Epidemiologists Explain Pellagra: Gender, Race, and Political Economy in the Work of Edgar Sydenstricker

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Abstract. Between 1900 and 1940, at least 100,000 individuals in the southern United States died of pellagra, a dietary deficiency disease. Although half of these pellagra victims were African-American and more than two-thirds were women, contemporary observers paid little attention to these gender and racial differences in their analyses of disease. This article reviews the classic epidemiological studies of Joseph Goldberger and Edgar Sydenstricker, who argued that pellagra was deeply rooted in the political economy of cotton monoculture in the South. The methods that Sydenstricker brought to epidemiology from early work on political economy obscured the role of gender inequalities in pellagra, and his focus on economic underdevelopment led him to ignore the prominent role of African-Americans as pellagra's principal victims. Research methods and traditions, no less than more overt ideologies, played a role in maintaining the subordinate social position of women and African-Americans in the southern United States. ***Keywords:*** epidemiology, pellagra, Edgar Sydenstricker, Joseph Goldberger, gender, race, African-Americans.

IN 1920, U.S. Public Health Service (PHS) researchers Joseph Goldberger and Edgar Sydenstricker reported on their ongoing study of pellagra in South Carolina cotton mill villages.[1] The study confirmed their previous contention that pellagra was a dietary deficiency disease whose underlying causes were rooted in the economic conditions of the southern United States. Not only

1. Joseph Goldberger, G. A. Wheeler, and Edgar Sydenstricker, "A Study of the Relation of Diet to Pellagra Incidence in Seven Textile-Mill Communities of South Carolina," *Public Health Rep.*, 1920, *35*, 648–709; Joseph Goldberger, G. A. Wheeler, and Edgar Sydenstricker, "Pellagra Incidence in Relation to Sex, Age, Season, Occupation and 'Disabling Sickness' in Seven Cotton-Mill Villages of South Carolina in 1916," *Public Health Rep.*, 1920, *35*,

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was pellagra incidence highest in the lowest income groups, but also it was greatest in districts devoted to "King Cotton," where monoculture and sharecropping were a way of life.[2]

Praised by Harvard University's David Edsall as "unique . . . in the breadth of [their] conception and in the care and patience with which" they were executed, the mill village studies have long been acknowledged as "classics" in social epidemiology.[3] Yet Goldberger's and Sydenstricker's 1920 analysis of the social epidemiology of pellagra was deeply flawed. Then, and in later studies, both men ignored two of the most salient social facts about pellagra: The U.S. Bureau of the Census annual mortality reports indicated that African-Americans, despite their lesser numbers, accounted for half of all pellagra deaths, and that women of all colors accounted for 69 percent of all such deaths (Fig. 1).[4]

On the face of it, Goldberger's and Sydenstricker's inattention to race and gender differentials in mortality comes as a surprise. Historians have delineated the crucial role of race ideology in shaping late nineteenth- and early twentieth-century interpretations of disease. Across the political spectrum, it seemed difficult to talk of disease in the South without invoking race. For conservative physicians, high rates of tuberculosis and other infectious diseases among African-

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1650–64; Joseph Goldberger, G. A. Wheeler, and Edgar Sydenstricker, "A Study of the Relation of Factors of a Sanitary Character to Pellagra Incidence in Seven Cotton-Mill Villages of South Carolina in 1916," *Public Health Rep.*, 1920, *35*, 1701–14; Joseph Goldberger, G. A. Wheeler, 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," *Public Health Rep.*, 1920, *35*, 2673–2714. A follow-up study, including additional villages, was published in 1929: Joseph Goldberger, G. A. Wheeler, Edgar Sydenstricker, and Wilford I. King, *A Study of Endemic Pellagra in Some Cotton-Mill Villages of South Carolina*. U.S. Hygienic Laboratory Bulletin no. 153 (Washington, D.C.: Hygienic Laboratory, 1929).

2. Goldberger, Wheeler, and Sydenstricker, "A Study of the Relation of Family Income".

3. David L. Edsall to [Surgeon-]General Blue, 23 July 1917, Box 150, (1648), Central File, 1897–1923, U.S. Public Health Service (PHS), Record Group (RG) 90, National Archives (NA), College Park, Md.; Robert F. Korns and Peter Greenwald, "Commentary," in Richard V. Kasius, ed., *The Challenge of Facts. Selected Public Health Papers of Edgar Sydenstricker* (New York: Prodist, 1974), p. 250; Milton Terris, "Introduction," in idem, ed., *Goldberger on Pellagra* (Baton Rouge: Louisiana State University Press, 1964), pp. 3–16.

4. The Census Bureau did not began reporting pellagra deaths by race until 1914. Nonwhite deaths, largely if not exclusively African-American, account for 50.3% of the total, 1914–1940. United States, Bureau of the Census, *Mortality Statistics* [1914–1940] (Washington, D.C.: Bureau of the Census, 1916–1941). Because southern states were late in joining the official Death Registration Area, and because pellagra was concentrated in the South, this is surely an underestimate.

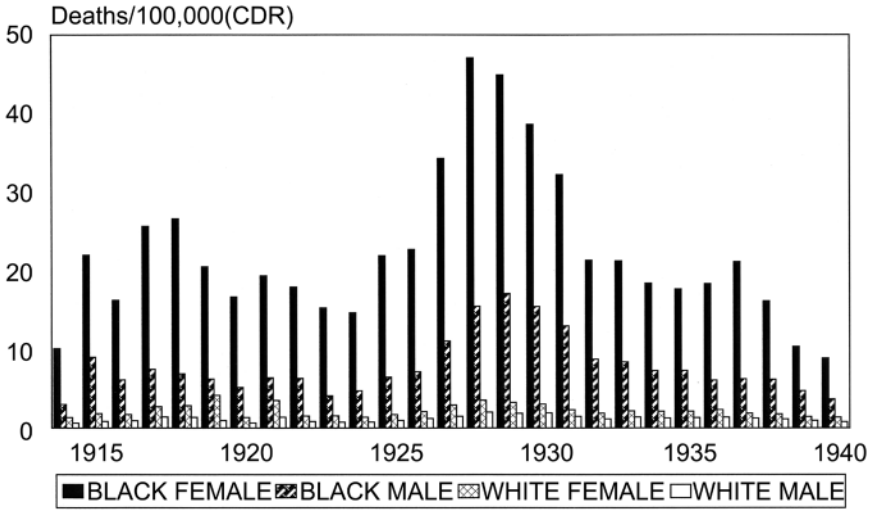

Fig. 1. Pellagra mortality: 1914–1940 (U.S. Bureau of the Census, Mortality Statistics, 1914–1940). CDR = crude death rate.

Americans served as proof of the errors of emancipation. African-Americans allegedly were constitutionally maladapted to the rigors of modern, free life. For "progressive" reformers, the potential transmission of germs across the "color line" served as justification for public health campaigns in the African-American community.[5] For the most part, however, pellagra was not such a race-identified disease.

5. I take the term race ideology from Barbara Jeanne Fields, "Slavery, Race and Ideology in the United States of America," *New Left Rev.*, 1990, *181*, 95–118. For "conservative" analyses of tuberculosis, see Marion M. Torchia, "Tuberculosis among American Negroes: Medical Research on a Racial Disease, 1830–1950," *J. Hist. Med. Allied Sci.*, 1977, *32*, 252–79; Tera W. Hunter, *To 'Joy My Freedom. Southern Black Women's Lives and Labors After the Civil War* (Cambridge, Mass.: Harvard University Press, 1998), pp. 188–91. On the "progressive" campaigns against tuberculosis and other contagious diseases, see Stuart Galishoff, "Germs Know No Color Line: Black Health and Public Policy in Atlanta, 1900–1918," *J. Hist. Med. Allied Sci.*, 1985, *40*, 22–41; Donald Doyle, *New Men, New Cities, New South. Atlanta, Nashville, Charleston, Mobile, 1860–1910* (Chapel Hill: University of North Carolina Press, 1990), pp. 280–89; Hunter, *To 'Joy My Freedom*, pp. 203–17 (who emphasizes the repressive character of the initial public health regulations). I am deeply indebted to JoAnne Brown for the formulation adopted here, which sees both aspects of racialized thinking as complementary and active in shaping public health programs in the pre-1930 period. See JoAnne Brown, "The Color of Contagion: Germ Theory, Tuberculosis, and the Semantics of Segregation," paper presented to the Section on Medical History, Yale University, 2 November 1995; idem, "Matters of Life and Death: Chronic Illness and Political Culture in the United States, 1865–1945," unpublished manuscript.

And, unlike sickle cell anemia, a condition whose racial identity was similarly slow in coalescing, pellagra was a highly visible disease whose causes were publicly disputed for the first three decades of the century.[6]

Similarly, Sydenstricker and Goldberger might have drawn on a readily available vocabulary for talking about the gender differential in pellagra mortality. As historians have repeatedly demonstrated, progressive-era reformers emphasized the importance of protecting the "mothers of the race" to ensure their reproductive capacities.[7] Yet pellagra was never implicated in such "maternalist" discourses, despite its partiality for women of child-bearing age.

Relying heavily on Goldberger's and Sydenstricker's analyses, historians have emphasized the impact of pellagra on poor southern whites, largely ignoring racial disparities in vulnerability to pellagra. By contrast, gender inequalities *have* been emphasized by recent historians. These scholars have little to say, however, about why contemporary observers should have failed to comment on such an obvious social disparity.[8]

The complex question of why women (white or black) and African-Americans were at greater risk for death from pellagra deserves detailed historical analysis in its own right.[9] My aim in this article, however, is to explain how and why insightful social analysts such as Goldberger and Sydenstricker failed to recognize the epidemiological significance of pellagra deaths among women and African-Americans. Their failure was embedded in a set of research practices and social policies that long preceded their application to pellagra. These prac-

6. Keith Wailoo, *Dying in the City of the Blues. Sickle Cell Anemia and the Politics of Race and Health* (Chapel Hill: University of North Carolina Press, 2001). The public controversy over pellagra is discussed at length in Elizabeth W. Etheridge, *The Butterfly Caste. A Social History of Pellagra in the South* (Westport, Conn.: Greenwood Publishing Company, 1972).

7. Seth Koven and Sonya Michel, "Womanly Duties: Maternalist Policies and the Origins of Welfare States in France, Germany, Great Britain, and the United States, 1880–1920," *Am. Hist. Rev.*, 1990, *95*, 1076–1108; Richard A. Meckel, *Save the Babies. American Public Health Reform and the Prevention of Infant Mortality, 1850–1929* (Baltimore: Johns Hopkins University Press, 1990); Alisa Klaus, *Every Child a Lion. The Origins of Maternal and Infant Health Policy in the United States and France, 1890–1920* (Ithaca, N.Y.: Cornell University Press, 1993).

8. See Edward H. Beardsley, *A History of Neglect. Health Care for Blacks and Mill Workers in the Twentieth-Century South* (Knoxville: University of Tennessee Press, 1987), pp. 54–60; Jacquelyn Dowd Hall, James Leloudis, Robert Korstad, Mary Murphy, Lu Ann Jones and Christopher B. Daly, *Like A Family. The Making of a Southern Cotton World* (Chapel Hill: University of North Carolina Press, 1987), pp. 150–51; J. Wayne Flynt, *Poor But Proud. Alabama's Poor Whites* (Tuscaloosa: University of Alabama Press, 1989), pp. 174–176.

9. That question is the subject of a longer work in progress, Harry M. Marks, "Invisible Deaths? Race and Gender in the Social History of Pellagra."

tices, rooted in research traditions on the "social question" (labor-capital relations) in early twentieth-century America, made both the racial and gender inequalities manifest in pellagra invisible to those most interested in understanding the social basis of this disease.

EXPLAINING THE U.S. EPIDEMIC: THE FIRST DECADE

In 1906, an Alabama physician reported eighty-eight cases and fifty-seven deaths from an unusual disease at the Mount Vernon Insane Hospital. Each summer, the patients would develop severe skin lesions on the backs of their neck, hands, and feet. These symptoms were followed by extreme weakness, diarrhea, and in severe cases death.[10] The disease was pellagra, which we now know to be caused by a niacin deficiency. Over the next thirty-four years, at least 100,000 people would die from pellagra, the vast majority of them in the southern and southwestern states of Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, and Virginia (Fig. 2).[11] For each death, there were between two and eleven cases.[12]

Pellagra's dramatic impact on the health of southern communities has been previously charted by historians Elizabeth Etheridge and Daphne Roe. Prior to the 1900s, pellagra was unrecognized in the United States. American physicians turned first to Italian theories that pellagra was caused by spoiled corn. By the 1910s, medical opinion had shifted, with most physicians looking for an infectious cause.[13] As with many diseases, small case series provided the grounds

10. George H. Searcy, "An Epidemic of Acute Pellagra," *Trans. Med. Assoc. Alabama*, 1907, 387–92.

11. There were 99,420 deaths from pellagra in the official Death Registration Area between 1908, the first year in which pellagra deaths were officially reported, and 1940. U.S. Bureau of the Census, *Mortality Statistics* [1908–1940] (Washington, D.C.: U.S. Bureau of the Census, 1910–1941). Like that for African-American deaths, this figure underestimates the real total, given that most Southern states joined the official U.S. Death Registration Area relatively late in the 1920s.

12 The higher estimate of 11.4:1 comes from Mississippi, which was thought to have unusually complete case reporting of pellagra. W. A. Dearman, "Pellagra," *South. Med. J.,* 1928, *21*, 713. The lower estimate comes from Lavinder's survey early in the epidemic. C. H. Lavinder, "The Prevalence and Geographic Distribution of Pellagra in the United States," *Public Health Rep.*, 1912, *227*, 2076–88. For a critical discussion of case-fatality estimates, see Goldberger et al., *A Study of Endemic Pellagra*, pp. 8–18.

13. Etheridge, *The Butterfly Caste*, pp. 19–27, 49–52; Daphne A. Roe, *A Plague of Corn. The Social History of Pellagra* (Ithaca, N.Y.: Cornell University Press, 1973). Kenneth and Virginia Kiple argue that widespread but undiagnosed pellagra was common among slaves. Kenneth F. Kiple and Virginia H. Kiple, "Black Tongue and Black Men: Pellagra and Slavery in the Antebellum South," *J. South. Hist.*, 1977, *43*, 411–28.

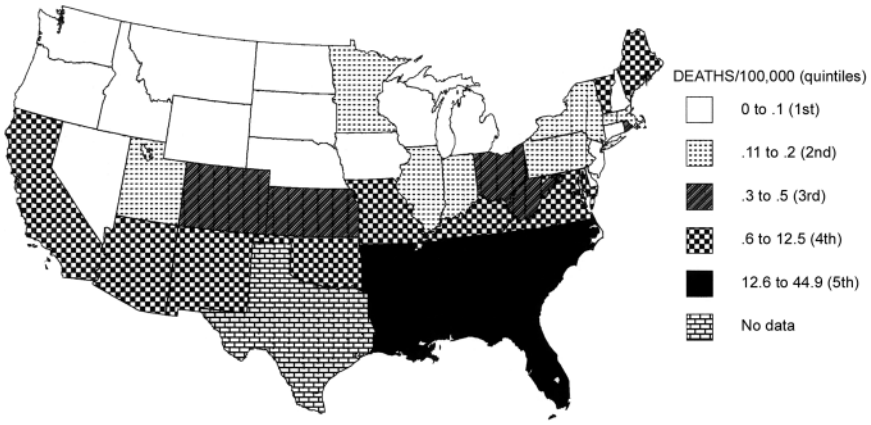

Fig. 2. Pellagra mortality: 1930.

for most medical opinion concerning pellagra. But in 1912, the privately endowed Thompson-McFadden Commission sent its investigators to Spartanburg, South Carolina, to conduct an organized epidemiological study of pellagra.[14]

Home to South Carolina's burgeoning textile industry since the late 1880s, Spartanburg County had significant amounts of pellagra, though its annual toll was regularly exceeded in counties immediately to the south (Richland County) and west (Greenville County), and in tidewater Charleston County. But Spartanburg's mill owners and physicians were unusually welcoming to outside investigators, offering easy access to mill workers.[15] After several years of dietary and sanitary surveys, the Thompson-McFadden Commission concluded that pellagra, like hookworm, was an infectious disease, a product of the

14. Etheridge, *The Butterfly Caste*, pp. 43, 49–51, 55–58. Earlier epidemiological surveys were aimed more narrowly at measuring the extent of the problem; see Lavinder, "Prevalence and Geographic Distribution."

15. Mortality comparisons from South Carolina, Board of Public Health, *Annual Report*, 1917–1920 (Columbia, S.C.: Board of Health, Board of Health, n.d.). On textiles in Spartanburg, see Writers Program, Works Progress Administration, *A History of Spartanburg County* (Spartanburg, S.C.: Band and White, 1940), p. 219; Walter Edgar, *South Carolina. A History* (Columbia: University of South Carolina, 1998), pp. 455–59. On corporate welfare work in Spartanburg, see i*bid*., p. 464; George Waldrep III, *Politics of Hope and Fear: The Struggle for Community in the Industrial South*. Ph.D. thesis, Duke University, 1996, p. 24; on physicians' cooperation, see Etheridge, *The Butterfly Caste*, pp. 49–50. On welfare work in mill villages more generally, see Hall et al., *Like a Family*, pp. 131–39.

primitive sanitary conditions of the south. Pellagra incidence, they reported, was greatest in urban and rural districts, where surface or pail privies were used. Sewered districts, by contrast, had little or no pellagra.[16]

For some proponents of the infection theory, a higher pellagra incidence among women was evidence that "women are exposed more" to an infectious agent lurking in "the soil surrounding the immediate household, perhaps the garden or flower yard."[17] Beyond the occasional comment, physicians made little of higher pellagra rates among women. Similarly, rates of pellagra among African-Americans could be interpreted within an infectionist paradigm. Where these rates were low, as in Spartanburg, it was due to the "greater relative segregation" of African-Americans from "pellagrins." When rates were high, as in Nashville, Tennessee, researchers explained that "negroes live surrounded on all sides by pellagrous whites" in the city's most crowded and unsewered districts.[18] By comparison with discussions of tuberculosis or other infectious diseases, such interpretations were noticeably race neutral, placing little or no emphasis on African-Americans as reservoirs of pellagra.

Most medical discussions, moreover, said little about pellagra's predilection for African-Americans. Even when noted, little explanation or interpretation was offered.[19] Physicians' discussions focused instead on issues of etiology: Was pellagra, as many claimed, an infectious disease? Or was it, as Joseph Goldberger of the PHS had begun to argue, a dietary disease rooted in economic conditions?

THE PHS INVESTIGATIONS

In 1916, Goldberger and PHS researcher Edgar Sydenstricker set out to Spartanburg to conduct a field study that would resolve the disputed

16. Joseph Franklin Siler, [Discussion], *Trans. Med. Assoc. State Ala.*, 1914, 254–60, p. 257.
17. C. C. Parrish, "Discussion Pellagra Symposium," *South. Med. J.*, 1916, *9*, 40.
18. See J. F. Siler, P. E. Garrison, and W. J. MacNeal, *Pellagra. Third Progress Report of the Thompson-McFadden Commission* (n.p., 1916), pp. 22–25; James W. Jobling and William F. Petersen, "The Epidemiology of Pellagra in Nashville, Tennessee. II," *J. Infect. Dis.*, 1917, *21*, 124.
19. See G.H. Wood, "Pellagra Status in Panola County, Mississippi, with Remarks on Etiology and Treatment," *South. Med. J.*, 1915, *8*, 662–66; J. F. Siler, P. E. Garrison, W. J. MacNeal, "Prognosis in Pellagra. A Preliminary Note," *Proc. N. Y. Pathol. Soc.*, 1915, *15*, 32; E..H. Galloway, "Pellagra in Mississippi," *South. Med. J.* 1915, *8*, 691–92; W. A. Dearman, "Pellagra," 713. For an unusual counter-example that emphasized the threat to whites, see W. Atmar Smith, R.M. Politzer, and Harry S. Mustard, "Pellagra in Charleston, S.C.," *South. Med. J.*, 1916, *9*, 786–790. Occasionally, researchers explained low local rates of

question of pellagra's etiology. Goldberger, a specialist in infectious disease, had first been assigned the problem of pellagra in 1914. Observations at a Georgia asylum, followed by experimental studies at two Mississippi orphanages, led him to conclude that, contrary to contemporary medical opinion, pellagra was due to a dietary deficiency.[20] In 1916, Goldberger turned to the same cooperative South Carolina mill villages that had welcomed the Thompson-McFadden Commission. By carefully studying the relation of pellagra incidence to local sanitary conditions, Goldberger hoped to refute the prevailing theory that some unknown infectious agent was causing pellagra.[21] But the study's real methodological contributions were in exploring the relation between income, individual diet, and pellagra. These contributions were the work of Edgar Sydenstricker, Goldberger's collaborator.

Epidemiologists and medical historians have long known about Sydenstricker's prior career in labor economics. None have troubled to look at his earlier research, or how it might have influenced his pellagra studies. Prior to joining the PHS, Sydenstricker had worked for the U.S. Immigration Commission and the U.S. Commission on Industrial Relations (CIR). His studies there were aimed at resolving the "social question": Did American business treat American labor fairly? For Sydenstricker and his associates, this question had an empirical answer to be found through investigating the social conditions of workers in scores of American industries and communities.[22]

The CIR's inquiries focused especially on determining the standard of living, but Sydenstricker took an expansive view of this question:

> Aside from the size of his pay envelope and his relations with his employers, are many factors, beyond his own or his employer's control, that contribute

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pellagra among African-Americans with reference to a possible "racial immunity." See E. Mack Parrish, "Epidemiology of Pellagra," *Texas State J. Med.*, 1916, *12*, 179.

20. On Goldberger's career and early pellagra work, see Etheridge, *The Butterfly Caste*, pp. 65–81.

21. The sanitary surveys are discussed in Goldberger, Wheeler, and Sydenstricker, "A Study of the Relation of Factors of a Sanitary Character to Pellagra Incidence," 1701–14.

22. For an overview of Sydenstricker's career, see Dorothy G. Wiehl, "Edgar Sydenstricker—A Memoir," in Kasius, *The Challenge of Facts*, pp. 3–17. On the politics of the Commission on Industrial Relations, see Mary O. Furner, "Knowing Capitalism: Public Investigation and the Labor Question in the Long Progressive Era," in Mary O. Furner and Barry Supple, eds. *The State and Economic Knowledge. The American and British Experiences* (Cambridge: Cambridge University Press, 1990), pp. 274–84; James Weinstein, *The Corporate Ideal in the Liberal State, 1900–1918* (Boston: Beacon Press, 1969), pp. 186–208.

to his standard of living. . . . Is the physical environment of his home healthful and inspiring, or does it subject him and his family to dangers of disease, lessen his own efficiency and deaden his own initiatives by the sheer force of depressing surroundings? Are his real wages diminished by a costly local system of food distribution? . . . Has the congestion resulting from concentrating population robbed his children of all outlets of their natural expression in outdoor play?[23]

In particular, Sydenstricker took an interest in the effects of income on workers' diets:

The family at an economic disadvantage suffers from the increase in food prices not only because it is forced to use more of its income for food and has less to spend for rent, clothing and other purposes, but also because it is compelled in the choice of its diet, to rely more and more on those foods which have the least cell restoring or sustaining value.[24]

Sydenstricker's emphasis on family income was part of a long tradition in labor economics, in which a living wage meant a salary that would allow a male head of household to house, feed, clothe, and educate his family.[25] The cost of food formed the largest component of the working-class budget. In 1897, an influential group of chemists led by Wilbur Atwater had persuaded the U.S. Congress that there was a scientific answer to the question of how much food workers needed. Over the next decade, Congress generously funded Atwater's efforts to determine laborers' energetic requirements, work on which Sydenstricker would later rely for his South Carolina studies.[26]

23. *Welfare Activities of Communities. Report to September 1, 1914*, Box 4, U.S. Commission on Industrial Relations, U.S. Department of Labor, RG 174, NA.

24. *Conditions of Labor in the Principal Industries*, Box 11. Sydenstricker repeatedly explores ways to lower the cost of food—promotion of regional agriculture, municipal gardens, etc. See *Welfare Activities of Communities. Report to September 1, 1914*; Appendix II, *The Work of Communities in Improving the Economic Condition of Wage Earners*; Appendix III, *The Work of Communities in Readjusting Local Industrial Factors Indirectly Affecting the Position of Wage Earners*; Appendix VII, *Welfare Activities of Commercial Organizations in American Cities*, Box 4. All in U.S. Commission on Industrial Relations, U.S. Department of Labor, RG 174, NA.

25. W. Jett Lauck and Edgar Sydenstricker, *Conditions of Labor in American Industries* (New York: Funk and Wagnalls, 1917), p. 28, pp. 244–45. On the family wage and related concepts, see Martha May, "The Historical Problem of the Family Wage: The Ford Motor Company and the Five Dollar Day," *Feminist Studies*, 1982, *8*, 399–424; Eileen Boris, "Reconstructing the 'Family': Women, Progressive Reform, and the Problem of Social Control," in Noralee Frankel and Nancy S. Dye, eds. *Gender, Class, Race and Reform in the Progressive Era* (Lexington: University Press of Kentucky, 1991), pp. 73–86; Alice Kessler-Harris, *A Woman's Wage. Historical Meanings and Social Consequences* (Lexington: University Press of Kentucky, 1990), pp. 6–32.

26. Hamilton Cravens, "The German-American Science of Racial Nutrition, 1870–1920," in Hamilton Cravens, Alan I. Marcus, and David M. Katzman, *Technical Knowledge in American*

At the CIR, Sydenstricker had collaborated with PHS Surgeon B. S. Warren in studying the economic burden of illness. In 1915, he joined Warren at the PHS.[27] Shortly thereafter, Sydenstricker drew on his knowledge of labor economics to explain the timing and regional focus of the pellagra epidemic. U.S. Bureau of Labor studies showed that southern "industrial" workers were traditionally lower paid and less well fed than northern workers. The combined effects of lower wages and higher food prices might explain why pellagra was prevalent in the south but not the north. Given that wage differentials between southern and northern "industrial" workers had increased over the previous decade, this economic data could account for the timing, as well as the geographic extent of the pellagra epidemic. Finally, Sydenstricker speculated that the recent migrations of white southerners to textile mill villages might have cut them off from food sources traditionally available in farming communities.[28] This analysis bears the hallmarks of Sydenstricker's ecological approach to epidemiology, in which health status is not simply a function of income, but determined by the regional economy, which affects both employment opportunities and the food supply. Yet Sydenstricker's inferences about the links between political economy and pellagra were indirect at best. The South Carolina studies, begun the following year, would pin down the pathogenic roles of employment, income, diet, and the ecology of food production in a manner no analyses based on existing research could.

The PHS investigators selected seven mill villages in the northwest corner of the state for their study. Though known as the Spartanburg study, only four villages were in Spartanburg County (Arkwright,

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Culture (Tuscaloosa: University of Alabama Press, 1996), pp. 127–45. As Cravens emphasizes, there was a substantial interest in ethnic ("racial") differences in dietary habits and requirements, an interest that runs through Sydenstricker's work at the Immigration Commission and the Commission on Industrial Relations as well.

27. It was Warren who probably recruited Sydenstricker to join the Public Health Service and possibly also to work on pellagra. See Sydenstricker to Charles McCarthy, September 1915. Box 10, Folder 4, Wis MSS KU, Charles McCarthy papers, State Historical Society, Madison, Wis. For Warren's interest in pellagra, see Ralph Chester Williams, *The United States Public Health Service, 1798–1950* (Washington, DC: Commissioned Officers Association of the Public Health Service, 1951), p. 272.

28. Edgar Sydenstricker, "The Prevalence of Pellagra. Its Possible Relation to the Rise in the Cost of Food," *Public Health Rep.*, 1912, *30*, 3132–48. For contemporary skepticism regarding these arguments, see [Wade Hampton] Frost to Joseph Goldberger, 30 October 1915. Box 2, Joseph Goldberger papers, Mss. #1641, University of North Carolina at Chapel Hill.

Inman Mills, Saxon Mills, and Whitney); two were in Oconee County (Seneca and Newry) to the west and one (Republic) in Chester County. Nonetheless, it was the long-standing cooperation between PHS officials and Spartanburg influentials (physicians, public health officials, and local politicians), which drew them to the region. Since 1911, local physicians had been helpful in providing previous PHS investigators access to pellagra cases, cooperation notably lacking elsewhere. South Carolina Senator Ben Tillman was instrumental in getting funds for a PHS research hospital for studying pellagra, which opened in Spartanburg in 1914.[29] Both the hospital and the tradition of cooperation made Spartanburg an obvious base for the PHS study.

Textile mill villages operated as the quintessential company towns. Residents worked in the company's mills, shopped in the company's stores, lived in the company's houses, and worshipped in the company's churches.[30] Such closed communities provided the ideal circumstances for the meticulously observed study PHS researchers envisioned (an opportunity the Thompson-McFadden Commission failed to capitalize on). Few studies, then or currently, show the care Goldberger and Sydenstricker took in collecting and conceptualizing their data. For both income and dietary data, they relied on company records of pay and food purchases, supplemented by interviews about income and food obtained outside the company system. Where earlier investigators had relied on verbal reports about which foods were eaten "habitually," Sydenstricker's procedures provided quantitative information about current food purchases. Equally important, Sydenstricker and Goldberger collected their data about income and food consumption during the late spring, the period in which pellagra customarily erupted and which, they believed, was when families' economic and dietary fortunes were at their lowest ebb. If diet and

29. On Public Health Service relations with Spartanburg, see R. M. Grimm to Surgeon General [Rupert Blue], 23 September 1911; R. H. Lavinder to Surgeon General [Blue], 6 September 1911; Etheridge, *The Butterfly Caste*, pp. 49–50. On Tillman's interest in pellagra, see R. H. Lavinder to Walter Wyman [Surgeon General], 20 July 1909; Etheridge, *The Butterfly Caste*, pp. 60–62. All correspondence in Box 148, PHS Central File, 1897–1923, RG 90, NA.

30. Hall et al., *Like A Family*; G. C. Waldrep III, *Southern Workers and the Search for Community Spartanburg County, South Carolina* (Urbana: University of Illinois Press, 2000), pp. 7–31. Though Waldrep emphasizes the differences among individual mills in ethos and infrastructure, he accepts the basic premise of a closed community.

pellagra were linked, this carefully collected data would reveal the connection.[31]

Sydenstricker's most crucial methodological stratagem was in measuring per capita food use. In communities in which the income gradient was slender, Sydenstricker wondered how to distinguish the economically marginal from those whose income (and diet) was adequate: "Manifestly, it was improper to classify, for example, a family whose half-month's income was $40 and was composed of a man and his wife, with one whose half-month's income was also $40, but was composed of a man, his wife, and several dependent children."[32] To compare income and diet in different kinds of families, Sydenstricker took Atwater's data on caloric requirements and calculated all food comparisons in terms of equivalent "adult male units." Thus, a household consisting of man and wife and two male children aged seven and eight might consume 2.8 "adult male units" if it were eating adequately, but a household with female children aged seven and one might only require 2.6 units. Similarly, to adjust household incomes for family size and composition, Sydenstricker grouped families in terms of their ability to purchase food, again using Atwater's scale of food requirements as a metric.[33]

These calculations enabled Sydenstricker to conclude that "the proportion of families affected with pellagra declines with a marked degree of regularity as income increases." The effect was even more striking if one looked for multiple cases within a single household: Seventeen households in the lowest income class had two or more

31. For earlier Public Health Service difficulties in collecting dietary data, see R. W. Grimm, *Pellagra. Some Facts in Its Epidemiology* [1912], Box 149, RG 90, PHS Central File 1897–1923, NA. On the collection of income data in the South Carolina studies, see Goldberger, Wheeler, and Sydenstricker, "A Study of the Relation of Family Income," 2680–81; on the collection of dietary data, see idem, "A Study of the Relation of Diet," 663–666. For critiques of the methods used by earlier studies to collect data, see ibid., pp. 652–56; Edward B. Veeder, "Dietary Deficiency as the Etiological Factor in Pellagra," *Arch. Intern. Med.*, 1916, *18*, 151–53.

32. Goldberger, Wheeler, and Sydenstricker, "A Study of the Relation of Family Income," 2683.

33. On the methods of income classification, see Goldberger, Wheeler, and Sydenstricker, "A Study of the Relation of Family Income," 2682–85; Edgar Sydenstricker and Wilford I. King, "A Method of Classifying Families According to Incomes in Studies of Disease Prevalence," *Public Health Rep.*, 1920, *35*, 2829–2846. For dietary classification, see Goldberger, Wheeler, and Sydenstricker, "A Study of the Relation of Diet," 664–697. Sydenstricker rejected efforts to collect individual consumption data directly as unreliable. See ibid., p. 664.

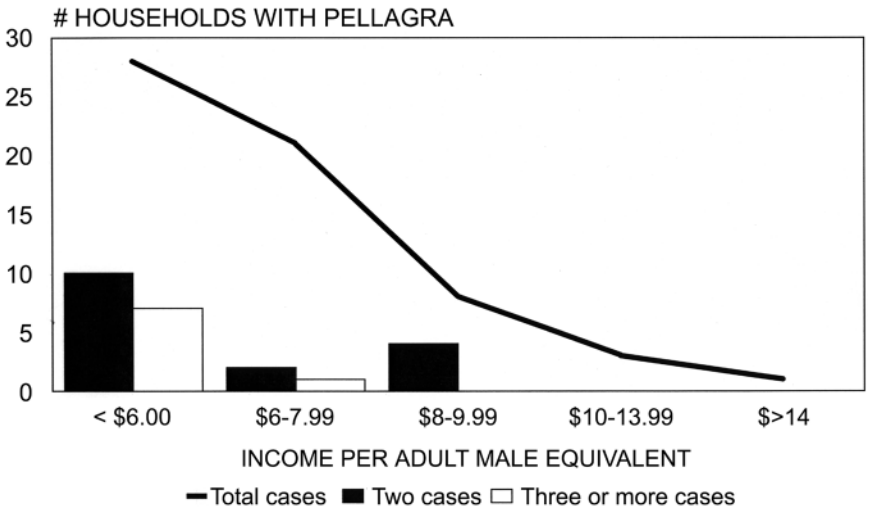

Fig. 3. Pellagra incidence and income (Goldberger, Wheeler, and Sydenstricker, *Public Health Rep.*, 1920, *35*, 2687).

cases of pellagra, compared with seven in the next two income classes and none in the two highest income groups (Fig. 3).[34]

These results supported Sydenstricker's contention that income disparities were a major cause of dietary insufficiency and, ultimately, of pellagra. Yet Sydenstricker's ingenuity in measuring families' ability to purchase food came at a price. Although his method improved substantially on existing research practices, it left him with no way of knowing how food was actually distributed within families. As a consequence, pellagra's partiality for women remained unexamined.[35]

34. Goldberger, Wheeler, and Sydenstricker, "A Study of the Relation of Family Income," 2686–2688. Although Goldberger had earlier speculated about the role of poverty in pellagra, his remarks do not reflect the analytical precision Sydenstricker brought to the question. See Joseph Goldberger, "The Etiology of Pellagra. The Significance of Certain Epidemiological Observations with Respect Thereto," *Public Health Rep.*, 1914, *29*, 1685. See also repeated letters in which Goldberger emphasizes diet as the solution to the problem, without mentioning economic conditions. Joseph Goldberger to Mary Goldberger, 30 September 1914, 20 June 1915, and 30 October 1915. All in Box 2, Joseph Goldberger papers, University of North Carolina, Chapel Hill.

35. In a later publication, Sydenstricker briefly speculated that lower rates of pellagra among adult men might be due to the fact that "they receive more favorable consideration at the family table and . . . are more likely to have pocket money or store credit [and] are in a position to benefit from supplementary foods secured outside the home." In the same publication, however, having found a great deal of mild, undiagnosed pellagra among

His innovations in measuring per capita food consumption notwithstanding, Sydenstricker's framework was typical of contemporary nutritional studies that uniformly treated the family as a black box. For Sydenstricker, as for other social economists, the focus remained on the male industrial worker as head of household. The economic and therefore nutritional status of women (and children) was derivative.[36]

If Goldberger and Sydenstricker had simply written about the links between income and pellagra, it is doubtful that their study would still be remembered. What makes it memorable is their subsequent social analysis. After noting that income, diet, and pellagra were intimately related, they went on to observe that, nonetheless, only a small proportion of households in the lower income classes developed pellagra. How could they claim that low income caused pellagra, when in a village where two-fifths of the population was in the two lowest income classes, there was no pellagra at all?

To answer this question, Sydenstricker looked at where mill workers got their food, following an interest in the conditions of agricultural supply that dated back to his work with the CIR.[37] Newry, the no-pellagra village in Oconee County, was ideally situated in a region of diversified farming. A village market sold fresh meat throughout the year, and the district's extensive truck farming kept the same market well-supplied with vegetables. By contrast, a second village, Inman Mills, in Spartanburg County, offered no local alternative to the company store. More importantly, it was situated in a cotton-dominated region, with few farmers growing vegetables or raising livestock to sell in town. These circumstances left Inman Mills' villagers poorly supplied with fresh vegetables, milk, or meat. It also left

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children, he questioned whether the conviction that the disease occurs most often in adult women was "well-founded." Goldberger et al., *A Study of Endemic Pellagra*, pp. 17–18. See also Joseph Goldberger, "Pellagra," *J. Am. Dietetic Assoc.*, 1929, *4*, 223.

36. See, e.g., Sydenstricker's earlier use of the Bureau of Labor's wage standards: "By normal families was meant families in which the father was the bread-winning member, the mother was nonwage earning, and having three dependent children under 14 years of age." Sydenstricker, "The Prevalence of Pellagra," 3133; Sydenstricker and Lauck, *Conditions of Labor*, pp. 354–63, 366–83.

37. See *Welfare Activities of Communities. Report to September 1, 1914*; Appendix II, *The Work of Communities in Improving the Economic Condition of Wage Earners*; Appendix III, *The Work of Communities in Readjusting Local Industrial Factors Indirectly Affecting the Position of Wage Earners*; Appendix VII, *Welfare Activities of Commercial Organizations in American Cities*; all in Box 4, U.S. Commission on Industrial Relations, Department of Labor, RG 174, NA.

them with the highest pellagra incidence found in the study, a rate of 64 cases/1,000.[38] These findings, Goldberger and Sydenstricker reported, ". . . have created in our minds a rather strong suspicion that the single-crop system as practised in at least some parts of our southern states, by reason of apparently unfavorable conditions of food supply and of other conditions of an economic character . . . will be found indirectly responsible for much of the pellagra morbidity and mortality with which local agricultural labor is annually afflicted."[39]

The accelerated rise of pellagra during the agricultural depression of the 1920s reinforced the PHS researchers' conviction that pellagra was a disease rooted in the political economy of the South, with its dependence on cotton monoculture. Since 1920, "great restriction of the household food supply was imposed on the tenant farmers by planter landlords, merchants or banks 'furnishing' them, or more or less involuntarily practiced by mill or other operatives' families in the effort to live within the limits of their reduced incomes with the disastrous effects evidenced by the increase in pellagra."[40] Goldberger's and Sydenstricker's warnings of more pellagra went unheeded, along with their initial proposals for emergency food relief in the South.[41] To the extent southern health officers worried about the impacts of agricultural depression on health, they focused on tuberculosis and infant mortality, not on pellagra. As North Carolina's Watson Rankin argued, "We know, and all of us know, that tuberculosis is largely an economic disease and is killing ten or fifteen people to pellagra's one. We know that the tremendous death rate among infants under two

38. Goldberger, Wheeler, and Sydenstricker, "A Study of the Relation of Family Income," 2694–2711.

39. Ibid., p. 2711. See also Sydenstricker's remarks about the differences between northern and southern poverty in *Minutes of the Conference of the State Health Officers of the South with the Surgeon General on the Pellagra Problem, August 4–5, 1921* in Box 152, PHS Central File, 1897–1923, RG 90, NA.

40. Joseph Goldberger, *Memorandum Relative to Pellagra, July 18, 1921.* Box 152, PHS Central File, 1897–1923, RG 90, NA. See also Goldberger et al., *A Study of Endemic Pellagra* [1929], pp. 52–61. This study covered an additional fourteen villages beyond the original seven, and collected data into the early 1920s. On the agricultural depression of the 1920s, see Gilbert C. Fite, *Cotton Fields No More. Southern Agriculture, 1865–1980* (Lexington: University Press of Kentucky, 1984), pp. 102–9.

41. Joseph Goldberger, *Memorandum Relative to Pellagra, July 18, 1921.* Box 152, PHS Central File, 1897–1923, RG 90, NA. For a detailed account of Southern opposition to relief measures in the 1920s, see Etheridge, *The Butterfly Caste*, pp. 146–69.

years of age is largely an economic condition, due to the poor not having enough money to buy milk."[42]

In 1927, Goldberger and Sydenstricker returned to survey conditions in the deep South districts inundated by the Mississippi River in the great flood. They predicted that pellagra, normally high in these cotton-dominated districts, would increase in the coming year, due to disturbances in the supply of vegetables, milk cows, and meat. Tenants and sharecroppers—those with the least opportunity to grow vegetables, raise cows or buy meat—would be the worst affected. They recommended that relief agencies distribute foods rich in "pellagra-preventive": dried yeast, canned salmon, canned beef, and canned tomatoes.[43] Yet such measures, they warned, provided only a short-term solution, which would "mitigate," but not "solve," the "fundamental problem of pellagra." That problem ultimately was rooted in the economic conditions of the "agricultural tenant population." These economic conditions were bound up with the "tenant system" associated with "single crop agricultural production," with "the speculative character of agricultural finance," and "with other factors of an economic nature."[44]

Sydenstricker's and Goldberger's analyses of how the tenant system created economic dependence were shrewd and percipient. The tenant system, they argued, places the "average tenant" "chronically on the verge of deprivation." From January until August of each year, tenants have little cash income while accumulating debt for seeds and other advances. Landlords, especially absentee owners, discourage tenants from giving labor and space to vegetable gardens. The result is an extended period prior to harvest in which there is neither money nor opportunity to obtain the foods (vegetables, milk and protein)

42. *Minutes of the Conference of State Health Officers of the South with the Surgeon General on the Pellagra Problem*, 4 and 5 August 1921. Box 152, PHS Central File, 1897–1923, RG 90, NA. See also the comments of McCormack (Kentucky).

43. *Report of An Inquiry Relating to the Prevalence of Pellagra in the Area Affected by the Over-Flow of the Mississippi and Its Tributaries in Tennessee, Arkansas, Mississippi and Louisiana, in the Spring of 1927*, by Joseph Goldberger and Edgar Sydenstricker, Box 901, Pellagra (0425), PHS General Subject File, 1924–1935, RG 90, NA. For the best overview of the relief programs, see William DeKleine, "Recent Trends in Pellagra," *Am. J. Public Health,* 1937, *27*, 595–598.

44. These passages come from the published version of their report: Joseph Goldberger and Edgar Sydenstricker "Pellagra in the Mississippi Flood Area," *Public Health Rep.*, 1927, *42*, 2733.

that might stave off pellagra. When, as in the two years preceding the 1927 flood, cotton harvests are poor or prices low, debt increases, forcing tenants to sell off dairy cows. While in normal years labor conditions vary, depending on how well-organized and free from debt the landlord himself is, by 1927 landlords of all types felt the pressure to limit cash advances to tenants, aggravating the cycle.[45]

When first presented in the early 1920s, Sydenstricker's and Goldberger's radical social analysis was controversial, even among southerners who had reservations about the region's dependence on King Cotton. By the 1930s, there was no shortage of northern commentators writing about the abuses of the sharecropping system, even if few of these critics were employed by the federal government.[46] Sydenstricker's and Goldberger's analysis was rooted in the view that the economically underdeveloped South was not like the North, a view dating back to Sydenstricker's earliest work in political economy.[47]

No one could fault the two men's acutely observed analysis of tenancy as a social and economic system. Equally striking, however, is their failure to recognize the special place of African-Americans in that system. In the South Carolina mill villages that Goldberger and Sydenstricker initially investigated, there were reportedly "few negroes" who "lived somewhat apart." Among forty-five South Carolina counties, Spartanburg County ranked fortieth and Oconee County forty-fourth in the proportion of African-Americans in the population. It would be "disproportionately laborious," they decided,

45. Ibid., pp. 2712–20.

46. On the initial reaction, no doubt made more extreme by President Harding's announcement of the need to relieve a "famine" in the south, see Etheridge, *The Butterfly Caste*, pp. 146–67; Surgeon General Hugh S. Cumming to President Warren G. Harding, 9 August 1921, Box 152, Central File 1897–1923, PHS, RG 90, NA. For other contemporary analyses of sharecropping, see Arthur F. Raper, *Preface to Peasantry. A Tale of Two Black Belt Counties* (Chapel Hill: University of North Carolina Press, 1936); Charles S. Johnson, *Shadow of the Plantation* (Chicago: University of Chicago Press, 1934, 1969). For medical articles indicting monoculture as the cause of pellagra, see C. W. Garrison, "Economic Aspects of Pellagra," *South. Med. J.*, 1928, *21,* 237–40; Paul S. Carley, "The Use of Dried Brewer's Yeast in the Treatment and Prevention of Pellagra," *New Orleans Med. Surg. J.*, 1930, *82*, 740–44; W. H. Sebrell, "Pellagra," *Virginia Med. Monthly,* 1934, *61*, 137; Charles D. Reece, "The Pellagra Problem in the South," *South. Med. J.*, 1935, *28*, 473; Jet C. Winters, "The Relation of Human Nutrition to the Social and Economic Condition of the South," *J. Am. Diet. Assoc.*, 1940, *16*, 217–19.

47. Lauck and Sydenstricker, *Conditions of Labor*, pp. 259–261. See also Sydenstricker, "The Prevalence of Pellagra," 3162–3163, emphasizing the recent rural–urban transition for Southern mill workers, in contrast to New Englanders.

"to secure all the desired data from the [few] negro families" there.[48] But even when they returned to survey pellagra in the Deep South, with its omnipresent African-American labor force, the particular economic and social vulnerabilities of black sharecroppers remained invisible. As they wrote: "tenant families, both white and colored, subsist" on the same diet.[49] Dorothy Dickins, a nutrition specialist for the Mississippi Agricultural Experimentation Station, might have told them otherwise. Negro tenant families, Dickins found, generally consumed smaller amounts of food per capita than whites; their consumption of pellagra-preventives, such as salmon and milk, was especially low in comparison with whites.[50]

Both before and after the 1927 flood, African-Americans accounted for 64 percent of all pellagra deaths in the four states Sydenstricker and Goldberger surveyed.[51] Although somewhat mistrustful of mortality statistics—he thought them an imprecise indicator of health conditions—Sydenstricker was well aware of rising mortality in the wake of the 1927 flood. Still, he took no note of racial differences in mortality from data routinely collected by local health authorities.[52]

Beyond specific methodological choices, such as whether or not

48. In different publications, the Public Health Service investigators offered various reasons for not collecting data on the Negro families: "too few" in Goldberger, Wheeler, and Sydenstricker, "Study of the Relation of Family Income," 2678; "too laborious" in Goldberger et al., *A Study of Endemic Pellagra*, p. 9. Elsewhere, they state that they chose not to analyze "negro employees." See Goldberger, Wheeler, and Sydenstricker, "A Study of the Relation of Diet," 659. For the African-American population in South Carolina counties, see U.S. Bureau of the Census, *Fourteenth Census of the United States, 1920. Population*. Volume VI, part 2 (Washington, D.C.: Bureau of the Census, 1922).

49. Goldberger and Sydenstricker "Pellagra in the Mississippi Flood Area," 2712.

50. According to Dickins' data, whites consumed twice as much salmon and three times as much milk. (Dickins herself did not make any connection to the pellagra issue, however, in this publication.) Dorothy Dickins, *A Nutrition Investigation of Negro Tenants in the Yazoo Mississippi Delta*. Mississippi Agricultural Experiment Station, Bulletin no 254 (1928). Similar data were reported by South Carolina nutritional researchers, according to Beardsley, *A History of Neglect*, pp. 29–30.

51. U.S. Bureau of the Census, *Mortality Statistics*, 1926–1928 (Washington, D.C.: Bureau of the Census, 1928–1930), data for Arkansas, Louisiana, Mississippi and Tennessee. The proportion would be even higher if 1926 data were available for Arkansas, and if one allowed for the fact that much of Tennessee, four-fifths white, was not in the flood region.

52. On mortality observations in 1927, see Joseph Goldberger and Edgar Sydenstricker, *Report of An Inquiry Relating to the Prevalence of Pellagra in the Area Affected by the Over-flow of the Mississippi and Its Tributaries in Tennessee, Arkansas, Mississippi and Louisiana*. Box 901, PHS General Subject file, 1924–1925, RG 90, NA. On mortality statistics more generally, see Edgar Sydenstricker, "The Measurement of Results of Public Health Work. An Introductory Discussion [1925]," in R. Kasius, *The Challenge of Facts*, pp. 58–59. Certainly, the small numbers of deaths occurring precluded the use of mortality analysis in the earlier South Carolina studies.

to rely on mortality data, what is striking about Goldberger's and Sydenstricker's approach is the generally color-blind character of their economic analysis. Social historians Pete Daniels and Robyn Spencer have emphasized the particularly coercive character of economic relations between white landowners and black sharecroppers in the Mississippi Delta, especially around the time of the 1927 flood. Plantation owners kept African-Americans confined to the relief camps to prevent northern labor agents from offering them an alternative to sharecropping. In some cases, they even resold relief goods to sharecroppers, increasing their indebtedness.[53] Daniels and Spencer base their critique on contemporary criticisms of the relief program, initiated by Walter White of the National Association for the Advancement of Colored People (NAACP). Outside the black community, however, few contemporaries recognized the special place of blacks in the South's political economy. Even fewer, prior to the Great Depression, were ready to address it.[54]

If, as W. E. B. DuBois wrote, "the problem of the twentieth century is the color line," why were African-Americans, pellagra's primary victims, so invisible?[55] In part it was because of Sydenstricker's lifelong preoccupation with the economic condition of industrial workers. Given their small presence in the industrial work force, African-Americans had never registered with him as a significant group. As tenant farmers in the underdeveloped South, they simply seemed enmeshed in the same coercive labor system as poor whites.[56]

Yet Sydenstricker's opacity was also rooted in northern understandings of "race." For Sydenstricker, the notion of difference encom-

53. Pete Daniel, *Deep'n As It Come. The 1927 Mississippi River Flood* (New York: Oxford University Press, 1990), pp. 105–9; idem, *The Shadow of Slavery. Peonage in the South, 1901–1969* (Urbana: University of Illinois Press, 1972) pp. 149–69; Robyn Spencer, "Contested Terrain: The Mississippi Flood of 1927 and the Struggle to Control Black Labor," *J. Negro Hist.*, 1994, *79*, 170–81. On the operations of the share-cropping system for African-Americans more generally in the 1910s, see James C. Cobb, *The Most Southern Place on Earth. The Mississippi Delta and the Roots of Regional Identity* (New York: Oxford University Press, 1992) pp. 101–9.

54. The ever-prescient DuBois, of course, limned the essential elements of the tenant system in 1903: W. E. B. DuBois, *The Souls of Black Folk* (New York: Library of America, 1990), pp. 107–18.

55. DuBois, *The Souls of Black Folk*, p. 16.

56. For mill workers, Sydenstricker, "The Prevalence of Pellagra," 3132–48. Compare the analyses of tenant agriculture in the United States. Commission on Industrial Relations *Final Report of the Commission on Industrial Relations* (Washington, D.C.: Barnard & Miller, 1915), pp. 14–16, 127–32. Sydenstricker himself did not study agricultural labor for the Commission on Industrial Relations.

passed immigrant workers of various "races," whose standards of living were not yet the same as those of native workers in the industrialized north.[57] South Carolina mill workers were classed among these "others," as were agricultural laborers of all sorts, including tenant farmers. But for Sydenstricker, race was a sociocultural category, a marker of the acculturation and material conditions of different immigrant groups. Literally and figuratively, for Sydenstricker, the social location of African-Americans was off the map.

Sydenstricker's indifference toward the circumstances of African-American laborers forms part of a larger story about the ways in which northern social reformers in the Progressive era conceptualized "race." When the American Academy of Political and Social Science convened in April 1901 to discuss "America's Race Problems," discussion of African-Americans was segregated to a session on the "Race Problem of the South."[58] The intellectual journey from the "race problem of the south" to "America's Negro Problem" followed a complex and still poorly delineated itinerary.[59] The "race problem of the south" can be described in terms recognizable to historians and historical actors alike. The ideology of a biological ("racial") difference between whites and blacks shaped decades of apologetics for a social order in which African-Americans were economically subordinated, politically disenfranchised, and periodically terrorized. When we historians speak of "race" in that period, we generally think of that strain of racialist thinking—how it was maintained and how it was ultimately overcome. Yet when northerners spoke of "race" in that period, they most often meant the immigrants (north, south, and east European, and Asian) who populated northern cities.[60] Some of these writers assumed a similar biological discourse of race, whereas

57. On the notion of "race," see Lauck and Sydenstricker, *Conditions of Labor*, pp. 1–10; similarly, "segregation" meant the residential segregation of immigrant workers: ibid., pp. 310–12. See ibid., pp. 38–43, 133–37 for analysis of "racial" differences in income.

58. *Ann. Am. Acad. Polit. Soc. Sci.*, 1901, *18*, 1–180.

59. The following discussion draws on recent work by Matthew Pratt Gutterl, *The Color of Race in American, 1900–1940* (Cambridge, Mass.: Harvard University Press, 2001); Matthew Frye Jacobson, *Whiteness of a Different Color: European Immigrants and the Alchemy of Race* (Cambridge, Mass.: Harvard University Press, 1998); Gerald M. Oppenheimer, "Paradigm Lost: Race, Ethnicity and the Search for a New Population Taxonomy," *Am. J. Public Health,* 2001, *91*, 1049–55. The full history of "race" in social science and social reform remains to be written.

60. On the biological theory of race, as used to justify white hegemony in the South, see George M. Fredrickson, *The Black Image in the White Mind. The Debate on Afro-American Character and Destiny, 1817–1914* (New York: Harper & Row, 1971), pp. 228–55. Compare

others used the term in a more historicist, culturalist sense, with affinities closer to Herder's older notion of "peoples" than to that of the post-Darwinians.[61]

Little in Sydenstricker's background directed his attention toward the position of African-Americans in American society, whether of the rural south or the urban north. When settlement workers and social economists of Sydenstricker's cohort referred to "races"—plural—they were generally referring to the social condition of recent immigrants. The initial social investigations of African-Americans living in the north took them as a group not dissimilar to Poles, Ukrainians, or Sicilians.[62] As settlement worker Mary Ovington put it, "I accepted the Negro as I accepted any other element in the population. That he suffered more from poverty, from segregation, from prejudice than any other race in the city was a new idea to me."[63] The recognition of "The Negro Problem" as a national rather than a sectional problem, and the subsequent narrowing of "race" to refer specifically to Americans of African descent is a process linked both to the Great Migration and to the insistence of DuBois and others that the social and civil conditions of African-Americans was structurally different than those of other "racial" groups.[64]

John Higham, *Strangers in the Land. Patterns of American Nativism 1860–1925* (Boston: Atheneum, 1973), pp. 131–57. Higham discusses the hardening and deepening of biological notions of race in almost identical terms, with reference to immigrant groups.

61. Recent discussions of DuBois' notions of race overemphasize somewhat the Darwinian influence. See Mia Bay, "'The World Was Wrong Thinking about Race.' The Philadelphia Negro and Nineteenth Century Science," and Thomas C. Holt, "W.E.B. DuBois' Archaeology of Race. Re-Reading 'The Conservation of the Races,'" both in Michael B. Katz and Thomas J. Sugrue, *W.E.B. DuBois, Race, and the City. The Philadelphia Negro' and Its Legacy* (Philadelphia: University of Pennsylvania Press, 1998), pp. 41–60, 61–76. Holt's reading of DuBois, despite its strong emphasis on the historicist notions of race, might make more sense if we look to early rather than late nineteenth-century notions as the source.

62. Such inquiries were prompted by a growing awareness of the African-American presence in the north, which was given further stimulus by the onset of the Great Migration. See the brief accounts in Nancy J. Weiss, *The National Urban League 1910–1940* (New York: Oxford University Press, 1974); Laurence A. Glasco, "Optimism, Dilemmas and Progress. The Pittsburgh Survey and Black Americans," in Maurine W. Greenwald and Margo Anderson, eds., *Pittsburgh Surveyed. Social Science and Social Reform in the Early Twentieth Century* (Pittsburgh, Pa.: University of Pittsburgh Press, 1996), pp. 205–220. Compare the investigations of immigrants, described in Kathryn Kish Sklar, "Hull-House Maps and Papers: Social Science as Women's Work in the 1890s," in Martin Bulmer, Kevin Bales and Kathryn Kish Sklar, eds. *The Social Survey in Historical Perspective 1880–1940* (New York: Cambridge University Press, 1991), pp. 111–47, especially pp. 124–32.

63. Quoted in Carolyn Wedin, *Inheritors of the Spirit. Mary White Ovington and the Founding of the NAACP* (New York: John Wiley & Sons, 1998), p. 49.

64. The structure of DuBois' *Souls of Black Folk*, recounting a journey from north to south and back north again, is brilliantly arranged to produce this sense of a national, rather

As with his failure to explore the subordinate role of women in working-class families, Sydenstricker's inability to recognize the special toll pellagra took on African-Americans was embedded in the set of research practices he brought to these investigations. Such practices, rooted in decades of studies of the "social question," concealed the role of both gender and racial inequality in creating pellagra's victims. The influences of methodological traditions, although subtler and less obvious than the more explicit, more familiar, ideologies of race and gender, are no less powerful. As cultural historians have argued, the creation of racial and gender identities of "whiteness" or "manliness" takes place in daily encounters—in the performance of speech, of dress, and in the organization of public space—as much as in law.[65] In a similar way, unarticulated research practices determine what is seen and not seen, analyzed or unconsidered. The social position of pellagra's principal victims, African-Americans and women of all colors, remained unnoticed and unexplored, even in the most incisive analyses of the disease's social epidemiology.

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than a sectional, issue. White reformers who focus on the North as well as the South, and who begin to see African-American difficulties as distinct from those of other groups tend to be individuals like Ovington who were influenced by DuBois. See Wedin, *Inheritors*, and John R. Commons, *Races and Immigrants in America* (New York: MacMillan, 1907), pp. 39–62. Commons is early among the labor economists to devote special attention to African-Americans as distinct from other immigrant groups.

65. Grace Elizabeth Hale, *Making Whiteness. The Culture of Segregation in the South, 1890–1940* (New York: Vintage Books, 1998).