed his opponent, Lawrence Camp.⁴⁶⁰ In route back to Washington, Roosevelt addressed a crowd of around 15,000 from the platform of his railroad car in Greenville, South Carolina. “If you believe in the principles for which we are striving,” the President said, in a speech aimed at Senator Ellison D. “Cotton Ed” Smith, “then I hope you will send representatives to the National Legislature who will work toward those ends.” Alluding to a claim made by Smith on the floor of the Senate that a man could support a family in the “lap of luxury” on 50 cents a day in South Carolina, the President ended his remarks by

⁴⁵⁸ Winfred Harbison Alfred Kelly, and Herman Belz, *The American Constitution: Its Origins and Development*, 7th ed., vol. II (New York: W.W. Norton and Company, 1991), p. 484; Kennedy, *Freedom from Fear*, p. 334-36.

⁴⁵⁹ Grantham, *The South in Modern America: A Region at Odds*, p. 129-30; Kennedy, *Freedom from Fear*, p. 340; John Robert Moore, "Senator Josiah W. Bailey and the 'Conservative Manifesto' of 1937," *The Journal of Southern History* 31, no. 1 (1965); *The Washington Post*, “Senators Give Coalition Plea Wide Publicity,” January 19, 1938.

⁴⁶⁰ *The New York Times*, “Roosevelt Asks Defeat of George and Talmadge as Foes of Liberalism,” August 12, 1938. *The Washington Post*, “President Says ‘Friend’ Doesn’t ‘Speak Same Language,’” August 12, 1938.

noting that he didn't "believe any family or any man in South Carolina can live on 50 cents a day."⁴⁶¹

Roosevelt's preferred candidates were defeated. Meanwhile, both Walter George in Georgia and "Cotton Ed" Smith in South Carolina responded to Roosevelt's attempts to interject himself into local politics by raising the specter of federal intervention in southern race relations. Always a potentially effective campaign tactic, the appeal to concerns about race had an added air of urgency given the recent passage of a federal anti-lynching law in the House of Representatives and mounting fears about the potentially leveling role of labor unions in southern life. "This is the one time," Smith told voters in South Carolina, "whether you like Ed Smith or not every red-blooded white man should vote for Smith, because outside organizations are seeking to defeat me because of my stand for white supremacy."⁴⁶²

North Carolina Senator Josiah Bailey told a convention of young Democrats that the South would "not permit Northern Democrats to frame a race policy or any social policy for us, no more than we would permit Northern Republicans to do so." The Macon *Telegraph*, meanwhile, editorialized that the "people of the South have been definitively warned that it is the purpose of the New Deal strategists to destroy the Democracy of the South by exploitation of the Negro vote." First through a federal anti-lynching law and then through the abolition of the poll tax, the paper alleged, the Democratic Party would gain the support of both northern and southern blacks, helping to form the base for a new party, shorn of the conservative southerners who had been the President's targets during the midterm elections.⁴⁶³

⁴⁶¹ *The New York Times*, "President Appeals to South Carolina," August 12, 1938.

⁴⁶² Quoted in *Ibid.*, "Negro Issue Raised in South at 'Purge,'" August 23, 1938. See also *The New York Times*, "'White Supremacy' Issue Revived in the South," August 28, 1938.

⁴⁶³ *The Washington Post*, "Enemies of the New Deal in South Now United," September 18, 1938.

The decline of debilitating disease and institutionalization of federal intervention in local public health had been complimented, somewhat paradoxically, by the resurgence of states' rights rhetoric and emergence of the conservative coalition, early signs of the divisive role that concerns about race relations would play within the Democratic Party. Still, these developments had no apparent immediate effect on southern Democrats' appetite for federal intervention in the field of public health. During the next decade, however, southern concerns about the role of the federal government would play an important role in the debate over national health insurance and in shaping other aspects of federal public health policy.

CHAPTER 6

Southern Maladies

World War II and the immediate postwar era marked a crucial turning point in the relationship between the federal government and southern public health and in the federal role in public health in general. The Communicable Disease Center, later renamed the Centers for Disease Control, emerged from the Public Health Service's wartime malaria-control efforts as the central institution in the federal government's attempts to coordinate local public health efforts nationwide. Created as a field station of the PHS's States Relations Division, the CDC's coordinating role was envisioned and set in motion by individuals who had worked at promoting the PHS's county-level efforts under Leslie Lumsden during the post-World War I years.

Southern politicians, meanwhile, continued to play a central role in shaping the contours of federal intervention in public health. The Hill-Burton hospital construction program, enacted into law by Congress in 1946, contained explicit provisions for the construction of separate-but-equal facilities. Southern concerns about potential role of the central government in local race relations helped to derail Harry Truman's attempt to pass compulsory national health insurance. Continuing to support federal programs consistent with the preservation of white supremacy, southern Democrats backed an alternative health insurance proposal, introduced by Alabama Senator Lister Hill, that foreshadowed the Medicaid program passed into law in 1965. As public health efforts became an established fact and access to hospitals spread throughout the South, the region's disease environment and health status became increasingly similar to that of the rest of the nation.

MALARIA CONTROL IN WAR AREAS

The United States had been moving towards a war footing for well over a year when the Japanese attacked Pearl Harbor on December 7, 1941. In September 1940, Congress passed legislation creating a peacetime draft; in March 1941, it approved the Lend-Lease program, granting President Roosevelt a great deal of leeway in supplying war *material* to support the British effort to withstand the Nazis. Meanwhile, the Public Health Service's Division of States Relations, which administered the funding authorized by Title VI of the Social Security Act, created a "Mosquito Control in Defense Areas" program in May of 1941. With an emergency appropriation from Congress and the aid of workers provided by the Works Progress Administration, the Service expanded drainage projects and other sanitary efforts in communities surrounding the nation's growing military installations.⁴⁶⁴

The situation, Assistant Surgeon General Joseph Mountin noted, was reminiscent of 1917: "Only those who have seen the insanitary conditions of the boom towns are able to appreciate problems now confronting health authorities in many localities. Almost overnight, communities have sprung up in which no facilities have yet been provided. In other places, the sudden increase in population has rendered existing facilities altogether inadequate." "In many instances," Mountin continued, "it is utterly impossible for the communities in question to provide for the facilities through their own resources."⁴⁶⁵

⁴⁶⁴ Joseph W. Mountin, "Adaptation of Public Health Programs to Defense Needs," *American Journal of Public Health* 32, no. 1 (1942): p.3; *Malaria Control in War Areas, 1945-1946*, (Atlanta: U.S. Public Health Service, 1946).

⁴⁶⁵ Mountin, "Adaptation of Public Health Programs to Defense Needs," p. 2-3. This article was read before the Health Officers Section of the American Public Health Association in Atlantic City, NJ, October 16, 1941. In one "small southern town" described by Mountin, the population had increased from 625 to 5,000. The town's new public health department was located in the town courthouse's "eight by twelve foot jury room, a small section of which has been curtained off for clinical purposes." "When a jury convenes," Mountin told the conference, "the health department simply moves out."

Nonetheless, there had been significant improvements in local infrastructure and capabilities. “As compared with the 1917-18 defense work,” Public Health Service Senior Sanitary Engineer E.C. Sullivan and Assistant Sanitary Engineer J.S. Wiley reported the month before Pearl Harbor, “better local health service facilities and experienced personnel are available at the present time than during the period of the previous World War.” In many places, local health departments already existed as a result of Title VI of the Social Security Act: “For example, there is a county health unit in every county in Alabama, and, as a result, each of the 14 defense areas is provided with local health service.”⁴⁶⁶ Still, “in many cases the local health unit facilities were hardly great enough to meet the health needs prior to the national defense program. It has been necessary to enlarge and expand these units to care for large increases in population.”⁴⁶⁷

The States Relations Division rapidly expanded its operations following the attack. In February 1942, the Division created a new “Malaria Control In War Areas” program, headquartered in Atlanta. By late March, malaria control operations were under way in the field.⁴⁶⁸ In many respects similar to the Public Health Service’s extra-cantonment zone effort during World War I, Malaria Control in War Areas could draw on a vastly larger budget, improved malaria control techniques, strong relations with local elites and political leaders, and increasingly sophisticated public health infrastructure at the state and county level. As a result of this preexisting infrastructure, a later PHS report concluded, “There was no loss of time in acquiring a background of knowledge of the malaria problem and of previous malaria control

⁴⁶⁶ E.C. Sullivan and J.S. Wiley, “Sanitation Activities in the Southeastern States in Connection with National Defense,” *Public Health Reports* 57, no. 17 (1942): p. 618.

⁴⁶⁷ *Ibid.*

⁴⁶⁸ *Annual Reports of the United States Public Health Service, 1941-42, 1942-43*, (Washington, D.C.: U.S. Government Printing Office, 1943), p. 60.

activities, such as malaria surveys and drainage and larviciding projects, and prompt advantage could be taken to permit institution or expansion of control measures where needed.”⁴⁶⁹ Following the established pattern of the States Relations Division, Malaria Control in War Areas “carried on its malaria control activities largely within the framework of the State health departments.”⁴⁷⁰

The program’s central focus was ensuring that malaria, in decline since 1934, did not reemerge in the southern United States. “At Present,” the 1942-1943 Malaria Control in War Areas report announced, “malaria in the United States is at a low point. This is the result of the cyclic nature of the disease, and control work carried on by community, state, and federal agencies. The purpose of the present MCWA program is to maintain the existing low incidence throughout the period of war mobilization. It is an enterprise of preventive medicine.”⁴⁷¹

By June of 1942, Malaria Control in War Areas had undertaken operations in 93 “war areas.”⁴⁷² A year later, MCWA had initiated projects in 226 “war areas,” surrounding air fields, factories, Army and Navy bases, and Japanese-American relocation camps. Anti-malaria projects were ongoing in the South, the Border States, Hawaii, Puerto Rico, the midwestern states of Indiana, Illinois, and Kansas, and in parts of California and Oregon.⁴⁷³

At the core of MCWA’s efforts were larvicide and drainage projects employing long-known techniques aimed at controlling mosquito populations.⁴⁷⁴ Fuel

⁴⁶⁹ Frank Tetzlaff, "Operation of the United States Public Health Service Malaria Control Program," *Public Health Reports* 63, no. 18 (1948): p. 557.

⁴⁷⁰ Ibid. See also *Malaria Control in War Areas, 1942-43*, (Atlanta: U.S. Public Health Service, 1943), p. 34.

⁴⁷¹ *Malaria Control in War Areas, 1942-43*, p. 1.

⁴⁷² *Annual Reports of the United States Public Health Service, 1941-42, 1942-43*, p. 60.

⁴⁷³ *Malaria Control in War Areas, 1942-43*, p. 32.

⁴⁷⁴ Tetzlaff, "Operation of the United States Public Health Service Malaria Control Program," p. 558.

oil and the larvicide paris green were applied to water surfaces by men wielding hand dusters and sprayers or from airplanes to limit *Anopheles* breeding in rivers, streams, lakes, and swampland.⁴⁷⁵ A variety of ditching techniques, employing dynamite, hand digging, and heavy construction equipment, were used to drain mosquito breeding grounds.⁴⁷⁶

These programs were complimented by increased surveillance measures and community education campaigns aimed at giving southerners the information necessary to avoid becoming infected with malaria. School teachers taught lessons about malaria transmission and sent students home with questionnaires soliciting information on malaria morbidity in their families. Public health workers went house-to-house, held public meetings, placed articles in newspapers, and appeared on local radio broadcasts in an effort to prompt community members to engage in preventative measures such as the screening of windows, doors, and front porches.⁴⁷⁷

There were good reasons to believe that malaria might reemerge as a consequence of the war. Along with the danger posed by the remaining pockets of infection in the United States and internal population movements, prisoners of war from the malarial South Pacific and American soldiers who had fought there threatened to bring malaria into areas where it was not already present or provide additional sources of infection where it was. Beginning in November 1942, the allied invasion of North Africa ensured that even larger numbers of Americans would come into contact with malaria that might be brought back to the United States.

⁴⁷⁵ *Malaria Control in War Areas, 1942-43*, p. 52; *Malaria Control in War Areas, 1943-44*, (Atlanta: U.S. Public Health Service, Federal Security Agency, 1944), p. 18-21.

⁴⁷⁶ *Malaria Control in War Areas, 1942-43*, p. 51, 55-64; *Malaria Control in War Areas, 1943-44*, p. 22-27. For an excellent account of MCWA activities, see Elizabeth W. Etheridge, *Sentinel for Health: A History of the Centers for Disease Control* (Berkeley: University of California Press, 1992), "War and the Mosquito," p. 1-17.

⁴⁷⁷ *Malaria Control in War Areas, 1943-44*, p. 9, 47-53.

In cooperation with the Army and Navy, the Public Health Service initiated a program to study the problem of imported malaria at the National Institute of Health's Malaria Research Laboratory in Columbia, South Carolina.⁴⁷⁸ Using infected U.S. soldiers and local mental patients undergoing therapeutic malaria treatment for syphilis as subjects, PHS officers tested the virulence of foreign strains of malaria. Imported malaria, MCWA found, could be transmitted by American mosquitoes. Indeed, some foreign strains resulted in higher rates of relapse than those present already in the United States.⁴⁷⁹

The risks appeared straightforward. "Military demobilization," the Public Health Service's Louis L. Williams told the annual meeting of State and Territorial Health Officers in November 1944, "will introduce a large number of malaria carriers into the civil population. Some of the new strains will be more virulent than those we now have and will present a more difficult therapeutic problem. The greater relapse of Mediterranean and South Pacific strains will make these soldiers more dangerous carriers, as they will be more frequently infectious to the mosquito."⁴⁸⁰

EMERGENCE OF THE COMMUNICABLE DISEASE CENTER

The threat of a malaria epidemic, however, never materialized. Despite large-scale population movements within the United States and the return of soldiers from the South Pacific, North Africa, and Italy, malaria mortality continued to decline over the course of the war and into the postwar years. The Malaria Control in War Areas program, meanwhile, continued to grow, expanding first into operations against *Aedes aegypti* mosquitoes, the vector for both Dengue Fever and Yellow Fever, in southern

⁴⁷⁸ Ibid., p. 28.

⁴⁷⁹ Ibid., p. 29.

⁴⁸⁰ L.L. Williams, "The Extended Malaria Control Program," *Public Health Reports* 60, no. 17 (1945): p. 464.

cities. By the end of the war, MCWA had taken over the Public Health Service's anti-murine typhus activities in the Deep South and was inaugurating efforts against encephalitis and dysentery.

The program's expansion was grounded in both the political capabilities of its leaders and the ongoing threat that malaria or other tropical diseases might be reintroduced into the United States. Dr. Joseph Mountin, head of the States Relations Division and one of the central figures in MCWA's evolution, was a highly-regarded scientist and bureaucratic veteran. By the 1940s, he had more than twenty years of experience in promoting the interests of the Public Health Service at the state, local, and national levels.

After beginning his PHS career in the World War I extra-cantonment zones, Mountin's central focus had been the development of local public health infrastructure. During the 1920s, he was a subordinate of Leslie Lumsden, the early driving force behind the Service's rural county cooperative program. First in the cotton counties of southeast Missouri and then in Tennessee, Mountin worked to persuade county governments to establish health boards and provided needed expertise for them to do so.⁴⁸¹ In 1939, he became head of the Public Health Service's Domestic Quarantine Division, renamed the States Relations Division in 1941 to reflect its post-Social Security Act role.⁴⁸² In this capacity, Mountin administered the federal grant-in-aid program created by Title VI of the Social Security Act.⁴⁸³ For Mountin, along with a small group of others in the Public Health Service, the wartime emergency

⁴⁸¹ Thomas Parran, "A Career in Public Health," *Public Health Reports* 67, no. 10 (1952): p. 932-33.

⁴⁸² The name change became effective on July 1, 1941. As the PHS's annual report noted, the "functions of the division remained the same; namely, to prevent the interstate spread of communicable diseases by the application of quarantine restrictions, and to aid the States in developing adequate State and local public health organizations through provision of technical consultation service and financial assistance under the terms of title VI of the Social Security Act." See *Annual Reports of the United States Public Health Service, 1941-42, 1942-43*, p. 57.

⁴⁸³ Parran, "A Career in Public Health," p. 934.

represented an opportunity to create a permanent agency for coordinating the nation's still disparate local public health systems under the auspices of the PHS's existing States Relations program.⁴⁸⁴

The goals of the PHS officers in the States Relations Division and Malaria Control in War Areas were furthered by the clear successes of the Public Health Service in fighting malaria and the emergence, after 1943, of DDT.⁴⁸⁵ By the time of Hiroshima and Nagasaki, the chemical, which had been used to fight malaria in the South Pacific and typhus in Europe, was viewed more and more as an all-purpose means for eradicating insect pests. "While it is almost axiomatic," MCWA's 1945-1946 report noted in describing a newly developed and highly effective DDT oil-mist spray, "that all new insecticides making their initial appearance are heralded by the statement that here at last is 'an insecticide to end all insecticides,' the results obtained with this spray seemed to surpass by far any previous larvicide."⁴⁸⁶ Like the U.S. military in Europe, the Public Health Service began to use the chemical to kill the fleas that transmitted typhus from rats to humans. Effective and versatile, DDT could also be used to kill houseflies, cockroaches, and bedbugs.⁴⁸⁷ As a consequence, DDT was extremely popular among individuals and families eager to rid their homes of insect pests, helping to ensure a high level of support for ongoing MCWA activities even as the war ended.

⁴⁸⁴ Etheridge, *Sentinel for Health*, p. 18-19; Parran, "A Career in Public Health," p. 935.

⁴⁸⁵ Following passage of the Public Health Service Act of 1944, the States Relations Division, which continued to run MCWA and administer Title VI funds, was placed underneath a newly-created Bureau of State Services. The new bureau also encompassed the Division of Venereal Diseases and Division of Industrial Hygiene. Although the PHS's organization had been simplified during the 1930s, it remained somewhat confusing, both to PHS officers and to the congressional committees that attempted to engage in oversight over their activities, until the 1944 act. See *Annual Report of the United States Public Health Service for the Fiscal Year 1944*, (Washington, D.C.: U.S. Government Printing Office, 1944), p. 69-96; Lynne Page Snyder, "Passage and Significance of the 1944 Public Health Service Act," *Public Health Reports* 109, no. 6 (1994).

⁴⁸⁶ *Malaria Control in War Areas, 1945-1946*, p. 7.

⁴⁸⁷ *Ibid.*, p. 20. See also Russell G. Ludwig and H. Page Nicholson, "The Control of Rat Ectoparasites with Ddt," *Public Health Reports* 62, no. 3 (1947); David E. Davis, "The Control of Rat Fleas (*Xenopsylla Cheopis*) by Ddt," *Public Health Reports* 60, no. 18 (1945).

Between July 1945 and July 1946, MCWA's "Extended Malaria Control Program" sprayed approximately 400,000 homes in thirteen states with DDT.⁴⁸⁸ The extended program continued MCWA's extensive educational campaign and trained "professional personnel in the diagnosis of tropical diseases and control methods" and how to perform original research.⁴⁸⁹ Soon, Joseph Mountin succeeded in persuading Surgeon General Thomas Parran, another veteran of the World War I extra-cantonment efforts and the Public Health Service's rural cooperative program, of the need to transform MCWA into a permanent organization capable of performing research and disseminating information to states and communities. Remaining a field station of the States Relations Division, MCWA was rechristened the "Communicable Disease Center" on July 1st, 1946.⁴⁹⁰ "The CDC," historian Elizabeth Etheridge writes, "was the capstone of Joseph Mountin's effort to supply state and local health units with the support they needed."⁴⁹¹

POSTWAR TENSION

Southern politicians, meanwhile, appeared poised to continue their enthusiastic support for the expanded and increasingly coordinated federal role in local public health. One month after the formal creation of the CDC, Congress passed the Hill-Burton Hospital Survey and Construction Act, authorizing more than one billion dollars for a new program of federally-backed hospital construction to be administered by the Public Health Service.⁴⁹² Aimed at providing hospital access for underserved

⁴⁸⁸ *Annual Report of the Federal Security Agency, Section Four: United States Public Health Service, 1946*, (Washington, D.C.: U.S. Government Printing Office, 1946), p. 337.

⁴⁸⁹ *Ibid.*

⁴⁹⁰ Etheridge, *Sentinel for Health*, p. 16-17; Furman, *Profile of the United States Public Health Service*, p. 440-41; Parran, "A Career in Public Health," p. 935.

⁴⁹¹ Etheridge, *Sentinel for Health*, p. 18.

⁴⁹² *The Washington Post*, "Truman Signs Bill for Billion U.S.-State Hospital Program," August 14, 1946; *The New York Times*, "Hospital Measure Sent to President," August 1, 1946; *Annual Report of the Federal Security Agency, Section Three, United States Public Health Service, for the Fiscal Year 1947*, (Washington, D.C.: U.S. Government Printing Office, 1947), p. 417.

communities, the bill was co-sponsored by Alabama Senator Lister Hill, an enthusiastic advocate of increased federal funding for public health efforts. Along with strong support from southern Democrats, the new legislation met with the approval of both the American Medical Association and the American Hospital Association.⁴⁹³ The formula for allocating Hill-Burton money was designed to bring hospital access to rural southerners in particular, strongly favoring poorer states and requiring “that special within-state priority be given to the construction of facilities in rural areas.”⁴⁹⁴

Consistent with previous southern support for federal assistance in public health, the new bill’s language nonetheless reflected the heightened sensitivities of southern members of Congress during the postwar period. Hookworm, pellagra, and malaria, the debilitating diseases that caused the federal government to become involved in southern public health, had receded from their previously central role in the region’s health. At the same time, the implications of federal money and its corollary, federal regulation, for the South’s racial *status quo* were increasingly unmistakable. Rather than risk any future misunderstanding, Hill-Burton provided explicitly for the construction of “separate but equal” facilities.⁴⁹⁵

Evident already in the inclusion of “separate-but-equal” language in Hill-Burton, the growing importance of the issue of civil rights represented a significant political threat to Harry Truman’s 1948 presidential campaign. Though Franklin

⁴⁹³ "The Hill-Burton Hospital Construction Bill," *The Journal of the American Medical Association* 129, no. 12 (1945).

⁴⁹⁴ Marilyn J. Field Lawrence J. Clark, Theodore L. Koontz, Virginia L. Koontz, "The Impact of Hill-Burton: An Analysis of Hospital Bed and Physician Distribution in the United States, 1950-1970," *Medical Care* 18, no. 5 (1980): 553-54, 48.

⁴⁹⁵ For important discussions of Hill-Burton’s “separate but equal” provision and its impact, see Karen Kruse Thomas, "The Hill-Burton Act and Civil Rights: Expanding Hospital Care for Black Southerners, 1939-1960," *The Journal of Southern History* 72, no. 4 (2006); P.B. Cornely, "Segregation and Discrimination in Medical Care in the United States," *American Journal of Public Health* 46(1956); Jill Quadagno, *One Nation, Uninsured: Why the U.S. Has No National Health Insurance* (New York: Oxford University Press, 2005), “Provider Sovereignty and Civil Rights,” p. 77-93.

Roosevelt had faced southern resistance following his attempt to pack the Supreme Court and misguided intervention in the 1938 midterm elections, mobilization for war had gone a long way towards muting the intra-party rift of the late 1930s. Substantially less supportive of the President's domestic initiatives than they had been during the early years of the New Deal, southern politicians nonetheless remained a valuable source of support for Roosevelt, particularly in matters of national defense. Following Roosevelt's death and the end of World War II, however, Harry Truman emerged as a restrained but determined advocate of increased civil rights for black Americans.

Intra-party tensions came to a head at the 1948 Democratic National Convention, held in Philadelphia. Following a passionate speech by Minneapolis Mayor Hubert Humphrey, the Party adopted a pro-Civil Rights platform that, along with calling for congressional action to ease discrimination, commended President Harry Truman "for his courageous stand on the issue of civil rights."⁴⁹⁶ In response, Deep South Democrats, who had hoped someone other than Truman might be nominated, held their own convention in Birmingham and nominated South Carolina Governor Strom Thurmond as a "states' rights" candidate for president.

Though it was clear Thurmond himself would not win the election, the defectors hoped his candidacy might result in blocking both Truman and Republican candidate Thomas Dewey from getting sufficient votes in the electoral college to be elected, throwing the decision to the House of Representatives. Reluctant to discard the label of the Democratic Party, Thurmond and his supporters suggested that the Party had turned its back on its own commitments and core southern supporters. "President Truman," Thurmond maintained, "has betrayed the South, and we Southerners are going to cast our votes for candidates who are true believers in states'

⁴⁹⁶ *The Washington Post*, "Platform Adopted by Democratic Convention at Philadelphia," July 15, 1948; *The New York Times*, "South Beaten on Race Issue As Rights Plank is Widened," July 15, 1948.

rights principles. For our loyalty to the party we have been stabbed in the back by a President who has betrayed every principle of the Democratic party in his desire to win at any cost.⁴⁹⁷

Nine days later, in an action that further accentuated the rift in his party and sent a clear message about the dangers posed to the southern racial order by centralizing power in the federal government, Truman issued executive orders mandating the end of race-based discrimination in the armed forces “as rapidly as possible” and instituting fair employment practices in the federal civil service.⁴⁹⁸ Although the process initially moved ahead slowly, segregation would be ended in military bases throughout the South at the discretion of the President.

LOCAL AUTONOMY AND NATIONAL HEALTH INSURANCE

Despite the defection of four Deep South states to Thurmond, Truman managed to win a full term of his own in a close election. The Democratic Party, moreover, regained control of Congress after two years of Republican rule. Though the party was clearly divided along regional lines, the President was mildly hopeful about the prospects for moving forward on the domestic agenda he had campaigned on, which prominently featured a proposal for the creation of a mandatory contributory national health insurance plan in the mode of Social Security’s retirement benefits plan.

Regardless of Truman’s optimism, the prospects for such a program, embodied in the various iterations of the Wagner-Murray-Dingell Bill first proposed in 1939,

⁴⁹⁷ *The New York Times*, “Southerners Name Thurmond to Lead Anti-Truman Fight,” July 18, 1948. See also *The Washington Post*, “Dixie Rebels Nominate Thurmond and Wright,” July 18, 1948; Key, *Southern Politics in State and Nation*, p. 334-35.

⁴⁹⁸ *The New York Times*, “Presses for Rights: President Acts Despite Split in His Party Over the Chief Issue,” July 27, 1948; *The Washington Post*, “Truman Orders Equal Rights in U.S. Jobs, Armed Services,” July 27, 1948.

were dim from the beginning.⁴⁹⁹ When Truman had first voiced support for a national health insurance program in late 1945, congressional Republicans and southern Democrats responded coolly. Following the President's statements in favor of civil rights and unilateral move towards desegregation of the armed forces, southern Democratic support for a health insurance program administered directly by the national government bordered on unthinkable.

Increasingly on guard against potential federal intrusions on the side of black rights, the South's political representatives remained attuned to the benefits of federal funding and expertise. Introducing legislation aimed at further expanding federal funding for the development of local public health infrastructure in January of 1949, Lister Hill suggested the contours of southern support for federal public health efforts. "Public health," Hill maintained, "is the forlorn stepchild among Governmental services." More federal money was needed to help "get enough trained doctors, nurses, and technicians into the local and county health departments to carry on the great fight of preventive medicine against tuberculosis, syphilis, malaria, typhoid and undulant fever, hookworm, pellagra, infantile paralysis, and the epidemic diseases."

"The bill, which would give aid on the basis of need," he continued, with an eye towards concerns about the President's Civil Rights agenda, "fully protects state control and administration of health programs."⁵⁰⁰ Federal money need not be an instrument of federal dominance. Administered by the Public Health Service, which now had more than thirty years of experience working at the ground level in the segregated South, and channeled through state and local institutions, the federal government's efforts at developing local public health infrastructure were both popular and of proven safety.

⁴⁹⁹ *The New York Times*, "Health Insurance Plan Stirs National Battle," April 24, 1949. See also *The Washington Post*, "House Rules Clique May Balk Truman," November 11, 1948.

⁵⁰⁰ *The New York Times*, "Senate Bill Seeks Rural Health Gain," January 18, 1949.

National Health Insurance was another matter. Speaking to the Fulton County Medical Society in November 1949, Georgia Congressman James C. Davis outlined the likely corrosive effects of a nationally-administered health insurance program on southern segregation: “Negro doctors would treat white patients. White patients would be interested in Negro hospitals. White doctors would have to treat Negro patients and admit them in their hospitals.” “Certain persons high in government,” he warned, “intend to do away with every vestige of segregation in this country if it is possible to do so.” As evidence, Representative Davis cited Truman’s unilateral desegregation of the armed forces and overt support for Civil Rights.⁵⁰¹

Davis’s claims were both unsurprising and likely accurate: if the President could desegregate the armed force through executive order, it was not clear what might stop him or a later president from doing the same to an insurance program administered directly by the federal government. Indeed, Oscar Ewing, the controversial head of the Federal Security Agency, had drawn similar conclusions. “The President’s fight for Civil Rights,” Ewing contended, “is having much more of an effect than many of us realize. And, with the passage of national health insurance, I believe we shall see, so far as the medical profession is concerned, a steady development in its practical application.”⁵⁰²

⁵⁰¹ *Atlanta Daily World*, (Atlanta), “Rep. Davis Fears Racism in Socialized Medicine,” November 20, 1949.

⁵⁰² Oscar R. Ewing, “The President’s Health Program and the Negro,” *The Journal of Negro Education* 18, no. 3 (1949): p. 433. The incoming President of the American Medical Association, for his part, sent a written statement to the national convention of the National Medical Association, the professional organization of black physicians, asserting that the group should not support Truman’s plan on the assumption that it would lead to desegregation: “The highest law of the land, the Constitution of the United States, expressly outlaws prejudice on account of race, creed or color. This in itself proves that legislation is not sufficient to eliminate the blots of bigotry and prejudice. No, gentlemen, compulsory health insurance must be evaluated solely on the basis of its ability to deliver what it promises.” See *The New York Times*, “Fight Health Plan, AMA Asks Negroes,” August 10, 1949. Influential in Truman’s selection as the Democratic nominee for Vice President in 1944, Ewing was widely loathed by southern Democrats due to his public statements in favor of civil rights. During the summer of 1949, southern Democrats played a central role in ensuring that Truman’s proposal to elevate the FSA to a cabinet position was defeated. See *The Washington Post*, “23 Democrats Join GOP Bloc of 37 in Rejection Despite White House Appeal,” August 17, 1949.

By the time Truman asked Congress, in a late April 1949 special message, for the enactment of compulsory national health insurance, the American Medical Association, the Republican Party, and southern Democrats had all staked out positions irreconcilable with those of the President.⁵⁰³ National health insurance, the AMA maintained, was “one of the final, irrevocable steps toward state socialism.” The President’s plan “would regiment doctors and patients alike under a vast bureaucracy of political administrators, clerks, bookkeepers and lay committees.”⁵⁰⁴ Ohio Senator Robert Taft, the Republican Party’s leading domestic policy voice, maintained that the Truman plan “would necessarily be arbitrary, tyrannical and bureaucratic.”⁵⁰⁵ In April, Taft re-introduced his own health bill, first offered as a substitute to the Democratic Wagner-Murray-Dingell Bill in 1946 and based on grants-in-aid to the states to provide insurance for the indigent.⁵⁰⁶

Lister Hill, meanwhile, beat Taft to the punch in proposing legislation designed to undercut the President’s new health insurance push. Already in March, with the support of southern Democrats and a small number of Republicans, Hill had introduced a new grant-in-aid plan, known as the Hill-Aiken Bill, designed to “provide hospital and medical care for persons who could not pay by giving them Government-supported membership in non-profit, prepayment health insurance plans.”⁵⁰⁷ Like

⁵⁰³ *The Washington Post*, “U.S. Health Insurance Plan Asked by President,” April 23, 1949.

⁵⁰⁴ *The New York Times*, “AMA Statement on Truman Health Plan,” April 25, 1949.

⁵⁰⁵ *The Washington Post*, “Welfare Laws Argued As Totalitarian Tool,” March 23, 1949.

⁵⁰⁶ On Taft’s proposal, see *The New York Times*, “New Health Plan Maps Aid to States,” April 15, 1949. *The Washington Post*, “Medical Grants-In-Aid (Editorial),” April 18, 1949; Monte M. Poen, *Harry S. Truman Versus the Medical Lobby: The Genesis of Medicare* (Columbia: University of Missouri Press, 1979), p. 96-98, 165.

⁵⁰⁷ *The New York Times*, “Senator Warns Hospital Session,” September 27, 1949. See also *The New York Times*, “Truman to Submit a Health Program Costing Billions,” March 31, 1949. An earnest advocate of increased health care for the underserved, Senator Hill made clear his belief the threat represented by the Truman plan needed to be confronted proactively. “We cannot preserve the freedom of our hospitals, we cannot keep them uncontrolled and unregimented by the Federal Government, we cannot maintain our American free practice of medicine,” he told the annual meeting of the American Hospital Association in 1949, “by simply denouncing socialized medicine or by a standpat opposition to socialized medicine.” Insurance for the poor, he continued, was only the beginning: “we must go

Hill's earlier hospital construction bill, his health insurance proposal enjoyed the support of the American Hospital Association, which helped to draft the bill and viewed it as a means of gaining additional patients while warding off national government control.

Though the American Medical Association had not been involved in the development of Hill's proposal, its leaders appeared inclined to support it. In midst of a publicity campaign aimed at discrediting the idea of compulsory national health insurance by tying it to fears about Soviet communism, the AMA noted approvingly that, under Hill-Aiken, government-backed insurance policies for the indigent would be voluntary and eligibility would be determined by the individual states. An editorial in the *Journal of the American Medical Association* asserted that Hill-Aiken was "in accord with the basic principles of freedom of choice of physician and hospital, and absence of interference in the personal relationship between doctor and patient."⁵⁰⁸

By providing insurance to the poor and allowing the private, employment-linked, insurance industry to continue on its rapid trajectory of postwar growth, the Hill plan was, by design, likely to increase the obstacles confronting future attempts at creating a contributory national health insurance system. "The fact is," Hill noted in a statement announcing his bill that echoed the AMA's argument that private health insurance was proving an effective means of providing coverage to most Americans, "that while we have been debating the pros and cons of a complete new system of Federal compulsory health insurance, the voluntary agencies already in the field have

further. We must carry forward programs of voluntary health insurance that will meet the hospital and medical needs of the great rank and file of the American people."

⁵⁰⁸ "The Hill Bill for Extension of Medical Care," *The Journal of the American Medical Association* 139, no. 15 (1949). For a positive description of the bill components, published in the same issue of JAMA, see "Federal Voluntary Health Insurance Bill: A Condensation Prepared by the Bureau of Legal Medicine and Legislation, American Medical Association, April 1, 1949," *The Journal of the American Medical Association* 139, no. 15 (1949).

gone quietly ahead to provide protection against the costs of hospital and medical care to nearly a third of our population.⁵⁰⁹

Meanwhile, from the perspective of southern Democrats, the positive attributes of Hill's approach, beyond its clear benefits for some the region's poorest individuals and communities, were clear: under Hill's legislation, unlike the President's, federal money would be funneled through the states, which could be counted on to maintain the racial *status quo*.⁵¹⁰

THE CONTOURS OF FEDERAL INTERVENTION

As both a limiting factor and driving force, southern concerns remained at the forefront of national health policy during the postwar years. Highly influential in Congress as a result of the seniority system, southern Democrats represented constituencies with a genuine interest in the expansion of federal support for health programs. At the same time, the prominence of the issue of civil rights heightened their insistence on the sanctity of local autonomy.

The ambiguities of this situation were embodied in Lister Hill's new health plan.⁵¹¹ His idealism and belief in government as an agent of social progress, buffeted by his position as a protector of states' rights and white supremacy, had produced a workable proposal that foreshadowed the Medicaid bill enacted sixteen years later.

⁵⁰⁹ Quoted in "Federal Voluntary Health Insurance Bill: A Condensation Prepared by the Bureau of Legal Medicine and Legislation, American Medical Association, April 1, 1949," p. 1008. On the AMA's shift towards supporting private insurance plans as an alternative to national health insurance on the Social Security model, see Jacob S. Hacker, *The Divided Welfare State: The Battle over Public and Private Social Benefits in the United States* (New York: Cambridge University Press, 2002), p. 227-28.

⁵¹⁰ In his support for compulsory national health insurance, Florida Senator Claude Pepper was a notable exception. Pepper went on to lose Florida's 1950 Democratic primary in the wake of charges that he favored "socialized medicine" and was friendly towards civil rights. See for instance *The New York Times*, "Pepper Comforts Pro-Reds, is Smathers' Main Primary Cry," April 24, 1950.

⁵¹¹ For an excellent study of Hill's career, emphasizing the conflict between Hill's role as a proponent of federal intervention in a variety of areas, particularly health, and defender of states' rights, see Virginia Van der Veer Hamilton, *Lister Hill: Statesman from the South*, Fred W. Morrison Series in Southern Studies (Chapel Hill: The University of North Carolina Press, 1987).

Passed into law, it would have helped to provide coverage for millions. Where the President's preferred course of action had scarce chance of success, the Hill plan could have relied on the support of southern Democrats, some northern Republicans, the American Hospital Association, and likely even the American Medical Association.⁵¹²

For the same reasons that the AHA and AMA looked upon the bill favorably, however, the President resisted it. Committed to the creation of a nationalized contributory system of health insurance, Truman and his advisors recognized that Hill-Aiken would serve to further consolidate the position of the existing private insurance industry.⁵¹³ Meanwhile, the political costs appeared steep: as Monte Poen has argued, Truman "could not shift his support to the Hill-Aiken bill without alienating organized labor and other elements of the liberal political coalition that had just elected him."⁵¹⁴

The result was a stalemate. Truman avoided compromise and even engagement with Hill and the other southern Democratic proponents of the bill.⁵¹⁵ Southern opposition to Truman's insurance proposal, in conjunction with the strong disapproval of northern Republicans and ongoing efforts of the American Medical Association to portray national health insurance as a dangerous lurch towards Soviet-style totalitarianism, ensured that Truman's plan for national health insurance would come to nothing.⁵¹⁶

⁵¹² Hill's legislation, Monte Poen concludes in his authoritative study of Truman's attempts to pass health insurance legislation, "could have attracted significant southern Democratic and moderate Republican support." "Had the president modified his position and backed the AHA supported [Hill-Aiken] bill... the nation might very well have seen the enactment of a compromise system of health security during his presidency." See Poen, *Harry S. Truman Versus the Medical Lobby: The Genesis of Medicare*, p. 166-67.

⁵¹³ See *Ibid.*, p. 170-71.

⁵¹⁴ *Ibid.*, p. 169.

⁵¹⁵ "Senator Hill," David Blumenthal and James Morone write, "was a liberal southerner and an old Truman pal, but relations had frosted over civil rights. Truman was never inclined to trim his policies; the rising tension over civil rights made negotiation between health bills even more unlikely." See David Blumenthal and James A. Morone, *The Heart of Power: Health and Politics in the Oval Office* (Berkeley: University of California Press, 2009), p. 89.

⁵¹⁶ Already by October of 1949, the *New York Times* could report that the Senate sponsors of compulsory health insurance had given up hope not only for 1949 but also for the Congress's second session in 1950. See *The New York Times*, "Sponsors Abandon Early Health Bill," October 27, 1949.

While Truman's attempt to create a nationalized health insurance system languished, the central unifying institution of the nation's future public health efforts was emerging in Atlanta. Now an independent Division within the PHS's Bureau of State Services, the Communicable Disease Center had 1,832 full-time employees as of June 30, 1949, only 469 less than the National Institutes of Health, which had been in operation as the NIH since 1930 and for thirty years before that as the PHS Hygienic Laboratory.⁵¹⁷

During its first years, the CDC continued the work in the field of malaria that had initially helped to justify its extension beyond the war emergency. Beginning in 1947, it began a campaign aimed at eradicating the remaining pockets of malaria in the United States. Though it was increasingly evident that the disease had already disappeared throughout most of the South and was unlikely to reemerge, the CDC continued spraying homes with DDT, draining swampy land, and encouraging the screening of homes. By the mid-1950s, less than a thousand malaria cases per year were reported in the United States; death from the disease was almost unheard of. "The Southeastern states," a Public Health Service report concluded in 1955, "formerly the hotbed of malaria, are now practically free of the disease. Thus there has been conquered, probably for all time, the most serious of the parasitic diseases which have plagued this part of the country since the earliest of colonial days."⁵¹⁸

Along with its ongoing anti-malaria work, the CDC emerged from the beginning as a training center for public health workers from throughout the United

⁵¹⁷ *Annual Report of the Federal Security Agency, 1949: Public Health Service*, (Washington, D.C.: United States Government Printing Office, 1950), p. 15, 28-29. In 1930, Louisiana Senator Joseph Ransdell helped the PHS get legislation passed expanding the Hygienic Laboratory, the institutional home of both Charles Wardell Stiles and Joseph Goldberger, into the NIH. Ransdell was defeated in a reelection bid the same year by Huey Long. See Victoria A. Harden, *Inventing the Nih: Federal Biomedical Research Policy, 1887-1937* (Baltimore: The Johns Hopkins University Press, 1986).

⁵¹⁸ Willard H. Wright, "Current Status of Parasitic Diseases," *Public Health Reports* 70, no. 10 (1955): p. 973-74.

States.⁵¹⁹ As the Public Health Service became involved in supporting the growing American role in postwar international health efforts such as the World Health Organization, the CDC trained an increasing number of public health workers for work in Latin America, the Middle East, and Asia.⁵²⁰ In addition, it dispatched small groups of scientists and sanitary engineers to locations across the globe to assist with the development of anti-malaria work.⁵²¹

Beyond the investigation and control of tropical diseases, the CDC acquired a reputation for its epidemiological prowess, centered in its Epidemic Intelligence Service, created in 1951, and its laboratory work.⁵²² Gradually, the CDC took over public health efforts that had been dispersed across the Public Health Service.⁵²³ An outpost of the PHS's Washington-based States Relations Division immediately following World War II, the Communicable Disease Center had emerged as the premier force in the coordination of public health activities throughout the nation by the end of the 1950s, supplying both technical information and personnel to local health departments and embarking on large-scale epidemiological studies. In 1960, the CDC began occupying brand new facilities in Atlanta on land donated to the Public

⁵¹⁹ Etheridge, *Sentinel for Health*, p. 24; Ellis S. Tisdale, "A National Program for Training Public Health Personnel," *Public Health Reports* 66, no. 42 (1951): p. 1362; Trawick H. Stubbs William S. Boyd, Paul P. Weinstein, "The Tropical Disease Education Program of the United States Public Health Service," *Public Health Reports* 61, no. 20 (1946). Workers were trained both in Atlanta and at the CDC's auxiliary training facility in Columbus, Georgia.

⁵²⁰ See Tisdale, "A National Program for Training Public Health Personnel," p. 1368; Etheridge, *Sentinel for Health*, p. 24.

⁵²¹ See for instance Miriam Ziony, "Malaria Control in Iran," *Public Health Reports* 65, no. 11 (1950). On the role of the United States in providing assistance in matters of health to other nations, see "International Technical Assistance in Public Health," *Public Health Reports* 67, no. 4 (1952).

⁵²² Etheridge, *Sentinel for Health*, p. 47-48, 49; Hamowy, *Government and Public Health in America*, p. 60.

⁵²³ For instance, in 1957, the CDC took over the PHS's venereal disease control efforts in 1957 and its tuberculosis effort in 1960. See Hamowy, *Government and Public Health in America*, p. 60.

Health Service by Emory University. The same year, it gained control of the collection of national vital statistics, cementing its new role.⁵²⁴

Meanwhile, as a consequence of the Hill-Burton Act, levels of access to hospital facilities in the southern countryside and in cities and towns were on their way towards greater convergence with national norms. In 1946, the Public Health Service organized an independent Division of Hospital Studies within the Bureau of States Relations; assisted by the Division, individual states began surveys of hospitals and other health facilities, after which they submitted proposals for federal funding.⁵²⁵ In 1947, Mississippi became the first state to have its Hill-Burton plan approved.⁵²⁶ The next year, construction of hospital facilities began, to the disproportionate benefit of the rural South.⁵²⁷ Between fiscal years 1948 and 1955, an average of \$1.02 *per capita* was allocated for hospital construction to the eight lowest per capita states in the nation, all southern. By contrast, an average of 42 cents *per capita* was allotted to the eight highest *per capita* states.⁵²⁸

⁵²⁴ On CDC control of vital statistics, see Etheridge, *Sentinel for Health*, p. 115. On the CDC's new facilities, see "Highlights from the 1959 Report of the Communicable Disease Center," *Public Health Reports* 75, no. 12.

⁵²⁵ *Annual Report of the Federal Security Agency, Section Three, United States Public Health Service, for the Fiscal Year 1947*, p. 417. A Hospital Facilities Section had existed previously underneath the States Relation Division.

⁵²⁶ Louis S. Reed John W. Cronin, and Helen Hollingsworth, "Hospital Construction under the Hill-Burton Program," *Public Health Reports* 65, no. 23 (1950): p. 743. In fiscal year 1948, the first year of actual construction, grants for hospital construction were made to Alabama, Florida, Maryland, Mississippi, North Carolina, Oklahoma, and South Carolina. See *Annual Report of the Federal Security Agency, 1948: Public Health Service*, (Washington, D.C.: U.S. Government Printing Office, 1949), p. 438.

⁵²⁷ *Annual Report of the Federal Security Agency, 1948: Public Health Service*, p. 387, 438.

⁵²⁸ Calculated from Paul A. Brinker and Burley Walker, "The Hill-Burton Act: 1948-1954," *The Review of Economics and Statistics* 44, no. 2 (1962): p. 211. The highest per capita income recipients were Delaware, Washington, D.C., Nevada, Connecticut, California, New York, Illinois, and New Jersey. The lowest were Mississippi, Arkansas, Alabama, South Carolina, North Carolina, Kentucky, Tennessee, and Georgia. Not all of the money allocated was actually spent. On average, the eight poorest states used 89 cents *per capita*, while the eight richest used 34 cents *per capita*.

A massive undertaking, Hill-Burton construction further expanded the Public Health Service's role in preserving and helping to reproduce the southern racial order. Following the model of New Orleans's Charity Hospital, built by the federal Public Works Administration during the New Deal, the new hospitals were constructed with internally segregated wards for white and black. The Public Health Service closely supervised and regulated new construction, often providing blueprints for spatially segregated buildings.⁵²⁹

Measured in terms of increased access to facilities, Hill-Burton was a boon for both black and white southerners. As Karen Kruse Thomas has shown, the program "resulted in the proliferation of modern, well-equipped hospitals that admitted black and white patients but internally segregated them by ward or floor. These biracial hospitals substantially included blacks in the dramatic postwar expansion, modernization, and geographic redistribution of southern hospital facilities, which without [Hill-Burton] would have remained racially separate and grossly inadequate for patients of all races."⁵³⁰

Though these advances were real, blacks remained subject to humiliation and discrimination. Where new additions were made to existing hospitals, black patients were relegated to the old facilities. Black physicians were often denied staff privileges at the new hospitals, meaning that they could not treat their patients once they had been admitted.⁵³¹

⁵²⁹ Thomas, "The Hill-Burton Act and Civil Rights: Expanding Hospital Care for Black Southerners, 1939-1960," p. 830.

⁵³⁰ *Ibid.*: p. 825-26. By 1971, Hill-Burton funds had been used to construct 10,644 hospitals that admitted patients of both races, whether on a segregated or integrated basis. Hill-Burton funds were used to construct 84 all-white facilities and 20 all-black facilities. See ———, "The Hill-Burton Act and Civil Rights: Expanding Hospital Care for Black Southerners, 1939-1960," p. 861.

⁵³¹ See for instance *Baltimore Afro-American*, (Baltimore), "End of Segregation in All Hospitals Urged," July 25, 1953; "Hospital Discrimination Must End!," *Journal of the National Medical Association* 45, no. 4 (1953). "Who is still unfamiliar," the *Journal of the National Medical Association* asked in 1953, "with the pattern, where segregation is practiced, "in which Negro patients regularly inherit the old, outmoded and inadequately maintained parts of hospitals which are improved by the construction of new units or wings? Wherever segregation is practiced it has regularly been found that

The journal of the National Medical Association, the professional organization of black physicians, deemed the new hospitals “a kind of *de luxe* Jim Crow which is supposed to be more palatable than the customary variety and therefore more acceptable.”⁵³² From the perspective of the National Medical Association, it was not: “The cruel irony of the fact that the new segregated hospitals are concerned with such a vital human consideration as health should be as stinging a rebuke to the consciences of those who force them [to be segregated], as they are crushing a depressant to those who must accept them.” Since there was little likelihood that whites would desegregate the hospital system on their own, the NMA encouraged blacks to actively pursue change. “The load is fully on the minority physician to evince more leadership in enunciating the goals and drawing the blueprints for full equality in medicine.”⁵³³ Along with the NAACP, the National Medical Association endorsed desegregation of hospitals and the granting of full staff privileges to black physicians.⁵³⁴

In the aftermath of the Supreme Court’s 1954 *Brown v. Board of Education* decision, the Public Health Service’s role in perpetuating the South’s racial order became increasingly glaring. One of the Service’s apparent strengths, its longstanding integration with the communities it served, now appeared, to advocates of civil rights, to be a federally-endorsed example of racial recalcitrance. By the early 1960s, the National Medical Society and the NAACP had both come to view Hill-Burton’s “separate-but-equal” clause as a potential object of litigation. In November of 1961, the *Journal of the National Medical Association* asserted its belief that segregation in

the nursing care both in quantity and quality, the general personnel attention, and the adequacy of such necessities as diet, bed linen and provisions for privacy in personal matters have been worse for the Negro than for white patients.”

⁵³² “The Crushing Irony of De Luxe Jim Crow,” *Journal of the National Medical Association* 44, no. 5 (1952): p. 386.

⁵³³ *Ibid.*: p. 387.

⁵³⁴ See “Hospital Discrimination Must End!”

hospitals that accepted Hill-Burton Funds, whether public or private, was almost certainly unconstitutional. "Interested attorneys," the *Journal* reported, believed "that racial discrimination in hospitals can be fought effectively in court actions based on Federal Government involvement in hospital activities."⁵³⁵

Three months later, in February of 1962, a group of black dentists, physicians, and patients, backed by the NAACP's Legal Defense Fund, brought suit in the U.S. District Court in Greensboro, North Carolina, arguing that segregation in hospitals that had received Hill-Burton funds was unconstitutional. The suit named two Greensboro hospitals, Moses H. Cone Memorial, which operated separate wards for black and white, and Wesley Long Community, which did not admit any black patients. It requested that the Court "issue a declaratory judgment that the separate but equal provisions of the Hill-Burton Act violated the constitutional guarantees of due process and equal protection."⁵³⁶

On May 8th, following an initial period of silence, the Department of Justice joined the suit, asking the Court to declare Hill-Burton's "separate-but-equal" clause unconstitutional and mandate desegregation in hospitals that had received Hill-Burton funds. Moses Cone, Attorney General Robert Kennedy noted in a written statement, had received \$1,229,552 in federal money, while Wesley Long had received \$1,596,301.⁵³⁷ Despite the contention of the NAACP, the plaintiffs, and the Justice Department that, because the hospitals had received federal money, channeled through state governments, they were instruments of government, the Greensboro District

⁵³⁵ "Hill-Burton "Separate but Equal" Provision Unconstitutional," *Journal of the National Medical Association* 53, no. 6 (1961).

⁵³⁶ *The New York Times*, "Medical Bias Charged," February 13, 1962.

⁵³⁷ *Ibid.*, "U.S. Moves to Integrate Federally Aided Hospitals: Joins Suit by Negroes in North Carolina Demanding End of Color Line- Calls '46 Separation Act Unconstitutional," May 9, 1962; *The Washington Post*, "U.S. Backs Negro Plea on Hospitals," May 9, 1962.

Court found in December 1962 that Moses Cone and Wesley Long were both private institutions and could choose to continue segregating patients if they so desired.⁵³⁸

Although the Kennedy Justice Department believed that the District Court's ruling would be overturned on appeal, it put the administration and pro-civil rights congressional Democrats in a somewhat awkward position.⁵³⁹ It was evident that the Public Health Service, a federal agency, was actively involved in the promotion of segregation. New Jersey Democratic Senator Harrison "Pete" Williams, writing to a Public Health Service official in February 1963, bemoaned the Service's ongoing post-*Brown* insistence on adhering to the principle of "separate but equal" and local practices of segregation: "Considering that the United States Supreme Court, in a unanimous decision, declared this doctrine unconstitutional, I find it hard to accept your position. I cannot think that a Federal agency must continue to operate, some eight years after the Court's decision, in a manner that perpetuates this principle."⁵⁴⁰

Despite the mounting indignation of civil rights advocates, the President and Democratic leaders in Congress continued to back Hill-Burton, a politically popular program that brought sorely needed access to hospitals to some of the nation's most impoverished communities.⁵⁴¹ Though there were suggestions that the President might

⁵³⁸ "Constitutional Law: Discrimination by Private Hospitals Participating in Hill-Burton Program Held to Be Violation of Fifth and Fourteenth Amendments," *Duke Law Journal* 1964, no. 4 (1964): p. 909; *The New York Times*, "Color Bar Tested in Hospital Suit: North Carolina Case Involves U.S. Construction Funds," August 15, 1963.

⁵³⁹ See for instance *The Chicago Defender*, (Chicago), "Admits U.S. Money Subsidizes Jim Crow in Dixie, Elsewhere," July 8, 1963; *The Washington Post*, "President Pointed to the Paradox of U.S. Aiding Discrimination," June 24, 1963. In his June special message to Congress on civil rights, the President decried "indirect discrimination through the use of Federal funds." "The United States Public Health Service," the *Washington Post* noted in its report on the message, "will pour out millions to build hospitals that serve whites only or maintain segregated wards. Under the Hill-Burton program for hospital construction, localities are free to pursue a 'separate but equal' policy using the Federal money. This provision is now the subject of a Federal court test in North Carolina."

⁵⁴⁰ Quoted in Quadagno, *One Nation, Uninsured*, p. 85. Harrison's letter was dated February 4, 1963.

⁵⁴¹ See for instance Lawrence J. Clark, "The Impact of Hill-Burton: An Analysis of Hospital Bed and Physician Distribution in the United States, 1950-1970," p. 545. "Though the original intent of Congress," write Clark, Field, Koontz, and Koontz, "was partly redistributive, the Hill-Burton program was structured like a classic pork-barrel or distributive policy. Its benefits were clearly visible and were distributed to all states and many communities, although less affluent areas got more than others. Its

follow the lead of Truman and issue an executive order banning segregation in Hill-Burton facilities or ask Congress to withhold funding, the administration preferred to pursue an independent civil rights bill.⁵⁴² In August of 1963, when New York Republican Senator Jacob Javits nearly succeeded in adding an anti-segregation rider to the Hill-Burton appropriation for the 1964 Fiscal Year, as he had attempted to do for other legislation during 1963, Senate Democratic Leader Mike Mansfield worked to ensure its defeat and avoid a southern filibuster. Majority Whip Hubert Humphrey, who had declared his unwillingness to vote against desegregation riders to the President a few weeks before, was successfully dispatched to convince northern Democrats to vote against the Javits Amendment.⁵⁴³

In November 1963, the United States Court of Appeals in Richmond, Virginia overruled the Greensboro District Court, finding that Hill-Burton construction involved “extensive state-Federal sharing in the common plan.” As an undertaking of state governments and of the federal government, “separate-but-equal” hospital construction violated the Fifth and Fourteenth Amendments to the Constitution.⁵⁴⁴ The dissenting opinion, which attempted to categorize federal grants-in-aid as a form of gift that did not bind the recipient, noted that the legislative language underpinning

burdens, on the other hand, were less visible, being submerged in general income taxes... The popularity of the original legislation is suggested by its relative freedom from major amendments, especially during the period to 1964, and by its survival in the face of the Nixon administration’s efforts to end the program.”

⁵⁴² See for instance *The Wall Street Journal*, “Pressure Tactic: Government Readies Cutoff in Federal Aid to Force Integration,” August 6, 1963.

⁵⁴³ Senator Javits, the *Wall Street Journal* reported, “briefly swung a majority to his side by noting, among other things, that since 1960 the Surgeon General of the U.S. had granted permission to 33 Southern communities to build segregated hospitals or related facilities with Federal taxes collected from whites and Negroes alike.” Ibid., “GOP Sees Political Gain in Senate Defeat of Antibias Rider by Northern Democrats,” August 9, 1963.

⁵⁴⁴ *The New York Times*, “Bias in Hospitals Barred by Court: Color Line Under Hill-Burton Act Held Unconstitutional,” November 2, 1963; *The Washington Post*, “Hospitals on Federal Aid Ruled Open to Negroes,” November 2, 1963; “Constitutional Law: Discrimination by Private Hospitals Participating in Hill-Burton Program Held to Be Violation of Fifth and Fourteenth Amendments.”

hospital segregation was fairly unmistakable: “Congress showed its legislative intent by refusing to strike the ‘separate but equal’ clause from the Hill-Burton Act in August.”⁵⁴⁵

Followed swiftly by the 1964 Civil Rights act, Title VI of which explicitly prohibited discrimination on the basis of “race, color, or national origin” in programs receiving federal aid, the Appellate Court’s decision appeared to demand action from the Public Health Service. Civil Rights advocates, however, were dismayed by the Service’s languid response. Though it put in place a new set of regulations outlawing discriminatory practices by future recipients of Hill-Burton aid, the Service appeared reluctant to enforce the new rules took little action against existing patterns of segregation. Throughout 1964 and 1965, the NAACP continued to document segregation in southern hospitals and to lodge complaints with the Department of Health, Education, and Welfare, which oversaw the Public Health Service.⁵⁴⁶ One NAACP lawyer, speaking to the *New York Times* in 1965, noted that HEW had “started extremely slowly, and they seemed to have no idea of what was involved. They had allocated little money and no manpower until we started hitting them with complaints and started putting them in the public eye.”⁵⁴⁷

The difficulties inherent in the project of desegregating the South’s hospitals were exacerbated by the close relationships that Public Health Service officers had formed with the communities in which they lived and worked. “The Public Health Service,” sociologist Jill Quadagno finds in her analysis of hospital desegregation, “did not respond forcefully because staff in its local offices had deeply embedded ties

⁵⁴⁵ This quotation is from the *Washington Post*’s summary of the ruling. See *The Washington Post*, “Hospitals on Federal Aid Ruled Open to Negroes,” November 2, 1963; *The New York Times*, “Bias in Hospitals Barred by Court,” November 2, 1963.

⁵⁴⁶ See Elinor Langer, “Hospital Discrimination: Hew Criticized by Civil Rights Groups,” *Science* 149, no. 3690 (1965).

⁵⁴⁷ *The New York Times*, “Hospitals Assailed for Maintaining Racial Policies,” June 14, 1965.

to local political structures and were satisfied to leave the resolution of conflicts to local officials.”⁵⁴⁸ “Whatever they believe personally,” one civil rights lawyer noted at the time, “they are obviously going to have to experience a radical change in their thinking if they are going to administer Title VI. Even if you’re a flaming liberal it is hard to tell a guy you’ve been playing golf with for eight years that his hospital is going to have to undergo a revolution.”⁵⁴⁹

Closely identified with the interests of the South, the Public Health Service officers charged with desegregating the region’s hospitals supported its leaders and institutions to a surprising extent, dragging their feet in the face of efforts by the Courts, Congress, and the President. The passage of Medicare in 1965, however, marked the beginning of a new phase of desegregation. In order to become eligible to receive payments from the federal government for Medicare patients, hospitals needed to be certified as in compliance with Title VI of the Civil Rights Act. Importantly, the Social Security Administration, rather than the Public Health Service, was largely in control of the new desegregation push.⁵⁵⁰

As July 1, 1966, the first day of Medicare payments, approached, a number of southern hospitals continued to hold out in the hopes that enforcement would not prove harsh. President Johnson, however, took a hard line, warning a meeting of health professionals in June that “The Federal government is not going to shy away from its clear responsibility.”⁵⁵¹ Indeed, as the program took effect, the Washington Post reported that “three-fourths of Mississippi’s hospitals” were “denying benefits to

⁵⁴⁸ Quadagno, *One Nation, Uninsured*, p. 84.

⁵⁴⁹ Quoted, without attribution, in Langer, "Hospital Discrimination: Hew Criticized by Civil Rights Groups," p. 1356.

⁵⁵⁰ See Quadagno, *One Nation, Uninsured*, p. 86-93; Jill Quadagno, "Promoting Civil Rights through the Welfare State: How Medicare Integrated Southern Hospitals," *Social Problems* 47, no. 1 (2000).

⁵⁵¹ Elinor Langer, "Hospital Integration: Equality Versus Availability," *Science* 152, no. 3730 (1966).

the aged... In entire Southern communities- such as Danville, Va., Selma, Ala., and Macon, Ga.- not a single hospital was qualified to accept medicare patients.” Mobile, Alabama, “was credited with the ‘worst showing’ because only 30 of its 3986 hospitals beds were certified for medicare.”⁵⁵² For southern hospitals, however, as Jill Quadagno has shown, the pressure to accept the money offered by the federal government in the form of medicare payments quickly proved irresistible. Following the initial drama of their failure to comply, the recalcitrant hospitals fell into line fairly rapidly. The prospect of Medicare funding quickly proved irresistible. By October of 1966, “only 12 southern hospitals were still not certified.”⁵⁵³

Following the rapid decline of debilitating disease in the South during the 1930s, the Public Health Service created the Malaria Control in War Areas organization in order to ensure that the disease did not reemerge within the region and that it would not be reintroduced as a result of the return of soldiers from malarious parts of the world where U.S. soldiers fought. Following the war, MCWA was transformed into the CDC, which became the central coordinating institution for federal public health and epidemiological efforts. Although southern politicians continued to support the efforts of the federal government in areas such as the construction of segregated hospital facilities, they became increasingly wary of the potential threats that federal intervention represented to local autonomy in race relations. As a result, the region’s political leaders opposed President Harry Truman’s attempt to create a national health insurance system on the grounds that it might lead to the integration of facilities and services. The potential threat represented by the extensive federal role in southern public health materialized in the aftermath of the

⁵⁵² *The Washington Post*, “Segregation Mars Start of Medicare,” July 1, 1966.

⁵⁵³ Quadagno, “Promoting Civil Rights through the Welfare State: How Medicare Integrated Southern Hospitals,” p. 84.

passage of Medicare, which allowed the Social Security Administration to implement the federal appellate court decision that hospitals receiving federal funds should be desegregated and Title VI of the Civil Rights Act. As southern Democrats had feared during the Truman years, federal intervention and money led directly to desegregation.

CONCLUSION

Writing in 1911, Rockefeller Sanitary Commission for the Eradication of Hookworm Director Wickliffe Rose detailed a visit to a Tidewater Virginia community with endemic hookworm. The whole population, he wrote, “has for generations borne the burden of a heavy infection; the community has been islanded and this isolation has been both the cause and effect in accentuating the cumulative results- physical, intellectual, economic and moral- which have been handed down from one generation to the next.” “From generation to generation,” Rose continued, “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.”⁵⁵⁴

After the treatment of most of the locals, Rose reported, the community had been transformed. A school teacher told him that “Children who were listless and dull are now active and alert; children who could not study a year ago are not only studying now, but are finding joy in learning.” Children who had previously not attended school were now enrolled. A local woman explained that she “had been anemic since she could remember; had never until this year known a well day; had borne six children; one of them had died of hookworm disease, or ‘dropsy,’ as they thought at the time; had been confined to her bed much of the time.” “The whole family,” Rose wrote, “was ill, the father being able to do about half work and the elder boy doing almost none.” A year after the Rockefeller Sanitary Commission came to

⁵⁵⁴ *Rockefeller Sanitary Commission, Second Annual Report*, p. 125-26.

the area, the family appeared fully recovered. All who were old enough to work were doing so. The oldest boy, who Rose observed at work plowing corn, planned on going to school in the fall.⁵⁵⁵

Rose's description makes it clear that surrounding communities viewed those living in the hookworm-ravaged area, "a people set apart by marked peculiarities," with an unease that bordered on disgust. The local physician who had been in charge of the hookworm campaign, according to Rose, was convinced that the effects of the elimination of hookworm in "reforming the moral life of the individual and elevating the moral tone of the community" would prove "as marked as the economic results." Though a few individuals and families had held out against treatment, Rose wrote, "they are being ostracized by their neighbors, and it is only a question of time when they must yield to the force of enlightened public sentiment."⁵⁵⁶

The transformation of this community appeared, to Rose, to herald the redemption of an entire region long blighted by disease. Shiftless men, women, and children would become, almost overnight, productive members of society. They would work at full capacity in the fields, attend school, and purchase more than the "barest necessities."⁵⁵⁷ "The results which I witnessed here," he wrote, "are not only gratifying, they are stirring. I predict that within five years the whole face of the country in those pockets of extreme infection will be changed and one will see here a new people and a new earth."⁵⁵⁸

⁵⁵⁵ Ibid., p. 122-23.

⁵⁵⁶ Ibid., p. 126.

⁵⁵⁷ Ibid., p. 124-25. Rose describes a conversation with a local store owner in which the store owner reported that "already the change is coming... all who are old enough to work are earning something; they are feeling hopeful and buying more things."

⁵⁵⁸ Ibid., p. 125-26.

A LAND TRANSFORMED

Although Rose's prediction was premature in its timing, and characteristic of the early stages of public health intervention in its utopianism, his vision of a South revolutionized by public health practices proved prescient. While the region's white leaders clung to segregation and asserted their determination to maintain the southern "way of life" during the postwar decades, the South was already, in important respects, a land transformed. An economic system that fostered severe and unrelenting poverty had been fatally compromised by the programs of the New Deal, particularly the Agricultural Adjustment Act and its successors. While the residue of the old system remained, sharecropping and tenancy were increasingly things of the past.

Other substantial changes improved living conditions in the South and made in-migration more likely. Air conditioning helped to blunt the heat of southern summers, increasing the likelihood that northerners would turn south both for business and for leisure. The Civil Rights Movement, bolstered by decisions by the Supreme Court and actions by the Executive Branch and ultimately Congress, was on the brink of achieving the legal desegregation of the United States and reinstatement of black voting rights.

At the heart of the South's postwar economic growth were outside investment, improving levels of human capital, increased consumption, in-migration of talented individuals, tourism, and the movement of retirees. Though the elimination of debilitating disease was not a sufficient condition for the emergence of this new economy, it was a necessary one. At the level of the individual and family, hookworm, pellagra, and malaria worked to ensure low levels of educational attainment, compromised productivity, and limited cognitive function. In the absence of public health measures, the victims of these diseases had little recourse beyond hope. At the level of the community and the region, the burden of disease was greater than the sum

of its parts. Indigenous business, technology, and energy were hampered by a population trapped in poverty and disease and unable to find its way out. People from outside the South, meanwhile, were unlikely to invest in its development, relocate to the region, or vacation there. Previously a land set apart, the South became increasingly amenable to outsiders.

At the risk of oversimplification, it is worth considering the disease burden that confronted particular areas in the first decades of the twentieth century. Harris County, Texas, the core of the Houston metropolitan area, was subject to both malaria and hookworm at the beginning of the 20th Century. Even after World War I, when Harris County was the site of the Public Health Service's Camp Logan Extra-Cantonment zone, the county had a "moderate" incidence of malaria, averaging 1.5 deaths per 10,000 population between 1919-1921.⁵⁵⁹ When surveyed by the Rockefeller Sanitary Commission, 55.6% of the county's schoolchildren were found to be infected with hookworm.⁵⁶⁰ Something of a deviation, given the already urban character of Houston, the Public Health Service and the International Health Board both played important roles in the decline of debilitating disease in Harris County.

More typical is Madison County, Alabama. Home to Huntsville, a paradigmatic New South town centered around the aerospace industry and a large Toyota manufacturing plant, Madison County was found to be among the most malarious counties in Alabama during the 1910s by the Public Health Service.⁵⁶¹ Hookworm incidence, however, was relatively light, with only 13.6% of

⁵⁵⁹ Maxcy, "The Distribution of Malaria in the United States as Indicated by Mortality Reports," p. 1130. *Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1918*, p. 129. In neighboring Chambers County, the rate was 4.8 per 10,000.

⁵⁶⁰ *The Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, Fourth Annual Report*, p. 75.

⁵⁶¹ See "Malaria in Alabama: Prevalence and Geographic Distribution- 1915 and 1916," *Public Health Reports* 32, no. 51 (1917).

schoolchildren infected.⁵⁶² A county of significant cotton production, pellagra was almost certainly present. Like other Alabama counties along the Tennessee River, Madison County gained significant public health benefits from the construction of the Muscle Shoals Nitrate Plant during World War I. The Public Health Service actively fought malaria in the area throughout the war. Beginning in 1918, the Service provided funds to help stimulate the creation and ongoing operation of a full-time county health department in Madison County.⁵⁶³

Hilton Head Island, located in Beaufort County, South Carolina, is home to a flourishing tourism industry. During 1919-1921, the county had an average of 5 malaria deaths per 10,000 residents, indicating a moderate to severe malaria problem. Though apparently not surveyed by the Rockefeller Sanitary Commission, Beaufort County's location along the South Carolina coast meant that hookworm was likely endemic. The average infection rate for the county's State Economic Area, a means of harmonizing county data across decades and imputing missing information employed by the Census Bureau, was a staggering 82%.⁵⁶⁴ County health work, backed by the Rockefeller International Health Board, began in Beaufort County in 1924. The Public Health Service began cooperative work in the county in 1931.⁵⁶⁵

⁵⁶² *The Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, Third Annual Report*, p. 32.

⁵⁶³ Mead, *Public Health Bulletin No. 222: History of County Health Organizations in the United States, 1908-33*.

⁵⁶⁴ Steven Ruggles; J. Trent Alexander; Katie Genadek; Ronald Goeken; Matthew B. Schroeder; Matthew Sobek, *Integrated Public Use Microdata Series: Version 5.0 [Machine-Readable Database]* (Minneapolis: University of Minnesota, 2010). Counties grouped within State Economic Areas are typically contiguous and possess historically similar economic characteristics. Calculated from SEA County Components and RSC Hookworm infection data, collected by the author. SEAs have been similarly used by Hoyt Bleakley to fill in gaps in the available Rockefeller data.

⁵⁶⁵ Mead, *Public Health Bulletin No. 222: History of County Health Organizations in the United States, 1908-33*.

THE OUTLINES OF SUCCESS

Public health scholar David Hemenway has suggested four key reasons that public health programs are underfunded.⁵⁶⁶ Considering the development of the Rockefeller Foundation and Public Health Service's southern public health efforts from this perspective sheds some light on the outlines of their successes. First, Hemenway argues, "the benefits of public health programs lie in the future... Most public health measures... incur costs today but don't provide benefits until sometime in the future." For both the victims of hookworm, pellagra, and malaria and their employers and creditors, small investments in public health could yield quick and tangible results. Within a short period of time, ill southerners could be freed of the effects of disease and back to work at higher levels of productivity. This provided both those suffering from disease and those who stood to benefit from increased worker productivity, such as landowners and mill owners, with clear short-term incentives for supporting public health interventions.

"Second," Hemenway argues, "the beneficiaries of public health measures are generally unknown... Public health interventions... are aimed at improving the health of a group of people; when lives are saved, it's often unclear whose lives they were." People "have stronger emotional and moral reactions to the plights of identifiable victims than to those of statistical victims... We willingly provide resources for relief when publicized catastrophes affect specific individuals or communities, from New Orleans to Haiti." At the ground level, of course, the victims of debilitating disease were readily identifiable. More importantly, from this perspective, external support for preventive public health measures in the South expanded episodically, in reaction to specific focusing events. This is particularly true for the development of federal

⁵⁶⁶ David Hemenway, "Why We Don't Spend Enough on Public Health," *The New England Journal of Medicine* 362, no. 18 (2010).

intervention in public health. Emerging out of the World War I extra-cantonment zones, the Public Health Service's rural cooperative sanitation program went largely unnoticed by Congress between 1919 and 1927, when its expansion was portrayed as a workable reaction to a specific crisis situation. Ultimately, the PHS proved capable of transforming the opportunities offered by national attention to the plight of southerners in specific moments into lasting gains in preventive public health infrastructure.

“Third,” Hemenway writes, “in public health, the benefactors, too, are often unknown... Public health has little news value- saving statistical lives doesn't make for good human-interest stories of photo ops. Public health also has few well-known scientists or leaders.” As a result, “there is generally no grateful public providing substantial support for public health initiatives.” This condition also does not hold for the early 20th Century South. As a benefactor, few were less well-known than John D. Rockefeller. Charismatic individuals, meanwhile, played a central role in the development of public health. Charles Wardell Stiles and Joseph Goldberger were both well-known scientists whose actions were publicized in national newspapers, magazines, and in books. As a result of the dramatic nature of the diseases that plagued the South, individual political leaders could claim credit for supporting the efforts of either the Rockefeller Foundation or the Public Health Service.

Finally, writes Hemenway, “some public health efforts encounter not just disinterest but out-and-out opposition.” Because public health initiatives “often require societal change,” they may provoke opposition may come from individuals and communities. In other instances, such as public health measures aimed at curbing tobacco use, attempts at change may prompt the opposition of powerful special interests. Writing in 1932, sociologist Rupert Vance cited the growth of county health boards in the South as “the most valuable single index of the change in attitude” among southerners since the initial backlash against John D. Rockefeller's

announcement that he would donate \$1 million towards fighting hookworm in the region: “Representing local units, financed partly from local funds, employing local doctors, these organizations encountered less and less antagonism in their attack on hookworm and malaria.”⁵⁶⁷

The general trend towards acquiescence in public health measures, as indicated by the decline of hookworm, pellagra, and malaria, is impressive. Well-integrated with local communities and supported by local elites, public health workers developed techniques over the course of the 1910s and 20s that both persuaded and pressured those who were indifferent or resistant towards public health measures. Widespread support for public health measures meant that members of a community who resisted would be frowned upon or, in the case of privy-building campaigns, publically embarrassed. Entire communities that might not have been freed of disease were prodded towards participation by representatives of the Rockefeller Foundation and the Public Health Service, who could point to evidence of the success of public health efforts in nearby areas. Local elites, meanwhile, assumed a central role in the development of public health efforts: authorizing and cooperating with outside interventions, they helped to ensure that tenant farmers, both black and white, participated.

Though they intruded at times on personal privacy, public health workers tended to favor solutions based on persuasion rather than outright coercion. Rather than viewing blanket privy laws as a solution to the problem of hookworm, they facilitated the construction of privies and brought community pressure to bear on those who resisted. After raising the ire of southern leaders in 1921, Joseph Goldberger focused on developing a technological, rather than political-economic, fix to the problem of pellagra. After, 1927, knowledge of the pellagra-preventive qualities of

⁵⁶⁷ Vance, *Human Geography of the South*, p. 385-86.

brewer's yeast was then diffused through persuasion, publicity, and word of mouth. Effective malaria control, meanwhile, rested on drainage, larvacide, and the screening of individual dwellings. Both drainage and larvaciding could be accomplished without the participation of individual households. Screening, crucially, could not. Supported by landowners, local health departments measured the windows and doors of tenant dwellings, whose occupants proved far more willing to install and maintain screens than plantation owners had assumed they would.

Unlike the later fight against lung cancer, which aroused the opposition of the tobacco lobby, there were no southern special interest groups with any motivation to oppose the actions of the Rockefeller Foundation and the Public Health Service during the 1910s, 20s, and 30s. With the important exceptions of their initial response to the Rockefeller hookworm donation and the 1921 response to President Harding's "famine and plague" comments, southern elites proved highly receptive to outside offers of intervention in public health. Resistance made little sense for southern businessmen and landowners who stood to gain both directly and indirectly from the development of county health departments.

Concerns about the preservation of segregation and white supremacy, which played an important role in southern opposition to Harry Truman's health insurance initiative, had little negative impact on the earlier fight against hookworm, pellagra, and malaria. Though public health workers explicitly furthered measures that would benefit black southerners, interventions were framed within the context of prevailing racial attitudes. Freeing white southerners of disease could only be achieved if the "reservoir of disease" within the black population was eliminated; alternatively, blacks would prove more reliable and efficient workers if they didn't suffer from debilitating disease. Rather than challenging the racial order, public health interventions aimed at both white and black helped to reproduce it. The degree to which the Public Health

Service was invested in and participated in the southern *status quo* is well-illustrated by the reluctance of its officers to desegregate southern hospitals during 1964 and 1965.

For those concerned with ameliorating the disastrous effects of debilitating disease in the contemporary Third World, the implications of this analysis are mixed. The decline of hookworm, pellagra, and malaria in the face of severe and ongoing poverty suggests that the reciprocal relationship between poverty and disease may indeed be broken. As Jeffrey Sachs and others have suggested, removing the burden of disease may help to release the dormant energies of millions, even billions, of people.

Framing the problem in this manner, however, obscures the relationship between scientific knowledge and the implementation of public health measures. William Easterly, a critic of Sachs, has argued that rather than focusing on large-scale plans aimed at bringing “the end of poverty,” development aid should be directed towards finding ways to succeed in an individual specified task. Portraying Sachs’s approach as essentially utopian and unworkable, Easterly aligns himself with the intellectual legacy of Edmund Burke and Karl Popper, who, he writes, “recognized the economic and political complexity of society. That complexity dooms any attempt to achieve the end of poverty through a plan, and no rich society has ended poverty in this way.”⁵⁶⁸

The elements of a successful strategy for freeing the South of disease were assembled, piecemeal, over the course of nearly two decades. Even when the causes and appropriate treatments for diseases were known, practical public health measures required experimentation in the field, mobilization of local elites, and integration with

⁵⁶⁸ See William Easterly, *The White Man's Burden: Why the West's Efforts to Aid the Rest Have Done So Much Ill and So Little Good* (New York: Penguin Books, 2006), p. 15.

local practices, beliefs, and expectations. In practice, this meant that public health workers often helped to reinforce and perpetuate local hierarchies. Public health interventions were couched in terms of both race and class; later, when the federal government began funding hospital construction in the South, the hospitals were segregated. If the experience of the South is any guide, implementing public health interventions within the context of hierarchical and largely rural societies may raise difficult questions about the tradeoffs between principle and effectiveness.

CONCLUSION

Seemingly both straightforward and intractable, the burden of disease was among the central facts of southern life during the first decades of the twentieth century. The federal government, increasingly active in the region as a consequence of war, tragedy, and bureaucratic entrepreneurship, came to play a decisive role in the elimination of the South's debilitating diseases during the 1930s. Ultimately, the federal response to southern disease resulted in the creation of permanent institutions that continue to dominate public health practice in the United States to this day. Shaped by both the nature of the South's medical problems and the nature of its politics, the federal role in public health at the local level is now an established fact.

For the people of the South as well as for the nation as a whole, the eradication of hookworm, pellagra, and malaria represented a genuine, if ultimately forgotten, triumph. If not entirely a "new people and a new earth," the post-intervention South resembled, in its freedom from debilitating disease and increasingly in its level of prosperity, the rest of the nation rather than the Third World.

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