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Pestilence and Poverty: The Great Influenza Pandemic and Underdevelopment in the New South, 1918-1919

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PESTILENCE AND POVERTY:

THE GREAT INFLUENZA PANDEMIC AND UNDERDEVELOPMENT IN THE NEW SOUTH, 1918-1919

by

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Abstract

This study examines the "Spanish" influenza pandemic of 1918-1919 in the U.S. South, using case-studies of Jacksonville, Savannah, New Orleans, and Nashville to sculpt a "Southern flu" more identical to the Global South and the developing world than the rest of the U.S. I examine poverty and political and economic paralysis in the years between the end of Reconstruction and 1918, and the poor results of political indifference on public health and disease control. I also analyze the social and institutional racism against persons of color that defined high infectious disease mortality in Southern cities.

I argue that Southerners faced higher flu mortality than other parts of the country due to the regional poverty and public health underdevelopment that defined previous diseases and made the South distinct in the national epidemiological narrative, namely through yellow fever, malaria, hookworm, and pellagra. I also challenge the conventional orthodoxy by arguing that within the South, African Americans faced exorbitant mortality rates compared to whites. I argue against the myth of a democratic killer flu, but rather, the existence of deep social inequalities and inequities that furthered mortality among the impoverished and marginalized. I argue that the pandemic was like most epidemics and pandemics in Western history, in that it disproportionately killed minorities and those without access to medical care and social services due to conducive social architecture. While pestilence shapes societies, societies simultaneously shape the course of pestilence.

This study is divided into five chapters. An introductory chapter examines the scholarship and Southern public health before 1918. The second chapter addresses the pandemic in Jacksonville and Savannah, the third chapter examines New Orleans, and the fourth chapter assesses Nashville. A concluding chapter compares the U.S. South with the Global South, tethering the U.S. South to the global pandemic.

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Dedication

This project is dedicated to Dr. Irene Earls, of West Orange High School, Winter Garden, FL.

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List of Abbreviations

CDC: Centers for Disease Control and Prevention (US)

CFR: Case-fatality Rate

HA: Hemagglutinin

MHS: Marine-Hospital Service

TB: Tuberculosis

USPHS: United States Public Health Service

USPH and MHS: United States Public Health and Marine-Hospital Service

VD: Venereal Disease

Formulas

Mortality Rate: To calculate mortality rate, deaths (*d*) are divided by population (*p*), and multiplied by 10^*n* to convert the dividend from a fraction, with the *n* power variable typically being "3" to calculate the rate per 1,000 individuals. This formula computes the rate of death in a given population. Use the following equation:

$$\frac{d}{p} \cdot 10^n = \text{Mortality Rate, or Death Rate}$$

Case-Fatality Rate: To calculate case-fatality rate, deaths (*d*) are divided by cases (*c*), which is then multiplied by 100 to provide a percentage. This formula computes the rate of death in any given number of cases, to determine disease's lethality. Use the following equation:

$$\frac{d}{c} \cdot 100 = \text{Case-Fatality Rate}$$

Introduction: The 1918 Flu Pandemic

For centuries, infectious diseases have wrought suffering on human populations, mobilizing societies against disease via treatment, prevention, and eradication. Analyzing the evolving medical epistemology on infection and subsequent public health practice reveals intricacies about communal social stratification, as human interaction is the medium facilitating disease; members of society must engage with one another for pathogens to spread or be stopped. Faced with an epidemic, a community must decide how to respond and who receives what kind of care. An epidemic's course illuminates how corners of society experience disease differently, based on medical care access and public health infrastructure conditions. Thus, this thesis argues that epidemics shape societies, while societies simultaneously shape the course of epidemics.

The Southern United States is the quintessential historical laboratory for examining this concomitant direction and redirection of society and sickness, and is best, albeit seldom in the historiography, studied in the 1918 H1N1 influenza pandemic, misnamed the "Spanish" flu.[1] The virus's ancestry was avian, emerging from the enteric tracts of waterfowl like ducks and geese, where all recognized type A influenza viruses exist.[2] It infected over 500 million people and killed between 50 and 100 million worldwide, including 675,000 Americans, obtaining the status of

[1] Due to Spain's neutrality during World War I and freedom from press censorship, the country published the pandemic's initial newspaper reports. The pandemic was not Spanish. See Antoni Trilla, Guillem Trilla, and Carolyn Dear, "The 1918 'Spanish Flu' in Spain," *Clinical Infectious Diseases* 47, no. 5 (September 2008): 668. Flu pandemics have an illustrious history preceding 1918. See Burke A. Cunha, "Influenza: Historical Aspects of Epidemics and Pandemics," *Infectious Disease Clinics of North America* 18, no. 1 (2004): 141-155, and Youri Ghendon, "Introduction to Pandemic Influenza through History," *European Journal of Epidemiology* 10, no. 4 (August 1994): 451-453.

[2] David M. Morens, Jeffery K. Taubenberger, Hillery A. Harvey, and Matthew J. Memoli, "The 1918 Influenza Pandemic: Lessons for 2009 and the Future," *Critical Care Medicine* 38 (April 2010): 12. Pandemic flu occurs when a strain's hemagglutinin (HA) proteins mutate and are unrecognized by human immunity. These HA genes belong to flu viruses in wild birds. This genetic material mixes with strains infectious to humans through a process called reassortment. Pigs are the intermediary between avian and human flu strains, initiating pandemic flu. See Ann H. Reid and Jeffery K. Taubenberger, "The Origin of the 1918 Pandemic Influenza Virus: A Continuing Enigma," *Journal of General Virology* 84, no. 9 (September 2003): 2286.

"mother of all pandemics."[3] The virus mothered the 1957 (H2N2) and 1968 (H3N2) flu strains, circulating between swine and human hosts as early as 1911.[4] It may have emerged from Haskell County, Kansas in January 1918, 300 miles west of US Army Camp Funston at Fort Riley, where the first outbreak was reported in March 1918.[5] That outbreak catalyzed three waves, first between March and July 1918 with unexceptional mortality, second between September and December 1918 with extraordinary mortality, and a final, mild wave in January 1919.[6] The second wave was catastrophic.[7] The flu was peculiar because, unlike typical flu trends, most victims died between the ages 20 and 40, forming a "W" shaped mortality curve instead of the usual "U."[8] One explanation is that younger people had stronger immune systems, seized by the virus in a cytokine storm, cytokines being proteins involved in immune system signaling. Upon infecting the lungs, it presumably generated an overstimulation, catalyzing "a deadly feedback loop" where, in the lungs, cell accumulation blocked off the airway.[9] Patients drowned in their own fluids.

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[3] Jeffery K. Taubenberger and David M. Morens, "1918 Influenza: The Mother of All Pandemics," *Emerging Infectious Diseases* 12, no. 1 (January 2006): 15.

[4] Gavin J. D. Smith, Justin Bahl, Dhanasekaran Vijaykrishna, Jinxia Zhang, Leo L. M. Poon, Honglin Chen, Robert G. Webster, J. S. Malik Peiris, and Yi Guan, "Dating the Emergence of Pandemic Influenza Viruses," *PNAS* 106, no. 28 (14 July 2009): 11709. The flu was also an epizootic. See Jefferey K. Taubenberger, "The Origin and Virulence of the 1918 'Spanish' Influenza Virus," *Proceedings of the American Philosophical Society* 150, no. 1 (March 2006): 86-112, and V. Kuchipudi and Ruth H. Nissly, "Novel Flu Viruses in Bats and Cattle: 'Pushing the Envelope' of Influenza Infection," *Veterinary Sciences* 5, no. 3 (September 2018): 71-81.

[5] John M. Barry, "Commentary: The Site of Origin of the 1918 Influenza Pandemic and its Public Health Implications," *Journal of Translational Medicine* 2, no. 3 (2004): 2.

[6] C. W. Potter, "A History of Influenza," *Journal of Applied Microbiology* 91, no. 4 (October 2001): 575. See also Ann H. Reid, Jeffery K. Taubenberger, and Thomas G. Fanning, "The 1918 Spanish Influenza: Integrating History and Biology," *Microbes and Infection* 3, no. 1 (January 2001): 81-87.

[7] N.P. Johnson and J. Mueller, "Updating the Accounts: Global Mortality of the 1918-1920 'Spanish' Influenza Pandemic," *Bulletin of the History of Medicine* 76, no. 1 (Spring 2002): 107.

[8] Jeffrey Luk, Peter Gross and William W. Thompson, "Observations on Mortality during the 1918 Influenza Pandemic," *Clinical Infectious Diseases* 33, no. 8 (October 2001): 1375. See also Jeffrey K. Taubenberger, Johan V. Hultin, and David M. Morens, "Discovery and Characterization of the 1918 Pandemic Influenza Virus in Historical Context," *Antiviral Therapy* 12, no. 4, Pt. B (2007): 581-591, Maarten van Wijhe, Mathias Mølbak Ingholt, Viggo Andreasen, and Lone Simonsen, "Loose Ends in the Epidemiology of the 1918 Pandemic: Explaining the Extreme Mortality Risk in Young Adults," *American Journal of Epidemiology* 187, no. 12 (December 2018): 2503–2510.

[9] Ali S. Khan, *The Next Pandemic: On the Frontlines Against Humankind's Gravest Dangers* (New York: Public Affairs, 2016), 12. See also Jennifer R. Tisoncik, Marcus J. Korth, Cameron P. Simmons, Jeremy Farrar, Thomas R. Martin and Michael G. Katze, "Into the Eye of the Cytokine Storm," *Microbiology and Molecular Biology Reviews* 76, no. 1 (March 2012): 16-32.

By 1918, the U.S. South had a unique history of disease, poverty, and racial stratification, shaping the flu's impact on Southerners.[10] These provincial elements contributed to exorbitant mortality among the impoverished, especially persons of color. Racism existed in Northern cities and amplified mortality in places like Philadelphia, but Northern cities did not suffer the de jure segregation embedded in its infrastructure and the poverty borne thereof.[11] This abject and cyclical underdevelopment contributed to Southern distinction from the national narrative.[12] Southerners retained memories of nineteenth-century epidemics and unorthodox healing methods in the absence of reliable medical infrastructure to fight the flu. Simultaneously, racist medical and public health practice necessitated high black mortality.[13] This study complicates the historiography by examining Southern poverty, underdevelopment, and its racial undercurrents. Historians posited that the flu indiscriminately killed Americans without regard to social dimension. While the flu may have been a democratic *infector*, it was not the democratic *killer* they suggested. This thesis argues the existence of a distinctly Southern manifestation of the flu through high mortality, wrought by poverty, underdevelopment, racism, and de jure segregation, using case studies of Jacksonville, New Orleans, and Nashville. These cities reflect the pandemic's distinction in the South through poverty's exacerbation of its impact, the persistence of Southern disease ecology in collective memory, the reliance on backwoods medicine in the absence of medical care, and the racist cultural construction of disease against Southern black bodies, before, during, and after 1918.

[10] Diane D. Ross, "Influenza Epidemic of 1918," *The New Encyclopedia of Southern Culture: Vol. 22: Science and Medicine* (Chapel Hill: University of North Carolina Press, 2012), ed. J. G. Thomas and C. R. Wilson, 212-214.
[11] For more on Philadelphia, see Christina M. Stetler, "The 1918 Spanish Influenza: Three Months of Horror in Philadelphia," *Pennsylvania History: A Journal of Mid-Atlantic Studies* 84, no. 4, Special Issue: Pennsylvania and the Great War, Part 2 (Autumn 2017): 462-487.
[12] This thesis refrains from the phrase "Deep South" because Nashville is an Upper South city that dealt similarly with the pandemic in Deep South cities.
[13] This study focuses on mortality. Morbidity refers to incidence of illness while mortality refers to incidence of death. Studies have explored socioeconomic dimensions of 1918 flu morbidity with varying results. See Svenn-Erik Mamelund, "1918 Pandemic Morbidity: The First Wave Hits the Poor, The Second Wave Hits the Rich," *Influenza and Other Respiratory Viruses* 12, no. 3 (May 2018): 307-313.

This study attempted to fuse quantitative and qualitative methods to examine the flu in the South. The methodologies of historical epidemiology and the social history of medicine buttressed and ratified each other's findings. To address mortality quantitatively, this thesis emphasized mortality rates over raw mortality numbers. Mortality rates address the impact of disease on a community proportional and relative to community size. Mortality rates were preferable to raw mortality numbers because raw numbers sometimes mask the impact of death by drawing attention to the number of dead. Data was collected from period health reports from the cities under examination. The committees who authored them segregated data by race. One limitation to the reports was that poor whites were included in the broadly-defined "white" data, and thus, data specific to impoverished whites was impossible to break down. Poor whites were included in the data, but exactly how many remained unknown, because city officials did not specifically define them in their own class. Their experience may be comparable to those of impoverished African Americans. Qualitatively, this thesis relied on sources such as period newspapers, federal, state, municipal, and private agency health reports, and personal correspondence through letters and diaries to contextualize the pandemic in ways quantitative methods cannot.

Dual Historiographies: Evolving Perspectives on the Flu and the New South

Epidemiological history has grown since the twentieth century, as has the pandemic's historiography. Scholarship was inexistent in its aftermath. Howard Phillips wrote in 2004 that the flu was veiled by the silence of historians in contrast to their interest in World War I. Although historians experienced both events, Phillips wrote that "they deemed a world war to be suitable as a subject for historians but not a world pandemic."[14] The first works were written by physicians and health officials documenting the medical perspective "lest the pandemic return within months"

[14] Howard Phillips, "The Re-appearing Shadow of 1918: Trends in the Historiography of the 1918-19 Influenza Pandemic," *Canadian Bulletin of Medical History* 21, no. 1 (2004): 123.

as was expected.[15] The historical amnesia may be due to the virus's rapid emergence and disappearance, and that the pandemic was tragic, inflicting terror at home rather than confined only in a war an ocean away. Histories of medicine were also defined by history departments in North America and Europe, who experienced lighter mortality than China and or India.[16] The academies of the world's wealthier regions wrote flu histories unappreciative of its total destructiveness.

The first historical contributions were Adolph A. Hoehling's *The Great Epidemic* (1961) and Richard Collier's *The Plague of the Spanish Lady* (1974), after interest was catalyzed by the next two twentieth-century flu pandemics: the Asian flu (1957–1958) and Hong Kong flu (1968–1969).[17] These books introduced personal testimonies to understand the flu, but neither placed the pandemic in historical perspective. The first serious history was by Alfred W. Crosby, entitled *Epidemic and Peace* (1976).[18] Crosby viewed history as biology, rather than merely politics or religion. He observed the virus's impact on the war's final months, tying it to the war's outcome. This was like his other work. In *The Columbian Exchange* (1972) and *Ecological Imperialism* (1986), Crosby explored the decisiveness of smallpox in shaping New World colonization.[19] *Epidemic and Peace* was his attempt to situate the flu similarly for the first time.

Crosby's history-biology synthesis was released alongside William H. McNeill's *Plagues and Peoples* (1976), which initiated conversations about the nexus between social infrastructure

[15] David Killingray and Howard Phillips, *The Spanish Influenza Pandemic of 1918-1919: New Perspectives* (London & New York: Routledge, 2003), 13.
[16] Barbara Jester, Timothy M. Uyeki, Daniel B. Jernigan, Terrence M. Tumpey, "Historical and Clinical Aspects of the 1918 H1N1 Pandemic in the United States," *Virology* 527 (January 2019): 33.
[17] Adolph A. Hoehling, *The Great Epidemic: When the Spanish Influenza Struck* (Boston: Little, Brown and Company, 1961). Richard Collier, *The Plague of the Spanish Lady: The Influenza Pandemic of 1918-1919* (New York: Atheneum, 1974).
[18] Alfred W. Crosby, *Epidemic and Peace, 1918* (Westport: Greenwood Press, 1976).
[19] Alfred W. Crosby, *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Westport: Greenwood Press, 1972). Alfred W. Crosby, *Ecological Imperialism: The Biological Expansion of Europe, 900-1900* (Cambridge: Cambridge University Press, 1986).

and epidemiology.[20] One reviewer wrote that after 1976 it became "acceptable" to view elements like urbanization and poverty as "decisive issues" in epidemiological history.[21] Both books were byproducts of a late-1970s historiographical turn toward social, environmental, and medical history as "academically respectable subdisciplines," necessitating fresh interest in the flu.[22] The shapeshifting viral universe also initialized curiosity, following the Asian and Hong Kong flu pandemics, the 1976 American swine flu epidemic, and the 1980s AIDS pandemic.

Epidemic and Peace was republished in 1989, in a new epidemiological battlefield dominated by AIDS, which demanded that policy focus on protecting everyone from the virus. In *America's Forgotten Pandemic* (1989), Crosby traced the flu's course through major American cities, and posited that the flu was a democratic killer that "ignored the differences" delineated by social dimensions, striking "them all down in similar proportions."[23] Epidemiological evidence says otherwise. A 2019 study noted that associations between socioeconomic status and pandemic outcomes "increases with outcome severity" because higher income and socioeconomic status indicate access to protective factors, like medical care, that reduce infection severity.[24] India experienced a mortality range of 10 to 20 million in 1918, and a population loss of 13.8 million people in British-controlled territories.[25] This contrasted the flu in developed nations. The association between underdevelopment, inequality and high mortality applied within the U.S. as well. A 2016 study illuminating the experience of impoverished Chicagoans concluded that the flu

[20] William H. McNeill, *Plagues and Peoples* (New York: Anchor Books, 1976).
[21] Johannes Sommerfeld, "Science & Society: Plagues and Peoples Revisited," *EMBO Reports* 4 (2003): 32.
[22] Killingray and Phillips, *The Spanish Influenza Pandemic of 1918-1919*, 17.
[23] Alfred W. Crosby, *America's Forgotten Pandemic: The Influenza of 1918* (Cambridge: Cambridge University Press, 1989), 323.
[24] Svenn-Erik Mamelund, Clare Shelley-Egan and Ole Rogeberg, "The Association Between Socioeconomic Status and Pandemic Influenza: Protocol for a Systematic Review and Meta-Analysis," *Systematic Reviews* 8, no. 5 (2019): 2.
[25] Siddharth Chandra and Eva Kassens-Noor, "The Evolution of Pandemic Influenza: Evidence from India, 1918–19," *BMC Infectious Diseases* 14, no. 510 (2014): 1. See Siddharth Chandra, Goran Kuljanin, and Jennifer Wray, "Mortality From the Influenza Pandemic of 1918–1919: The Case of India," *Demography* 49 (2012): 857–865.

did not behave in a "democratizing fashion at the within-city scale," but rather, produced "spatial variation" in flu mortality "associated with sociodemographic factors."[26] This thesis approaches the U.S. South similarly, addressing social dimensions quantitatively and qualitatively to engage with the historiography and dispel the myth of a democratic killer flu.

AIDS, the post-9/11 international security environment, and new viral phobias contributed to fresh scholarship. John Barry's *The Great Influenza* (2004) followed attempts by American medical scientists to combat the flu and was succeeded by an investigation that reconstructed the virus from tissue samples of victims buried in Alaskan permafrost.[27] These advances grew with the historiography. Carol R. Byerly's *Fever of War* (2005) explored the U.S. military's flu experience, which was amplified by the hubris of military leadership, in the years after the U.S. invasions of Afghanistan and Iraq.[28] Whereas pandemics preceding 1918 spread along trade routes, the World War I's permissive international context enabled the virus's spread via troop and civilian mobilization, emboldened by the combat environment's conditions.[29] The 2009 swine flu pandemic and 2014 West African Ebola epidemic contextualized the historiography up to the 1918

[26] Kyra H. Grantz, Madhura S. Rane, Henrik Salje, Gregory E. Glass, Stephen E. Schachterle, and Derek A. T. Cummings, "Disparities in Influenza Mortality and Transmission Related to Sociodemographic Factors Within Chicago in the Pandemic of 1918," *PNAS* 113, no. 48 (November 2016): 13842. See also Gerardo Chowell and Cecile Viboud, "Commentary: Pandemic Influenza and Socioeconomic Disparities: Lessons from 1918 Chicago," *PNAS* 113, no 48 (November 2016): 13557 – 13559. See also G. Dennis Shanks and John F. Brundage, "Variable Mortality During the 1918 Influenza Pandemic in Chicago," *PNAS* 114, no. 18 (May 2017): 3586–3587. See also Kyra H. Grantz, Madhura S. Rane, Henrik Salje, Gregory E. Glass, Stephen E. Schachterle, and Derek A. T. Cummings, "Reply to Shanks and Brundage: Many Plausible Mechanisms of Pandemic Mortality Disparities," *PNAS* 114, no. 18 (May 2017): 3588–3589.

[27] John M. Barry, *The Great Influenza: The Story of the Deadliest Pandemic in History* (New York: Penguin, 2004), 231-235. 2005 ed. Terrence M. Tumpey, Christopher F. Basler, Patricia V. Aguilar, Hui Zeng, Alicia Solorzano, David E. Swayne, Nancy J. Cox, Jacqueline M. Katz, Jeffery K. Taubenberger, Peter Palese, Adolfo Garcia-Sastre, "Characterization of the Reconstructed 1918 Spanish Influenza Pandemic Virus," *Science* 310, no. 77 (October 7 2005): 77.

[28] Carol R. Byerly, *The Fever of War: The Influenza Epidemic in the U.S. Army During World War I* (New York: New York University Press, 2005).

[29] Michaela E. Nickol and Jason Kindrachuk, "A Year of Terror and a Century of Reflection: Perspectives on the Great Influenza Pandemic of 1918–1919," *BMC Infectious Diseases* 19, no. 117 (2019): 3. See also Anton Erkoreka, "Origins of the Spanish Influenza Pandemic (1918–1920) and its Relation to the First World War," *Journal of Molecular and Genetic Medicine* 3, no. 2 (December 2009): 190–194.

centennial. For example, Nancy K. Bristow's *American Pandemic* (2016) explored the pandemic from the patient perspective, where sickness was experienced, building on prior articles.[30]

The late-2010s also introduced the flu in global perspective. Laura Spinney's *Pale Rider* (2017) and Catherine Arnold's *Pandemic 1918* (2018) brought international contextualization to the historiography, reflective of globalization and thus the contemporary viral threat.[31] Future histories will likely be emblematic of the globalized environment, rekindling due to the 2018 centennial's resurrected interest in the Great War and its parallel pandemic. Historians will soon dissect not a series of "local epidemics, but one global pandemic."[32] However, one must be cautious. Experiences were uneven due to regional distinction. In the U.S., the Southern narrative has not yet enjoyed fruitful historical assessment. This inquiry is critical if historians are to glean anything more about the flu beyond its general history. Addressing the South forces historians to reckon with the pandemic's social contours, implying realities in health policy historically ignored by developed nations: epidemics disproportionately kill the poor and marginalized.[33]

Some have initiated this dialogue. Esyllt W. Jones' *Influenza 1918* (2007) and Patricia J. Fanning's *Influenza and Inequality* (2010) pointed towards historiographical gaps neglecting

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[30] Nancy K. Bristow, *American Pandemic: The Lost Worlds of the 1918 Influenza Pandemic* (New York: Oxford University Press, 2016), 6. See also Nancy K. Bristow, "'It's as Bad as Anything Can Be': Patients, Identity, and the Influenza Pandemic," *Public Health Reports* 125, Supplement 3: (April 2010): 134-144.

[31] Laura Spinney, *Pale Rider: The Spanish Flu of 1918 and How It Changed the World* (New York: PublicAffiars, 2017). Catharine Arnold, *Pandemic 1918: Eyewitness Accounts from the Greatest Medical Holocaust in Modern History* (New York: St. Martin's Press, 2018).

[32] Spinney, *Pale Rider*, 65.

[33] The best contemporary inquiry into the inequality-disease connection remains J. N. Hays, *The Burdens of Disease: Epidemics and Human Response in Western History* (New Brunswick: Rutgers University Press, 1998). Studies note that poverty is the largest factor in epidemic mortality globally, but has been ignored by policymakers and the medical community in favor of environmental or genetic factors. See Marcella M. Alsan, Michael Westerhaus, Michael Herce, Koji Nakashima and Paul E. Farmer, "Poverty, Global Health and Infectious Disease: Lessons from Haiti and Rwanda," *Infectious Disease Clinics of North America* 25, no. 3 (September 2011): 611-622. Others note that diseases contribute to cyclical poverty because of decreased productivity, with the most affected populations having fewer reliable resources and no access to medical care to combat illness. See Zulfiqar A. Bhutta, Johannes Sommerfeld, Zohra S. Lassi, Rehana A. Salam and Jai K. Das, "Global Burden, Distribution, and Interventions for Infectious Diseases of Poverty," *Infectious Diseases of Poverty* 3, no. 21 (July 2014): 1-7.

underdevelopment.[34] In her analysis of Norwood, Massachusetts, Fanning found that the pandemic's impact was borne by those without "access to the authoritative written word" – Americans too marginalized "to earn a place in America's collective memory."[35] Using case studies in Canada and Massachusetts, Jones and Fanning argued that "impressions of indiscriminate death" resulted from disproportionate press coverage on prominent deaths, masking the fact that socioeconomic status was critical in determining "not so much who contracted the flu," but who "died of it through a lack of adequate nursing and rest."[36] If an epidemic's course is an indicator of social stratification, then the U.S. South in 1918 serves as an ideal historical attic historians should further raid. Future assessments may marry the social history of disease with the statistical "analysis of viral outbreaks," preparing societies for future epidemics and pandemics.[37]

The historiography of the South is equally as complex. "New South" economic, political, and social organization precipitated an environment conducive for high mortality.[38] Old South diseases like yellow fever, malaria, hookworm, and pellagra continued to plague the New South. As war deaths were seared into Southern culture, so too were disease deaths.[39] These illnesses separated the South and the rest of the nation and were amplified as a result of post-war economic upheaval. Todd L. Savitt and James H. Young argued in *Disease and Distinctiveness in the*

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[34] Esyllt Wynne Jones, *Influenza 1918: Disease, Death, and Struggle in Winnipeg* (Toronto: University of Toronto Press, 2007). Patricia J. Fanning, *Influenza and Inequality: One Town's Tragic Response to the Great Epidemic of 1918* (Amherst: University of Massachusetts Press, 2010).
[35] Fanning, *Influenza and Inequality*, 128.
[36] Howard Phillips, "Second Opinion: The Recent Wave of 'Spanish' Flu Historiography," *Social History of Medicine* 27, no. 4 (September 2014), 799.
[37] James L. A. Webb, Jr, "The Art of Medicine: The Historical Epidemiology of Global Disease Challenges," *The Lancet* 385, no. 9965 (January 2015): 322.
[38] The phrase "New South" is historically problematic, created by white supremacist and journalist Henry W. Grady. Historians argue New South existence at all after 1865. While there were significant changes in the South after the Civil War, like urbanization and suburbanization, aspects of social organization remained, most notably the goal of keeping the South racially stratified. See James S. Humphreys, *Interpreting American History: The New South* (Kent: Kent State University Press, 2018).
[39] Drew Gilpin Faust, *This Republic of Suffering: Death and the American Civil War* (New York: Vintage Books, 2008), 138-140. See Craig Thompson Friend and Lorri Glover, *Death and the American South* (New York: Cambridge University Press, 2015).

American South (1988) that by the Antebellum-period's conclusion the South's "reputation for poor health" was established by those diseases.[40] This study argues that the 1918 flu also sculpted distinctiveness. Poverty-driven mortality and public health fragility afflicted the South differently than the North, with the unique persistence of de jure segregation.

The amplification of pestilence occurred by post-war economic, political and social order. The Old South possessed its own "master/slave" market capitalism existing in "a world network of prices and markets" that contributed to what William N. Parker called a "paradox" that typified New World tropical economies for two to three centuries.[41] This relationship extended beyond the agricultural, to the medical and biopolitical.[42] Southern slave societies operated on a political and economic association keen on wage-less agrarian production. The Civil War overturned this system, and a free labor market penetrated the Southern economy, meeting resistance and generating the friction that necessitated underdevelopment by 1918. To Parker, the obstacles to labor's movement out of the South, especially farming, and to capital's moving in, lay upon the:

> The destruction of physical capital in the Civil War, the race prejudice of whites in North and South, the lack of a strong native commercial and industrial capitalism in the agrarian South, ignorance and prejudice of the mass of Northern capitalists, and the rapaciousness and acuity of a few. The Southern economy became fixed… in a mold of underdevelopment in the decades immediately after the Civil War. The South's relative poverty was then perpetuated through the 1930s by the vicious circles familiar to students of poor countries and regions.[43]

[40] Todd L. Savitt, and James H. Young, *Disease and Distinctiveness in the American South* (Knoxville: University of Tennessee Press, 1988), 11. For the Old South, see Peter McCandless, *Slavery, Disease, and Suffering in the Southern Lowcountry* (New York: Cambridge University Press, 2011).
[41] William N. Parker, "The South in the National Economy, 1865-1970," *Southern Economic Journal* 46, no. 4 (April 1980): 1019.
[42] See Daina R. Berry, *The Price for Their Pound of Flesh: The Value of the Enslaved, from Womb to Grave, in the Building of a Nation* (Boston: Beacon Press, 2017).
[43] Parker, "The South in the National Economy, 1865-1970," 1021.

Parker concluded this cyclical poverty "produced low public expenditures" on public health until human capital deteriorated, deepening "ignorance and confirming the immobility."[44] These forces separated Southern communities from one another as well.[45] Studies posit the South is still the poorest and "most backward region" of the U.S., and the most racially diverse.[46]

Reconstruction-era Southern politics sought to enforce Antebellum-style racial control. A political climate of "diffused terror and repression" through which whites controlled state administrations and a "biracial caste system" accentuated regional poverty.[47] William M. Brewer wrote in 1930 that poor whites inherited lost slave society traditions intensified by "elevation of the slaves to citizenship," and ensured that persons of color understood the will of white men to be law.[48] These racist dreams saturated scientific and epidemiological discourse. In *An Old Creed for the New South* (1985), John D. Smith wrote that slavery's metaphor was central to Reconstruction race-relations, perverting Darwinian and Lamarckian thought to prove that disease among freed slaves meant "the eventual elimination" of black people, and that without slavery as guardianship, African-Americans would suffer diseases "unknown to their race as slaves."[49]

In *The Problem South* (2012), Natalie J. Ring wrote that these race-disease anxieties had colonial underpinnings by physicians who simultaneously pondered nonwhite immunity to some diseases while implicating nonwhites in spreading those diseases.[50] This Orwellian doublethink

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[44] Parker, "The South in the National Economy, 1865-1970," 1021-1022.
[45] See Steven E. Nash and Bruce E. Stewart, *Southern Communities: Identity, Conflict, and Memory in the American South* (Athens: University of Georgia Press, 2019).
[46] Angela Hattery and Early Smith, "Social Stratification in the New/Old South: The Influences of Racial Segregation on Social Class in the Deep South*," Journal of Poverty* 11, no. 1 (2007): 55.
[47] Parker, "The South in the National Economy, 1865-1970," 1022.
[48] William M. Brewer, "Poor Whites and Negroes in the South Since the Civil War," *The Journal of Negro History* 15, no. 1 (January 1930), 29.
[49] John D. Smith, *An Old Creed for the New South: Proslavery Ideology and Historiography, 1865-1918* (Carbondale: Southern Illinois University Press, 1985), 49. 2008 ed.
[50] Natalie J. Ring, *The Problem South: Region, Empire, and the New Liberal State, 1880-1930* (Athens: University of Georgia Press, 2012), 89.

continued into and beyond 1918, as physicians contemplated white and black immunity, reinforcing the racialized medical consensus.[51] Thus, persons of color fortified white ruminations of a diseased South. Whites pointed to high black disease mortality without regard to socioeconomic status, while medical paternalism sought to tame disease and take steps "toward saving white civilization."[52] These practices buttressed segregation even after reformers oversaw hints of integration in cities like New Orleans.[53] Such conditions shaped the flu's course in 1918. This thesis seeks to enter the Southern case study into these dual historiographies.

The Context of Diseases of Poverty in the South and the Nation

American medical and epidemiological thought was evolving before 1918, and bacteriology filled the absence of virology while the South grappled with disease due its climate, geography, and poverty.[54] In 1916, physicians William H. Deaderick and Loyd O. Thompson noted that while disease was not "confined" to the South, malaria, blackwater fever, amebic dysentery, hookworm, intestinal parasites, and pellagra were more prevalent in the South as in the poor communities of Italy and elsewhere.[55] Southern medical thought was ossified as well, reluctant to incursions from "Yankee" medical thought in favor of "a truly southern medicine."[56] From Reconstruction to the New Deal, nutrition declined for tenant and sharecropper families after

[51] Orwell described doublethink as "to know and not to know, to be conscious of complete truthfulness while telling carefully constructed lies, to hold simultaneously two opinions which cancelled out, knowing them to be contradictory and believing in both of them," and "holding two contradictory beliefs in one's mind simultaneously, and accepting both of them." George Orwell, *Nineteen Eighty-Four* (London: Martin Secker & Warburg, 1949), 32 and 220. This study will show how racists "doublethought" the perceived race-disease connection. Marli F. Weiner and Mazie Hough, *Sex, Sickness, and Slavery: Illness in the Antebellum South* (Urbana: University of Illinois Press, 2012), 23.
[52] Ring, *The Problem South*, 89 and 92.
[53] See Daniel Brook, *The Accident of Color: A Story of Race in Reconstruction* (New York: W. W. Norton & Company, 2019).
[54] See John M. Eyler, "The Science of Influenza: The State of Science, Microbiology, and Vaccines Circa 1918," *Public Health Reports* 125, no. 3 (2010): 27-36.
[55] William H. Deaderick and Loyd O. Thompson, *The Endemic Diseases of the Southern States* (Philadelphia: W. B. Saunders Company, 1916), 13 and 293. The South was also ripe with zoonotic diseases like rabies and brucellosis. See J. D. Martin, "Zoonoses in the South," *Public Health Reports* (1896–1970) 72, no. 3 (March 1957): 210–216.
[56] Richard H. Shryock, *Medicine and Society in America, 1660-1860* (Ithaca: Cornell University Press, 1960), 123.

they abandoned gardens to grow cotton closer to their cabins due to sharecropping contracts, while mill workers subsisted on company store food, facilitating pellagra.[57] Hookworm prospered among impoverished farming communities, especially in children due to shoeless travel.[58] A 1902 report written by an S. C. Kershaw from hookworm expert Dr. Charles W. Stiles noted that infections were due to the "absence of privies" on farms, with defecation occurring within fifty meters from a residence, resulting in what Stiles called the "'poor man's' malady" across the South.[59] Public health practitioners failed to alert Southerners to the "this great burden of hookworm."[60]

Malaria was also amplified by underdevelopment. Though malaria once extended as far as New England, by the late nineteenth century it was a uniquely Southern disease.[61] The Rockefeller Foundation battled malaria in the South and in poor communities worldwide. Seeking inexpensive malaria control methods, the foundation employed high school students to construct anti-mosquito screens for doors and windows, but the program was ineffective after one year. Surveyors found that most screens fell into disrepair, and that households changed rapidly, with migratory sharecropping families hopping from contract to contract, farm to farm, in search of better deals.[62]

Yellow fever also contributed to the myth of a backwards South. The environment producing tobacco, cotton, and sugar also facilitated the *Aedes aegypti* mosquito, which

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[57] James H. Young, "Patent Medicines: An Element in Southern Distinctiveness?" from Savitt and Young, *Disease and Distinctiveness in the American South*, 162–163. Diseases of deficiency included scurvy, beriberi, nutritional edema, and nutritional anemia. See W. H. Sebrell, "The Nature of Nutritional Diseases Occurring in the South," *The Milbank Memorial Fund Quarterly* 17, no. 4 (October 1939): 358–366.
[58] D. Clayton Brown, "Health of Farm Children in the South, 1900-1950," *Agricultural History* 53, no. 1 (January 1979): 177.
[59] Charles W. Stiles, "Hook-worm Disease in the South—Frequency of Infection by the Parasite (uncinaria americana) in Rural Districts," *Public Health Reports* 17, no. 43 (October 1902): 2433-2434.
[60] C. C. Bass, "Parasitology in Relation to Medical Problems of the South," *Science, New Series* 67, no. 1740 (May 4, 1928): 455.
[61] Margaret Humphreys, "How Four Once Common Diseases Were Eliminated from the American South," *Health Affairs* 28, no. 6 (November/December 2009): 1736.
[62] Margaret Humphreys, "Malaria in America," in *The Global Challenge of Malaria: Past Lessons and Future Prospects* (New Jersey: World Scientific, 2014), ed. by Frank M. Snowden and Richard Bucala, 10.

transmitted yellow fever.[63] Port cities like Jacksonville, New Orleans and Savannah battled epidemics throughout the nineteenth century. Jacksonville experienced a harsh epidemic in 1888, when cities launched quarantines against refugees and nurses recruited to Jacksonville were incompetent, arrested for drunkenness and striking.[64] These epidemics were partly due to legislative indifference. Connections between sanitation and yellow fever were established by the Reconstruction era but were only of secondary importance. Physicians favored incorporating sanitation into public health but were unconvincing to legislators.[65] Limited funding characterized Southern disease control. Commercial elites initiated policies that maximized profits while disease control "existed for convenience," as wealth triumphed over health.[66] Attempts to alleviate Southerners of disease only added to myths of "an unhealthful climate" and a diseased South.[67]

The final appeal for Southern public health before the October 1918 flu wave appeared in an August 1918 *Science* article by Dr. Sigismund S. Goldwater (1873–1942), director of New York City's Mount Sinai Hospital in 1917 and consultant to the U.S. Public Health Service (USPHS) in 1918. Goldwater argued for a program that Woodrow Wilson had referred to the Treasury Department, which by then had "given no indication of formulating," to focus on standardized disease control procedures adopted by local authorities with "special attention" to diseases that reduced Southern farm labor efficiency.[68] Southern diseases drew interest, but action was hollow.

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[63] Jo Ann Carrigan, "Yellow Fever: Scourge of the South," in Savitt and Young, *Disease and Distinctiveness in the American South*, 57. See also Timothy C. Winegard, *The Mosquito: A Human History of our Deadliest Predator* (New York: Dutton, 2019).
[64] Margaret C. Fairlie, "The Yellow Fever Epidemic of 1888 in Jacksonville," *The Florida Historical Quarterly* 19, no. 2 (October 1940): 99.
[65] Margaret Humphreys, *Yellow Fever and the South* (Baltimore: The Johns Hopkins University Press, 1992), 57.
[66] David R. Goldfield, "The Business of Health Planning: Disease Prevention in the Old South," *The Journal of Southern History* 42, no. 4 (November 1976): 569.
[67] George Brown Tindall, *The Emergence of the New South: 1913-1945 Vol. 10* (Baton Rouge: Louisiana State University Press, 1967), 276.
[68] "Proposed Federal Health Program," *Science*, New Series 48, no. 1235 (August 30, 1918): 215.

Poor economic conditions, lackadaisical interest from the wealthy and powerful, and porous health infrastructure precipitated an environment conducive for high flu mortality.

Within Southern communities, racist ideas spread as rapidly as pestilence, emboldening racial hierarchies under prevailing biological assumptions.[69] In 1910, Dr. H. M. Folkes of Biloxi, Mississippi wrote of "the negro as a health problem," based on the idea that immunity "seldom applies to the negro."[70] Folkes spoke for a medical community that believed in hematological differences between "mulattoes, octoroons and quadroons" and the "pure-blooded negro," where Americans of mixed race between black and white were more susceptible to disease than their "deeply tinted brethren."[71] However, even though "pure-blooded" African Americans presumably possessed immunity to diseases like influenza, they still carried pathogens threatening "pure Anglo-Celtic type of people."[72] Connected with the public health rule that "it is far better to prevent diseases than it is to wait to cure them," Folkes reminded Southerners "born and bred" that it was important to guard against "miscegenation which would Africanize this country," continuing that:

> It is a thousand times more difficult to get the negroes to grasp the idea that there may exist anything in microscopic life that could be a menace to their health… As an American man who loves his native land… and as a medical man, I warn the white people of this country against the insidious evil which to-day is sapping the very foundation of that Aryan blood which stands for the republican form of government and the highest type of civilization.[73]

To Folkes, African Americans that were impure byproducts of miscegenation were unimmune to disease, while "pure-blooded negroes" were hardy and savage, asymptomatic carriers of it. Anti-

[69] See Andrea Patterson, "Germs and Jim Crow: The Impact of Microbiology on Public Health Policies in Progressive Era American South," *Journal of the History of Biology* 42, no. 3 (Fall 2009): 529-559.
[70] H. M. Folkes, "The Negro as a Health Problem," *The Journal of the American Medical Association* (October 8, 1910): 1246.
[71] Folkes, "The Negro as a Health Problem," 1246.
[72] Folkes, "The Negro as a Health Problem," 1247.
[73] Folkes, "The Negro as a Health Problem," 1246-1247.

miscegenation was a central public health objective in the South, connected with managing the racial future of the U.S. Folkes regarded disease control as race control, as racial myths connecting black bodies with disease prevalence ensured white hegemony. He typified this logic. In 1915, Dr. L. C. Allen of Hoschton, Georgia, feared that African Americans were bringing disease into white homes as domestic laborers and wrote that persons of color were not lazy, but loved carnal pleasure and lacked self-control. Allen thought slavery protected African Americans from tuberculosis (TB) and diseases of Southern ecology. His remedy to this addition to "'the white man's burden'" was to blame persons of color for their "shiftlessness, ignorance, and poverty" and replace their presumed ineptitude with "systematic, disciplinary training of his physical, mental and moral powers."[74] To fight high African-American disease mortality, Allen's colleague, Dr. A. G. Fort, argued in 1915 for better funding to protect persons of color because they could not protect themselves. He implicated their poverty as the conductor of disease.[75]

Orwellian Doublethink and Epidemiological Epistemology: The Case of Savannah

This synthesis between racism, epidemiology, and health policy in the Progressive era South is best examined in Savannah, which itself faced epidemics unique to the South and to poverty. The city is a historical laboratory for examining the development of Southern disease control programs, and the evolution of epidemiological thought guided by poverty and high African-American mortality rates to disease before 1918. An 1820 yellow fever epidemic seared images of corpse-filled carts into Savannahian memory, while remedies like fusions of "castor oil, mercury, blood-letting, snake root, bark, blistering, pepper, sugar of lead, brandy" remained ineffective.[76] Yellow fever struck Savannah nine times after 1820. After the 1876 epidemic, Dr.

[74] L. C. Allen, "The Negro Health Problem," *American Journal of Public Health* 5, no. 3 (March 1915): 203.
[75] A. G. Fort, "The Negro Health Problem in Rural Communities," *American Journal of Public Health* 5, no. 3 (March 1915): 191.
[76] Preston Russell and Barbara Hines, *Savannah: A History of Her People Since 1733* (Savannah: Frederic C. Beil, 1992), 89-90.

Louis Falligant recalled that "misery and woe found echo only in the wail of the mourner and the dull thud of the coffin."[77] Over a thousand Savannahians died, pushing authorities to introduce sewers, lowland drainage, garbage disposal, wells, and a sanitary department.[78]

By 1900, public health and racial control in Savannah was inseparable. Historians have argued that segregation served as a "de facto quarantine" for African Americans, protecting them from disease by minimizing their pathogen exposure.[79] This study argues the opposite. Segregation made African Americans more vulnerable to disease and the 1918 flu. With segregation came economic paralysis, marginalization, and for the poorest, squalid living conditions. Health departments recognized the correlation. In Savannah, smallpox reports between 1902 and 1904 recorded an African-American smallpox morbidity rate fifteen times that of whites.[80] A 1912 report by Savannah's health officer Dr. William F. Brunner estimated a city population of 36,000 whites and 41,000 "colored and Negroes," who he, like Folkes, differentiated between:

> It may be asked why the non-white population is divided into two classes, i.e., - colored and Negroes, and it is here stated that there is an essential difference in these two classes of people… from a sanitary basis… It is palpable that the African of unmixed blood is but a little over two hundred years from the jungle and he does not as yet thrive physically as a city dweller. The colored man, from his white blood, inherits a greater resistance to the diseases incidental to civilization, and when housed as the white people are. It is well worth the endeavors of the authorities of every Southern city to investigate a condition that must be faced and is fraught with the resulting evils to the white race… Can anyone read the figures quoted without observing that, if we have one race of people here with a death rate

[77] Louis A. Falligant, *Report on the Epidemic of Yellow Fever ("La Maladie Du Diable") in Savannah, Georgia, During the Months of September, October and November, 1876* (Savannah: The Morning News Print, 1888), 10.
[78] Russell and Hines, *Savannah*, 89-90 and 154-155.
[79] Vanessa Northington Gamble, "'There Wasn't a Lot of Comforts in Those Days:' African-Americans, Public Health, and the 1918 Influenza Epidemic," *Public Health Reports* 125, Supp. 3 (April 2010): 120. See also Howard Markel, Harvey B. Lipman, J. Alexander Navarro, Alexandra Sloan, Joseph R. Michalsen, Alexandra Minna Stern, Martin S. Cetron, "Nonpharmaceutical Interventions Implemented by US Cities During the 1918-1919 Influenza Pandemic," *Journal of the American Medical Association* 298, no. 6 (August 2007): 644-654.
[80] "Smallpox Report 1902," "Smallpox Report 1903," "Smallpox Report 1904," City of Savannah Research Library & Municipal Archives.

> nearly double that of the superior and controlling race, measures, not yet adopted, are necessary to remedy this evil.[81]

Brunner noted that African-American TB cases outnumbered white TB cases three to one, while there were five African-American pneumonia cases for every one white pneumonia case. Emulating preventive medicine's core doctrine to "fight the cause, not the effect," Brunner advocated for "the segregation of infected people," alluding to the perceived increasing "tuberculosis factories" of African-American neighborhoods.[82] Consider the paradox of Progressive epidemiological racism before 1918. White supremacists yearned to reconstruct the Old South racial hierarchy, and with novel microbiological knowledge and social Darwinism, racism joined science. Science justified racial order, and disease control served as the channel by which physicians and authorities partook in molding that order in which immunologically-pure whites stood atop the pyramid, and persons of color buttressed the biological bottom.

These theories were irrational, but still materialized in the form of ineffective and detrimental policies for African Americans struggling in the lingering Old South biopolitical death-grip. Physicians, officials, and white supremacists debated African-American immunity to no result. Some argued black bodies were vulnerable to disease due to their presumed worthless immunocompetence. Others argued for the immunological hardiness of black bodies, toughened after centuries in the African jungle. Folkes's miscegenation phobias were premised on the assumption that race-mixing would cause for white "descendants a Frankenstein monster."[83] He believed African-American immunity was armored due to the stereotype of an untamed African

[81] William F. Brunner, *Annual Report of the Department of Public Health of the City of Savannah, GA., For the Year Ending December 31, 1912* (1912), 6-7. City of Savannah Research Library & Municipal Archives.
[82] Brunner, *Annual Report of the Department of Public Health of the City of Savannah, GA.* (1912), 7-8.
[83] Folkes, "The Negro as a Health Problem," 1247.

disease ecology. To Folkes, African-American immunological fortitude was reflective of black biological and social inferiority. He argued that African-American immunity lost integrity when diluted by white blood, making "negro blood" more vulnerable to disease as long as race-mixing continued.[84] Yet, Brunner wrote that black bodies inherited "greater resistance to the diseases incidental to civilization" when mixed with white blood and "housed as the white people are."[85] Folkes can be described as a segregationist, and Brunner an assimilationist, and racist physicians in either school of thought could not decide whether miscegenation improved black immunology or undermined it. But empiricism was worthless, and Orwellian doublethink filled the gaps in senseless, yet ossified, Southern thought. Persons of color were inferior because of their resistance and vulnerability. This simultaneous inferiority characterized social architecture, and thus the pathways of infection and mortality. Often, it were segregationist and assimilationist physicians and officials who shaped responses to high black mortality into 1918. Regardless, white physicians wanted nothing to do with black patients. Dr. R. V. Harris, a city physician, lamented to the mayor that he was frequently and unfairly requested to treat more African Americans than whites, and that African Americans needed to rely on their own physicians for treatment.[86]

In 1914, Brunner reported that total African-American mortality doubled total white mortality. There were five times more black TB deaths than white TB deaths, two times more black pneumonia deaths than white pneumonia deaths, and four times more black pellagra deaths than white pellagra deaths.[87] Brunner noted that the mortality rate for African-American children was enormous, because a black child did "not have the same chance for its life that the white child

[84] Folkes, "The Negro as a Health Problem," 1247.
[85] Brunner, *Annual Report of the Department of Public Health of the City of Savannah, GA.* (1912), 7.
[86] R. V. Harris, "Report of City Physicians – Southern District," *Annual Report of the Department of Public Health of the City of Savannah, GA.* (1912), 63.
[87] William F. Brunner, *Annual Report of the Department of Public Health of the City of Savannah, GA., For the Year Ending December 31, 1914* (1914), 5. City of Savannah Research Library & Municipal Archives.

has."[88] He observed that African-American children lived in extraordinarily unsanitary conditions. In the city, they lived in alleyways or basements, and in segregated neighborhoods they lived in crowded slums. If fair housing laws were enacted, Brunner wrote, African-American child mortality "would be cut in half," and the total African-American mortality rate alleviated.[89] Whites had imposed restrictions on where African Americans could live, confining them to swampy areas where individuals were forced to fight the disease on their own, without social services like paved streets, sewers, and indoor plumbing, which would have alleviated some conditions.[90]

But inequality and public health underdevelopment were symbiotic. According to Brunner, the "boll weevil, ticks on a cow, or hog cholera" received funding to develop laws, while human health protection never extended "beyond the salary of such persons, whose only qualifications are that they stand in with the political machine."[91] He knew Savannah required a capable health board, and his frustration with political indifference was not locally limited. Several miles from Savannah existed the USPH and Marine-Hospital Service (MHS) South Atlantic quarantine station at Black Beard Island, Georgia. Reports from 1914 indicated the station was without leadership since 1909, with Savannah only accessible via U.S. Coast Guard revenue cutter.[92] The station began operations in 1888 and was abandoned by 1911 because its location made it impractical for enforcing quarantines, and because the property was "decaying from lack of attention," with furnishings being dismantled and repurposed in homes without plumbing.[93]

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[88] Brunner, *Annual Report of the Department of Public Health of the City of Savannah, GA.* (1914), 6.
[89] Brunner, *Annual Report of the Department of Public Health of the City of Savannah, GA.* (1914), 6.
[90] See "Chapter Three: Race, Poverty, and Place," by Margaret Humphreys, *Malaria: Poverty, Race, and Public Health in the United States* (Baltimore: Johns Hopkins University Press, 2001).
[91] Brunner, *Annual Report of the Department of Public Health of the City of Savannah, GA.* (1914), 9.
[92] "South Atlantic, Ga., Quarantine," USPHS Quarantine Station Book 1909-1919. CDC History Collection, David J. Sencer Museum, CDC Global Headquarters.
[93] Letter to Supervising Architect, Treasury Department from Irving D. Porter, "S. Atlantic, Ga. Q. S.," from Savannah, Ga., June 1914, USPHS Quarantine Station Book 1909-1919.

Brunner's woes went unheeded. Authorities were not interested in appropriating resources, but when they were, they sought to reproduce racial order. By 1915, African-American mortality was almost triple white mortality, and Brunner was irate. Officials had not installed the same "safeguards we place around the white population" in segregated neighborhoods, and unfair housing laws forced African Americans into unsanitary corners of the city, raising their TB and pneumonia mortality.[94] Infant mortality was as abysmal. White babies were four times more likely to reach their first birthdays than black babies, and had "a five-to-one chance of being born alive over the Negro."[95] Brunner thought that "colored and Negro people" were progressing, but without white "sanitary and moral support," their "progress must be retarded."[96] In an article that year, Brunner wrote that while he believed African Americans were ignorant, "their environments are such that they will always be ignorant," because authorities were not alleviating the poverty wracking African-American neighborhoods, denying them "a square deal."[97] While espousing racist ideologies himself, Brunner attacked his colleagues who were "inclined to hold aloof from these people on account of racial superiority," writing that if his fellow physicians and public health officials truly wanted to fight disease, then the "Southern man is the negro's best friend."[98]

The policies downstream from racist epidemiological thought were ineffective in shielding impoverished whites and African Americans from the 1918 pandemic. One study analyzed mortality using intact death records and found that of 6,520 recorded deaths in the Savannah-Chatham County region between 1917 and 1919, "influenza" was the cause of death in 316 cases

[94] William F. Brunner, *Annual Report of the Department of Public Health of the City of Savannah, GA., For the Year Ending December 31, 1915* (1915), 5-6.
[95] Brunner, *Annual Report of the Department of Public Health of the City of Savannah, GA.* (1915), 5-6.
[96] Brunner, *Annual Report of the Department of Public Health of the City of Savannah, GA.* (1915), 5-6.
[97] William F. Brunner, "The Negro Health Problem in Southern Cities," *American Journal of Public Health* 5, no. 3 (March 1915): 183 and 190.
[98] Brunner, "The Negro Health Problem in Southern Cities," 190.

(4.85 percent of all deaths), 114 occurring in October 1918 (37 percent of total local flu deaths and 4.69 percent of all local deaths that year), with almost one in ten deaths in 1918 due to the flu.[99] Incomplete reporting, differences between defined "influenza" and "pneumonia" deaths, and inaccurate documentation for African Americans indicate that mortality was likely much higher.[100] As will be shown later, these issues appeared in other Southern cities, like New Orleans.

Georgian cities suffered heavily, particularly in military facilities where "coffins were stacked like cordwood."[101] But Savannah was also Old South slave port city, and like other Southern cities, racial inequities and inequalities were robust. These elements shaped the documentation of mortality. While the researchers in the aforementioned study concluded that race did not appear as a factor in Savannahian flu mortality, death registries suggested otherwise.[102] Handwritten documentation from the Health Officer's Department by physicians responding to the virus captured the effects of segregation in raw mortality reporting and the assessments of later historians. While white deaths were reported a result of "la Grippe, pneumonia" and "pneumonia, influenza," many African-American deaths were reported as simply "pneumonia," "lobar pneumonia," or "unknown."[103] The conventional orthodoxy suggesting that whites died more than African Americans, or that their deaths were comparable, is a flawed historical assumption based on the available statistics. In many cases, the absence and inaccuracy of records speak louder than previously thought, especially when capturing the experience of the impoverished and

[99] Sara S. Plaspohl, Betty T. Dixon and Nyssa Owen, "The Effect of the 1918 Spanish Influenza Pandemic on Mortality Rates in Savannah, Georgia," *The Georgia Historical Quarterly* C, no. 3 (January 2016): 335-336.
[100] Plaspohl, Dixon and Owen, "The Effect of the 1918 Spanish Influenza Pandemic on Mortality Rates in Savannah, Georgia," 337-338.
[101] Franklin M. Garrett, *Atlanta and Environs: A Chronicle of Its People and Events Vol. II* (Athens: University of Georgia Press, 1954), 1982 Reprinting, 735.
[102] Plaspohl, Dixon and Owen, "The Effect of the 1918 Spanish Influenza Pandemic on Mortality Rates in Savannah, Georgia," 336.
[103] Vital Statistics Register – Birth and Death Registers Vol. 2: Birth and Death Register 1917-1919, October-November 1918 Death Register. City of Savannah Research Library & Municipal Archives.

marginalized. Savannah's case is an introductory example of these reporting patterns, further examined in larger case studies of Jacksonville, New Orleans, and Nashville.

Charles E. Rosenberg wrote that the AIDS epidemic in the 1980s may "be seen as a socio-assay" of American institutions, systems, and culture.[104] His thoughts apply to most epidemics and pandemics in history, including the 1918 flu. Richard J. Evans expanded on Rosenberg's insight and wrote that the spread and impact of epidemics were, and still are, influenced by "social and political factors" affecting "different groups of people in different ways and to different degrees."[105] Savannah's conditions were reflective of the social and political conditions, and epistemic currents, of Southern cities before 1918. The city's case illuminated the epidemiological thought surrounding the contested nexus between poverty and high African-American mortality. The immuno-racial debate between segregationists like Folkes and assimilationists like Brunner were emblematic of the evolving epidemiology, concomitantly implicating African Americans in their own mortality while seeking solutions to municipal disease control problems, neglecting poverty and underdevelopment as plausible conductors of epidemic illness.

[104] Charles E. Rosenberg, "What is An Epidemic? AIDS in Historical Perspective," in *Explaining Epidemics: and Other Studies in the History of Medicine* (Cambridge: Cambridge University Press, 1992), 291.
[105] Richard J. Evans, "Epidemics and Revolutions: Cholera in Nineteenth Century Europe," in *Epidemics and Ideas: Essays on the Historical Perceptions of Pestilence* (Cambridge: Cambridge University Press, 1992), ed. Terence Ranger and Paul Slack, 150.

Chapter One: "You Are a Menace to Others": The Flu and Jacksonville

Jacksonville and Savannah simultaneously confronted Southern diseases, compounded by underdevelopment and inequality. Both were twin cities connected by rail, spreading late nineteenth-century yellow fever epidemics.[106] Yellow fever struck Jacksonville in 1877, one year after the devastating 1876 outbreak in Savannah. In Fernandina, a September 1877 census indicated there were 1,146 infected people from a population of 1,632, and by mid-October 800 panicked people fled Jacksonville within thirty-six hours.[107] The virus reemerged in 1888, depopulating the city from 130,000 citizens to 14,000 within weeks as refugees fled north, while the rapid increase in cases shocked the nation.[108] Of 4,656 reported cases, 427 died, and in response, the Florida State Board of Health was born.[109] Floridians remembered their yellow fever epidemics when facing the 1918 flu, and relied on crude forms of treatment to fight the virus. The mortality Jacksonville faced was not large enough to enter the American historical and epidemiological narrative. Still, Jacksonville's experience typified those of poverty, underdevelopment, and racism in other Southern cities, and its case study expressed the limitations of historical knowledge, and the warped historiographical consensus borne thereof.

Floridians celebrated the courage of medical authorities in combatting the 1888 epidemic. One 1888 poem entitled *Ye Heroes of Ye Epidemic* consoled distraught citizens and celebrated medical capability, spotlighting the physicians who treated the sick.[110] The poem romanticized

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[106] See R. Scott Huffard Jr., "Infected Rails: Yellow Fever and Southern Railroads," *Journal of Southern History* 79, no. 1 (February 2013): 79-112.
[107] "Yellow Fever in Florida, 1877," *Florida Health Notes* 38, no. 10 (October 1946): 185, 189, and 192-193.
[108] Webster Merritt, *A Century of Medicine in Jacksonville and Duval County* (Gainesville: University of Florida Press, 1949), 147-149. John W. Cowart, *Crackers & Carpetbaggers: Moments in the History of Jacksonville, Florida* (Morrisville: Lulu Press, 2005), 89.
[109] Fairlie, "The Yellow Fever Epidemic of 1888 in Jacksonville," 108. Merritt, *A Century of Medicine in Jacksonville and Duval County*, 162.
[110] T.O.S., *Ye Heroes of Ye Epidemic* (Jacksonville: DaCosta Printing and Publishing House, 1888), 1. Jacksonville Historical Society.

disease control, revealing how the effects of disease were crystallized in the Southern mind. Crude treatments were still relied upon. An 1888 yellow fever remedy advised sufferers to drink and "drench the bowels and stomach" with sea water while inhaling turpentine until "vomiting results."[111] Unorthodox Southern medicine continued in 1918, not only because of humble evolutions in biomedical knowledge, but as a result of poverty and underdevelopment, even when rhetoric hailed progressive medical order. They were not unorthodox as Southern phenomena, however, but were the Old South ways of treating the sick. If the results of these epidemics did not speak to the national and international community about Southern epidemiological conditions, it revealed characteristics about Southerners themselves, who enshrined "racism, xenophobia, violence, shotgun vigilantism, poverty, economic stagnation, ignorance, irrationality, resistance to modern science, and the usual defensiveness and hypersensitivity" in social constructions and in law.[112] This was one way of blaming Southerners for diseases endemic to Southern ecology.

Underdevelopment continued into the twentieth century, reflected in the condition of USPH and MHS quarantine stations servicing ports across Florida. Some stations experienced little activity and were suited for smaller objectives with the lack of manpower and resources. A 1909 letter to Washington D.C. from acting assistant surgeon Dr. William O. Bell of the St. Johns River quarantine station in Mayport indicated that some of the active station property was "in general good repair" and that there was "little unserviceable property" impeding the duties of the USPHS.[113] A 1914 report from the St. Johns River station indicated little station activity. The surgeon in charge, Dr. Neil Alford, wrote to Washington D.C. that station storage houses were "insufficient for storing supplies," and that the station had no wharf, with "only one attendant"

[111] "Yellow Fever Remedy," 1888. Jacksonville Historical Society.
[112] Carrigan, "Yellow Fever: Scourge of the South," 70-71.
[113] William O. Bell, Letter to Surgeon General, USPHS, Washington D.C., from Mayport, Florida, May 13, 1909, USPHS Quarantine Station Book 1909-1919.

operating the station.[114] To Alford, this was sufficient enough to protect cities reliant on ships entering the river, because station buildings were in good condition, and the fumigating and disinfecting apparatus were effective, considering the port's sleepy activity.

But other quarantine stations in Florida were highly active and required attention from state and federal authorities to function properly. A 1909 letter to Washington D.C. indicated that service at the Punta Rassa quarantine station was conducted from the private office of Dr. G. R. Shultz for "which no rent is paid by the government," as federal authorities owned nothing but the "stationery and quarantine flag" at the station.[115] The St. George Sound quarantine station in Carrabelle required no repairs, because there were no buildings, station wharf, or floating property to repair, and office and supply tasks were conducted in rented spaces. "Disinfection and fumigation machinery" were limited to "sulphur pots and tubs" because the station served an inspection role, and ships were sent elsewhere if further intervention was required.[116] The Tampa Bay quarantine station at Fort De Soto was destroyed by a fire in 1913, leaving personnel without mooring buoys, anchors, and a disinfecting wharf, all having sunk into the gulf, while other tools and property were "carried away during a heavy storm."[117] Most buildings at the Pensacola quarantine station were optimal, but personnel struggled to disinfect and fumigate ships because apparatus could only be transported so far, and cargo vessels could only approach within five to six miles of the station. A 1914 report lamented that the station was "too far from the line of navigation," and that to better protect Pensacola, the station needed to be moved "four or five miles

[114] Neil Alford, Report to Surgeon General, USPHS, Washington D.C., from Mayport, Florida, April 7, 1914, USPHS Quarantine Station Book 1909-1919.
[115] G. R. Shultz, "Punta Rassa, Fla.," May 28, 1909, USPHS Quarantine Station Book 1909-1919.
[116] "St. George Sound Quarantine, Carrabelle, Florida – Answers to Questions of Bureau Circular, Letter of January 19, 1914," January 24, 1914, USPHS Quarantine Station Book 1909-1919.
[117] "Tampa Bay Quarantine, Fort De Soto, Florida," March 20, 1914, USPHS Quarantine Station Book 1909-1919.

nearer where loaded ships have to anchor."[118] The conditions of Florida's quarantine stations were reflective of public health underdevelopment at the state and federal level. There was limited federal response to disease, compounding on the indifference of state and local authorities.

In Jacksonville, inactive public health and inaccessible medical care coincided with the political marginalization of African Americans by whites, who sought to reverse what Robert Cassanello has seen as unrestricted African-American participation in the Reconstruction-era public sphere.[119] Only thirty-three African-American doctors practiced in the city between 1900 and 1918, increasing by only twenty-four percent while the African American population increased by fifty-seven percent.[120] In 1912, Jacksonville's health officer Dr. Charles E. Terry wrote that high African-American mortality harmed city growth and attractiveness, with the "negro race as a menace to our own a source and disseminator of infection."[121] He thought high African-American mortality was evidence of immunological inferiority, and that African Americans, having been "so recently removed from savagery," were naturally an imitative race and they were therefore trainable on hygiene.[122] He believed if whites engaged in supreme sanitation practices, African Americans could do the same. While implicating black bodies with high disease incidence and blaming African Americans for Jacksonville's image, Terry also noted that most deaths were preventable had there been a physician in attendance. When there was a physician present, care was subpar when delivered by "ignorant physicians of their own race and the less well-equipped

[118] "Pensacola, Fla., Q.S.," January 29, 1914, USPHS Quarantine Station Book 1909-1919.
[119] See Robert Cassanello, *To Render Invisible: Jim Crow and Public Life in New South Jacksonville* (Gainesville: University Press of Florida, 2013).
[120] Leora Legacy, *Florida's Pioneer Medical Society: A History of the Duval County Medical Society and Medicine in Northeast Florida* (Birmingham: Legacy Publishing Company, 2012), 64.
[121] Charles E. Terry, "The Negro: His Relation to Public Health in the South," *American Journal of Public Health* 3, no. 4 (April 1913): 300-306. Werner Troesken, *Water, Race, and Disease* (Cambridge: The MIT Press, 2004), 80-91.
[122] Terry, "The Negro," 303-305.

members of the white fraternity."[123] By 1914, Terry found that white mortality in the South exceeded northern cities by 212 deaths per 100,000, and African-American mortality by 657 deaths per 100,000.[124] James B. Crooks has written that, to remedy high African-American mortality, Terry requested midwifery for mothers, nurse education in white and black neighborhoods, and secured more financing for public health, because, while seventy-five cents per capita on health protection was the national average, Jacksonville spent only fifty cents per capita.[125]

Whether segregationist or assimilationist, medical officials like Brunner and Terry were simultaneously progressive and racist. They recognized high African-American mortality and tied it to blackness, while implicating municipal ineptitude and inaccessible, oftentimes inexistent, medical care in their deaths. But they criticized political indifference not because they wanted to protect African Americans. It was because they wanted to protect white hegemony and pure white bodies from a problem easily transmissible in their cities. Disease-race associations were not fringe beliefs concentrated to the corners of science but were at the center of it. Nor was racist medicine practiced by lone xenophobic physicians. A xenophobic culture institutionalized racist medicine.

Redefining Mortality in the 'River City'

Late-nineteenth and early-twentieth century public health tribulations set the backdrop for the 1918 flu, which killed thousands of Floridians and hundreds of citizens in Jacksonville, where racism exacerbated underdevelopment. The flu was first recognized in Pensacola among military personnel on September 11, 1918, alongside other Atlantic coast cities.[126] By late September, it

[123] Terry, "The Negro," 303.
[124] 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), 23-24.
[125] James B. Crooks, *Jacksonville After the Fire, 1901-1919: A New South City* (Jacksonville: University of North Florida Press, 1991), 52-57.
[126] William M. Straight, "Florida and the Spanish Flu," *Journal of the Florida Medical Association* 68, no. 8 (August 1981): 644-654.

was recognizable statewide. On September 23, Phil Armstrang (possibly Armstrong) of Jacksonville's *Florida Times-Union* referred to the flu as "the latest fad" in the *Lakeland Evening Telegram*.[127] Floridians battled diseases absent from the rest of the country by 1918, and developed a cultural construct of disease from collective memory. Armstrang wrote that inaction caused Southerners to "kick the bucket" and "head a slow procession out to the cemetery and be all messed up among the flowers," but Southerners had weathered lethal epidemics before:

> We'll just bet grandma could handle this here Spanish Influenza. She could cure anything most that ailed you when you were a lad… In them good old days most every family was its own physician out there in the backwoods. Had to be. The old folks had to know how to cure anything from stumick ache to yaller jandice and believe us they did.
>
> We seldom saw a doctor and when one did ride out that away with his old fashioned saddle bags and his big white bottles of calomel and quinine it was an epoch in history, we tell you. People crowded around him like he was a man who had been to Paris. We couldn't always tell whether he was a doctor or a preacher or a peddler. They all looked pretty much the same in those days…
>
> Maybe it's the new name that scares us. Still it's nothing to be sneezed at. In the old prohibitionless days when a man felt the first symptoms of grippe approaching he took quinine and put a jug of firewater under the side of his bed and went to it. When the quinine gave out there was still the booze and when that gave out there was more where it came from. So long as your money or credit held out you could hold out…
>
> We have had sever colds… and never minded it a-tall. We have had sever colds in the head most every winter since we can remember, in fact if we went through a winter without a cold keeping us sniffing we would get mad and swear a great swear because we would feel that we had been cheated out of the rights guaranteed us under the Constitution of the United States of America. It is because of that dod-gasted cold that always comes… and as soon as we feel the first attack we just say 'Welcome, little stranger, come right in and have a seat in the parlor and don't slam the door'… But this here Spanish Influenza is something else again… Wonder what we will have next year?[128]

In 1888 and 1918, Jacksonville and the South possessed their own ways of grappling with disease after decades of experience, however ineffective. In one sense, modern medical capabilities and

[127] Phil Armstrang, "Something New Again," *The Lakeland Evening Telegram* (Lakeland, Florida), September 23, 1918. *Chronicling America: Historic American Newspapers. Library of Congress*. https://chroniclingamerica.loc.gov/lccn/sn95047222/1918-09-23/ed-1/seq-8/
[128] Armstrang, "Something New Again," *The Lakeland Evening Telegram*, September 23, 1918.

physicians were saviors deserving of praise. In another sense, however, Southerners were isolated and sick, forced to fend for themselves. Medicine was beneficial only if it was accessible, and Armstrang thought that Southerners would do more with less as they always had. Southerners understood that their region of the country faced disease differently than communities elsewhere.

Within days of Armstrang's article, Floridians resorted to unorthodox treatments. One remedy proposed the treatment of children with "syrup of figs."[129] Authorities scrambled while the University of Florida repurposed its chapel into a makeshift hospital, after Gainesville's local hospital was "able to handle only seven men."[130] News from Nashville reached Jacksonville on September 30, informing Floridians of cases in a town outside the city named Old Hickory, where the E. I. DuPont de Nemours & Company installed a powder plant for the war effort.[131] Dr. William W. MacDonell, Jacksonville's health officer, advised residents against crowds, and wrote that:

> If you are taken down with the disease go to bed and stay there – you are a menace to others if you are about… Jacksonville has given fifty-five physicians to the government services. Our nurses also have practically volunteered. Our hospital facilities are limited. Conserve our remaining doctors and nurses… Avoid crowds and if you cough or sneeze cover the cough or sneeze with your handkerchief. Don't spit.[132]

Floridians relied on non-pharmaceutical methods like social distancing alongside patent medicines and unconventional healing methods. They cooked their own cough remedies to "save about $2" if one retrieved "$2\frac{1}{2}$ ounces of Pinex," and mixed it with granulated sugar syrup, molasses, honey,

[129] "Break a Child's Cold by Giving Syrup of Figs," *The Florida Times-Union* (Jacksonville, Florida), September 26, 1918, 13. *Jacksonville Public Library, Florida Collection.*
[130] "Spanish Influenza Among the Boys in University of Florida," *Times-Union,* September 29, 1918, 3.
[131] "250 Influenza Cases," *Times-Union*, September 30, 1918, 2.
[132] "People Advised as to Spanish Influenza by City Health Officer," *Times-Union*, September 30, 1918, 5. Spitting advisories were issued nationwide, including Florida. In the November 1918 *Florida Health Notes*, the health department wrote that spitting was a "disgusting sight to every passer-by" and a "prolific" method of spreading germs, continuing that no one with "a degree of civic pride" or "right conception of 'personal liberty' will indulge in this dangerous practice," and that police could "arrest any person who so offends public decency." State Board of Health, "The Spitting Habit," *Florida Health Notes: Official Bulletin* 13, no. 3 (November 1918): 84.

or corn syrup in a pint bottle, resulting in cough syrup besting one bought "for three times the money."[133] MacDonell knew that Jacksonville's flu exposed the extent of his municipal and medical capabilities, remarking that there would be many facing the pandemic without a physician's care. Firstly, there were not many physicians in practice under the best of conditions. Secondly, the war stripped Jacksonville and the South of its already limited number of physicians and nurses. Thirdly, those physicians fighting the flu were contracting the virus and dying. MacDonell wrote that, for "those who can't get a doctor," sufferers should rely on "castor oil and the use of aspirin in five grain tablets every three or four hours" for adults.[134]

While Jacksonville's hospitals were overrun with patients, services suffered. W. S. Henley, the acting district manager of the Southern Bell Telephone & Telegraph Company wrote that their Jacksonville office lost fifty-five employees, inhibiting "prompt and efficient service" unless subscribers used telephones sparingly and experienced telephone operators volunteered for duty.[135] Within twenty-four hours, Henley's employee losses jumped from sixty-four to eighty-three out of 191 telephone operators, who were either ill or dead.[136] It appeared to Henley there was "no effort made" to minimize telephone use, and he lamented that "we can not handle the situation."[137] The next day, ninety-five of Henley's 191 operators were gone. He reminded readers that "as a matter of public safety" it was "impracticable" to secure trained operators, and that, with the few survivors remaining, "business or social calls MUST BE ELIMINATED."[138] Authorities could not reach everyone. By October 8, the city's epidemic was so severe that hundreds were

[133] "Try Making Your Own Cough Remedy," *Times-Union*, September 30, 1918, 18.
[134] "Health Officer Advises the Public How to Avoid Spanish Influenza," *Times-Union*, October 3, 1918, 9.
[135] W. S. Henley, "The Southern Bell Telephone & Telegraph Company," *Times-Union*, October 6, 1918, 13.
[136] W. S. Henley, "The Southern Bell Telephone & Telegraph Company," *Times-Union*, October 8, 1918, 8.
[137] W. S. Henley, "The Southern Bell Telephone & Telegraph Company," *Times-Union*, October 9, 1918, 3.
[138] Henley, "The Southern Bell Telephone & Telegraph Company," *Times-Union*, October 12, 1918, 8. Henley, "The Southern Bell Telephone & Telegraph Company," *Times-Union*, October 13, 1918, 7.

"without care of any kind."[139] Requests for Red Cross volunteers were left unanswered.[140] The Jacksonville Traction Company suffered manpower loss enough suspend services indefinitely, because the flu had stricken "over half our trainmen."[141] On October 10, Floridians read about the flu turning New Orleans into a ghost town, as public places were shuttered by city orders and downtown street lights were left unlit to discourage gatherings.[142]

Soup kitchens opened throughout the city under the command of Mrs. MacDonell, the city health officer's wife, for families that had lost cooking adults, leaving the young and elderly without access to hot meals. The Union Congregational Church requested that those unable to reach the church call to receive soup. African Americans would only receive soup if they called ahead, whether they could reach the church or not.[143] The kitchens provided "nourishing broths and soups" to over a hundred infected families, but somehow, the kitchens "for negro people could not supply the demand," and African-American sufferers had to return after using a telephone to contact the reverend and receiving a card from Mrs. MacDonell at the city health office.[144] While Camp Johnston volunteers provided soup to 5,709 white and 11,084 African American sufferers over twelve days, other institutions found ways to racially segregate Jacksonville's sick.[145] Other cities responded similarly to the pandemic in African-American communities. As conditions worsened, Floridians were advised to "go to bed and stay quiet – take a laxative" like black draught, because "nature is the 'cure.'"[146] One remedy proposed the use of a poultice by dicing six

[139] "Seeks Every Available Nurse," *Times-Union*, October 8, 1918, 3.
[140] "Appeal Again Made to Red Cross Workers To Assist in the Influenza Fight," *Times-Union*, October 8, 1918, 17.
[141] Jacksonville Traction Co., "Notice to the Public," *Times-Union*, October 9, 1918, 10.
[142] "Influenza Spreads to All Parts of Nation," *Times-Union*, October 10, 1918, 1.
[143] "Red Cross Organized Influenza Committee to Aid Health Dept.," *Times-Union*, October 10, 1918, 12.
[144] "Soup Kitchen in Churches of Value in Epidemic Fight," *Times-Union*, October 11, 1918, 8.
[145] Crooks, *Jacksonville After the Fire, 1901-1919*, 130-131.
[146] "Will Relieve Sick Headache," *Times-Union*, October 10, 1918, 2. "Spanish Influenza – What it is and How it Should Be Treated," *Times-Union*, October 11, 1918, 10.

to eight onions to mix with rye meal and vinegar to "form a thick paste" that was then placed in a cotton bag and applied to the chest "as hot as patient can bear."[147] These Southern treatments were solutions readily available where professional care was inaccessible. Patent medicine advertisements pretended to be official health advisories.[148] Until the epidemic's subsidence, these methods, like snorting Eucapine from eucalypti, appeared in regular reading.[149]

On October 12, authorities suspended church services.[150] Locals disapproved. One Floridian argued that when church healing powers were most needed they would be suspended, thus asserting that the government thought worship was dangerous. He asked MacDonell "is it to be supposed that the prayers" for victory " in the war will be more successful than the prayers in the churches for freedom from influenza?"[151] Some identified influenza's etiology as a combination of "fear, ignorance or sin":

> In an epidemic more people are killed by fear than by disease. A state of fear invites disease. Anxiety and worry procure it and fear opens the consciousness so that it comes in and possesses the victim, till the last farthing is paid… Even man may aid in the abatement of an epidemic by calm reliance on God, by refusing to talk or think about sickness or death… In an epidemic the man who has no fear and relies upon the presence and power of God to protect him is very nearly immune to disease… It will… be understood that evil thinking, combined with fear, will create germs and microbes, and that the safest and surest cure "for this pestilence that walketh in darkness" is to let that Mind be in you which was also in Christ Jesus. For in that mind there is neither fear nor disease.[152]

But that Christian spirit was thin enough to ensure that racial stratification remained intact, even if the flu warranted Christianly healing. The Union Congregational Church provided that case.

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[147] "Simple Remedy Said to be Pneumonia Cure," *Times-Union*, October 12, 1918, 7.
[148] "Influenza is Spreading Over Entire Nation," *Times-Union*, October 13, 1918, 16.
[149] "Avoid the 'Flu' By Sterilizing Your Nose," *Times-Union*, October 21, 1918, 6.
[150] "Health Officer Urges All Citizens to Obey Regulations to Combat Spread of Influenza," *Times-Union*, October 12, 1918, 9.
[151] "To The Editor of the Florida Times-Union," *Times-Union*, October 12, 1918, 9.
[152] "Fear and Contagion," *Times-Union*, October 13, 1918, 15.

And in the *Times-Union*, white deaths were listed first and less frequently, while black deaths were listed last and more frequently.[153] Even death registers were segregated.

By October 21, the flu began subsiding.[154] Among celebrations was a new event "to be known in history as a flu banquet," organized by quarantined Camp Johnston soldiers.[155] Within the quarantine, soldiers arranged a feast, music by an infantry band, and décor that reminded them of home. According to the *Times-Union*, the flu banquet was a tremendous success, emblematic of a resourceful and perseverant American spirit. But the flu banquet's comedy section was performed by the "Darktown Trio from Nowhere," who made their:

> Debut amid a howl of laughter as the three colored men attired in fatigue clothes ambled down the aisle. Each was a champion in his line. One appeared to have been brought up among pianos, the keys seeming to know their master... Happy could have moved his dark skinned legs to the tune of a jig all evening had time permitted, and his specialty of a snake-chased n***** brought a scream at every execution. Old Mose hobbled for all he was worth, and when his turn came spilled a veritable ocean of jokes in a typical negro way.[156]

The company's commanding officer then proposed "a silent toast" to the men who had died to the flu, and every soldier arose, concluding the evening by proudly singing the national anthem.[157]

By November, the state health board addressed Florida's death toll, and the health officers who kept their districts together against impossible odds.[158] Dr. John Keely, Jacksonville's district health officer, wrote that while all his energy had been dedicated to the flu that year, it was:

> Unnecessary to dwell upon the numerical inadequacy of the practicing physicians throughout our State... It is also unnecessary to speak of conditions… in one locality as being better or worse than in another for they were bad enough everywhere, but surely the limit had been reached at "Hawthorn," when you (Mr. Health Officer) and myself were

[153] "Vital Statistics – Deaths," *Times-Union*, October 14, 1918, 12.
[154] "Health Authorities Say Influenza Epidemic is Subsiding Very Rapidly," *Times-Union*, October 21, 1918, 9.
[155] "Service Company Holds a 'Flu' Banquet at Camp J. E. Johnston," *Times-Union*, October 21, 1918, 12.
[156] "Service Company Holds a 'Flu' Banquet at Camp J. E. Johnston," *Times-Union*, October 21, 1918, 12.
[157] "Service Company Holds a 'Flu' Banquet at Camp J. E. Johnston," *Times-Union*, October 21, 1918, 12.
[158] State Board of Health, "Foreword," *Florida Health Notes: Official Bulletin* 13, no. 3 (November 1918): 65.

> called there to assist the one local physician in covering an area of some thirty miles and in treating over one hundred and fifty patients, among whom were twenty-eight widely scattered pneumonia cases and all infected with a most virulent organism and many in a dying condition.[159]

Jacksonville's underdevelopment and race relations caused higher African-American mortality rates than historians previously thought. Armstrang distinguished Southern from "American" medicine, indicating that Southern epidemiology was closer to the developing world than the rest of the U.S. Race relations illuminated the extent of that distinction, elucidated through soup kitchens and military flu banquets. While Jacksonville fared better than other Southern cities, its example of Southern distinction shows that even if its mortality did not compare to Nashville or New Orleans, it suffered the same political and socioeconomic woes prevalent in the South.

In 1981, William M. Straight tabulated Floridian pandemic mortality, and concluded that whites died more than African Americans, and that African Americans experienced the March wave, developing immunity to the September wave:[160]

Figure 1: Straight's FL State Mortality Data and Processed Data

	Straight's Raw Data			*Processed Mortality Data*	
Deaths:	**Total**	**Male**	**Female**	**Pop. Size[161]**	**Mortality Rate**
Total:	4114	2323	1791	967,640	4.2 per 1,000
White:	2378	1434	944	638,153	3.7 per 1,000
Black:	1736	889	847	329,487	5.2 per 1,000

[159] John Keely, "Report of John Keely, District Health Officer," *Thirtieth Annual Report of the State Board of Health of Florida 1918,* 30-32.
[160] Straight, "Florida and the Spanish Flu," 645. See also Svenn-Erik Mamelund, "1918 Pandemic Morbidity: The First Wave Hits The Poor, The Second Wave Hits The Rich," *Influenza and Other Respiratory Viruses* 12, no. 3 (May 2018): 307–313.
[161] "Population-Florida: Table 1. – Color or Race, Nativity, Parentage, And Sex, For The State And Urban And Rural Population: 1920, 1910, And 1900," 1920 Census Vol. I, Florida, 184.

Whites certainly died more than African Americans in raw numbers, but a reinterpretation using mortality rates proportional to race-respective population sizes show that the African-American mortality rate was 1.5 times the white rate. While more whites died numerically, African Americans had higher incidences of death relative to their population size.

Straight's presupposition was predicated on raw state health board data from 1918. In total, the board concluded that 4,114 Floridians were killed in the pandemic: eighty-five in September, 2,712 in October, 934 in November, and 383 in December.[162] There was a logical flaw in Straight's assessment. He believed that African Americans died less than whites because they were conferred immunity in March, but he assumed this based on data only collected in the pandemic's second wave, between September and December. The board never recorded spring mortality, but they did record autumn mortality. That data indicated that African Americans died in higher proportions in seventy-six percent of Florida counties in that second wave. There were fifty-four counties in 1918 compared to the sixty-seven in 2019, and only in thirteen of them did whites have higher mortality rates. In most counties, black mortality rates were double the white rates, while in some, like Osceola County, the black mortality rate almost quintupled the white rate. A full list of processed Floridian county mortality statistics can be found in Appendix 1.

There are also temporal implications. Second-wave mortality rates fluctuated from September to December. Figure 2 is arranged to reflect the evolving situation by pairing raw mortality numbers to computed mortality rates in parentheses, per 1,000 persons:

Figure 2: FL State Mortality from September to December

Pop. Size	**September**	**October**	**November**	**December**	**Total**
Total: 967,640	85 (0.087)	2712 (2.8)	934 (0.96)	383 (0.39)	4114 (4.2)

[162] Stewart G. Thompson, "Report of the Central Bureau of Vital Statistics Part I – 1918 Influenza," *Thirtieth Annual Report of the State Board of Health of Florida 1918* (Jacksonville: Office of the Secretary and Main Laboratory, 1919), 173.

White: 638,153	48 (0.07)	1592 (2.4)	507 (0.7)	231 (0.3)	2378 (3.7)
Black: 329,487	37 (0.1)	1120 (3.3)	427 (1.2)	152 (0.4)	1736 (5.2)

In September, African Americans faced mortality comparable to whites. By October, African American mortality increased, then lingered longer among African Americans than whites in November and December. The flu was undoubtedly more impactful among African Americans.

Similar outcomes were observable for Jacksonville. T. Frederick Davis wrote that while the 427 deaths in the 1888 yellow fever epidemic occurred over four months, the 464 deaths in 1918 occurred within four weeks.[163] These were not all the deaths in Duval County. The health board recorded 859 total county deaths, including Jacksonville. 395 county deaths occurred outside the city, in isolation and rurality. The county suffered the highest mortality of Floridian counties. Its statistics are the best source for addressing Jacksonville's flu, considering the health board only documented county-level mortality. African Americans died at a rate slightly higher than whites, although these statistics do not specifically reflect the mortality of poor whites:

Figure 3: Duval County Pop. Size and Mortality

Pop. Size[164]	**Raw Deaths[165]**	**Mortality Rate**
Total: 113,540	859	7.5 per 1,000
White: 65,453	472	7.2 per 1,000
Black: 47,989	387	8.0 per 1,000

Black mortality rates remained slightly higher than white rates until November and December. As highlighted in Figure 4, the flu persisted among African Americans compared to whites:

[163] T. Frederick Davis, *History of Jacksonville, Florida and Vicinity: 1513 to 1924* (Gainesville: University of Florida Press, 1964), first pub. 1925, 274.
[164] "Population-Florida: Table 9. – Composition and Characteristics of the Population, for Counties: 1920," 1920 Census Vol. III, Florida, 190.
[165] *Thirtieth Annual Report of the State Board of Health of Florida 1918*, 179.

Figure 4: Duval County Mortality from September to December

Pop. Size	September	October	November	December	Total
Total: 113,540	26 (0.2)	736 (6.4)	58 (0.5)	39 (0.3)	859 (7.5)
White: 65,453	12 (0.1)	421 (6.4)	26 (0.3)	13 (0.1)	472 (7.2)
Black: 47,989	14 (0.2)	315 (6.5)	32 (0.6)	26 (0.5)	387 (8.0)

Jacksonville's mortality did not compare to many urbanized Northern cities. Still, its experience exemplified Southern conditions in cities that faced extraordinary mortality rates compared to cities nationwide. As expressed in the introduction to this study, the central limitation to the data tabulated in Figures 1 through 4 was the absence of an identifiable dataset for poor whites. The state health board grouped poor whites with the broadly-defined "white" demographic. The exact impact of the flu on impoverished white Floridians was impossible to address because no specified dataset existed on their mortality in the board's official report. Poor whites were included in the board's assessment of white mortality, but exactly how many remained unknown. Their experience may have been comparable to those of impoverished African Americans.

Historians of Florida, like Straight and Davis, drew upon nineteenth-century memories and recalled 1888 when facing 1918. Davis wrote that "the rattle of the death carts of 1888" were "supplanted by the whir of the motor in 1918, as the trucks took their loads away."[166] The Southern collective memory of disease reappeared. While Northern cities faced diseases like cholera and typhus, Southern cities faced those same diseases and the illnesses connected to Southern ecology. Jacksonville's experience was less grueling than other American cities, although it was the worst affected city in Florida. Poverty, underdevelopment, racism, and a reliance on the collective memory of Southern epidemics persisted throughout the pandemic, shaping the course of the flu through the city and warping the historiographical consensus thereafter.

[166] Straight, "Florida and the Spanish Flu," 645. Davis, *History of Jacksonville, Florida and Vicinity*, 274.

Chapter Two: Infection, Indifference, and Walter Dodd in New Orleans

New Orleans faced the worst flu mortality rate in the South in 1918, amplified by poverty, underdevelopment, and epidemiological racism in both thought and practice. Political indifference and public health paralysis contributed to that mortality, which preceded 1918 and continued after it. Late-nineteenth and early-twentieth century bouts with yellow fever epitomized New Orleanian public health before 1918. New Orleans was recognized for diseases like yellow fever and race relations stemming from slavery early in its history.[167] African ethnic groups like black Creoles and African Americans unified during Reconstruction for political goals even when they lived in separate neighborhoods under different social and cultural institutions.[168] Ethnic differences contributed to immunological assumptions distinct from other Southern cities facing yellow fever. While physicians used immunity to separate white and black bodies, it also separated Creoles and African Americans. Nineteenth-century Creoles boasted their reputed immunity to yellow fever, while African-American immunity caused stigma.[169] Yellow fever struck the city thirty-nine times before 1906, contributing to its reputation for disease. These epidemics ended with urbanization and projects like sewer construction in 1904, with a final outbreak in 1905.[170]

Still, poverty and underdevelopment defined the course of New Orleanian diseases. Like Savannah's Black Beard Island quarantine station, New Orleans was equipped with its own station

[167] See Urmi Engineer Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans* (Baton Rouge: Louisiana State University Press, 2017). See also Rashauna Johnson, *Slavery's Metropolis: Unfree Labor in New Orleans during the Age of Revolutions* (New York: Cambridge University Press, 2016), Cécile Vidal, *Caribbean New Orleans: Empire, Race, and the Making of a Slave Society* (Chapel Hill: University of North Carolina Press, 2019), and Lawrence N. Powell, *The Accidental City: Improvising New Orleans* (Cambridge: Harvard University Press, 2012).
[168] Joseph Logsdon and Caryn Cossé Bell, "The Americanization of Black New Orleans, 1850-1900," in *Creole New Orleans: Race and Americanization* (Baton Rouge: Louisiana State University Press, 1992), ed. Arnold R. Hirsch, Joseph Logsdon, 242-245.
[169] Ari Kelman, *A River and Its City: The Nature of Landscape in New Orleans* (Berkeley: University of California Press, 2003), 2006 edition, 107.
[170] John Smith Kendall, *History of New Orleans Vol. I* (Chicago: The Lewis Publishing Company, 1922), 174-175. Louise McKinney, *New Orleans: A Cultural History* (Oxford: Oxford University Press, 2006), 22.

at the mouth of the Mississippi River, where officials inspected ships and passengers to combat yellow fever.[171] The 800-acre station was ninety miles from the city, without convenient rail access.[172] In 1914, station officer Dr. G. H. Corput wrote that the attendant's quarters and kitchen were overcrowded and unsanitary, while the laboratory harbored rats underneath its floorboards.[173] The station's dynamo, carpentry, and machine shops required repairs, and Corput requested these upgrades from the USPHS and the city government.[174] The station was isolated and uncared for, and Corput requested at least the tools for station personnel to conduct onsite repairs. Federal, state, and local indifference contributed to the station's conditions, but New Orleans relied on the station's success more than other cities further up the Mississippi River. New Orleans would be the first city struck with an epidemic entering through the Gulf of Mexico, and the unique disease ecology of the South posed a constant threat not faced in Northern cities.

At the station hospital, floors were rotting, and the two wharves that provided marine access were either destroyed or had fallen into disrepair and been abandoned.[175] They were stranded. Corput wrote that without attention the wharves would cripple station performance, and requested it be rebuilt with more funding. He anticipated "the big one." He wrote that if his station received assistance, his personnel could enforce quarantines and protect cities up the Mississippi River, but if they were forgotten, they would "be hopelessly swamped and unable to handle the situation" should an emergency arise, especially with the Panama Canal's opening, ensuring they

[171] Benjamin H. Trask, *Fearful Ravages: Yellow Fever in New Orleans, 1796-1905* (Lafayette: University of Louisiana at Lafayette Center for Louisiana Studies, 2005), 89.
[172] H. G. Richey, "New Orleans, Quar. Sta. Sheet #1," Bureau of the Public Health Service, December 14, 1914, No. 1544. USPHS Quarantine Station Book 1909-1919.
[173] G. H. Corput, "New Orleans Quarantines Station, Quarantine, Louisiana," Bureau of the Public Health Service, February 9, 1914, No. 1544, USPHS Quarantine Station Book 1909-1919.
[174] Corput, "New Orleans Quarantines Station, Quarantine, Louisiana."
[175] Richey, "New Orleans, Quar. Sta. Sheet #2."

would soon be "undoubtedly confronted with such a contingency."[176] Without help, they would be unable to protect New Orleans and every population center along the Mississippi River dependent on gulf shipping. If they failed, yellow fever and other contagions would spread along one of the nation's most critical economic veins, but they were left on their own. The station's conditions were representative of federal indifference and Southern underdevelopment, before 1918.

The language of Southern public health was both benign and malignant depending on its context and direction: public advisories emphasized family health preservation and civic duty in health guardianship, while medical texts tied color to contagion. To physicians, epidemiological problems were racial problems. Popular rhetoric was representative of the consensus on a region wrought with penury and disease, while medical literature clarified the role race played in shaping disease control. The discourse between both mediums of medical thought are representative of the South's two-fold flu experience. Vitriolic conversations in circles of medical authority crafted the chimeric race-disease link that continued into and beyond 1918.

Health advisories reflected this distinction. Fifteen rules published in the state health board's 1918 almanac advised New Orleanians to focus on posture, clean eating, and cheerfulness as "rules of right living" that did not include reliance on social services or medical care.[177] The almanac connected rage with disease, warning against contagious anger that tore through households, curable with a physician's appointment eliminating "disagreeable outbursts."[178] Medical progressivism was characterized by faith in health to correct societal ills, but access was limited in the South. Southerners accepted scientific solutions to their epidemiological problems

[176] Corput, "New Orleans Quarantines Station, Quarantine, Louisiana."
[177] Irving Fisher, "Fifteen Rules of Right Living," *Louisiana State Board of Health Almanac 1918*, 4. *Louisiana State Board of Health Almanac* 1918-1928. Louisiana State Museum Historical Center.
[178] February 1918, Louisiana State Board of Health Almanac 1918, 8. March 1918, *Louisiana State Board of Health Almanac* 1918, 10.

but were without access to quality medical care. De jure segregation further limited African Americans, and at hospitals and clinics where they were not forbidden, they often received care of lesser quality. Still, scientific language penetrated discourse. The almanac identified the "enemies of children" as doctors who failed to report disease cases, dirty milkmen, flies, teachers who closed classroom windows, "tuberculous cows," parents who believed in natural inoculation, quarantine violators, and "dirty homes."[179] The board also asked residents to consider whether or not they wanted "to get sick" and lose their pay or jobs, while exposing their children to contagions.[180]

Disproportionate black mortality shaped Southern epidemiological assumptions. In April 1918, city health officer Dr. W. H. Robin proudly announced a favorable white mortality rate, made more apparent "were the colored population segregated," considering African-American mortality was double white mortality with a population less than one-third the white population.[181] On May 8, he announced a survey to be conducted by Walter L. Dodd of the Metropolitan Life Insurance Company. The study was expected to prove "a considerable difference" between segregated white and black mortality rates and segregated sanitary conditions, which was anticipated to improve city image.[182] Robin was confident Dodd would prove the board's case.

Dodd completed his report in May 1918, four months before the September flu wave. By 1910, less than half of the city population was employed. One fourth of the employed were African American, and half of that were African American women.[183] Dodd described the typical double

[179] "Some Well-Known Enemies of Children," April 1918, *Louisiana State Board of Health Almanac 1918*, 12.
[180] "Ask Yourself These Questions," October 1918, *Louisiana State Board of Health Almanac 1918*, 21.
[181] "Wednesday, April 10, 1918," Minutes of the Board of Health, May 12, 1914 – December 14, 1932. New Orleans Public Library Louisiana Division/City Archives & Special Collections.
[182] "Wednesday, May 8, 1918," Minutes of the Board of Health, May 12, 1914 – December 14, 1932.
[183] Walter L. Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans: Conducted Jointly by the Board of Health for the Parish of Orleans and the City of New Orleans and the Metropolitan Life Insurance Company of New York 1918-1919* (New Orleans: Brandao Printing Co., 1918), 25. New Orleans Public Library Louisiana Division/City Archives & Special Collections.

frame cottage of lavish upper-class American, French, Irish and German housing, and compared it to African American living standards. Persons of color, particularly Creoles, dwelled in small brick shanties, some once used as slave quarters, built in rows and scattered throughout the city, outfitted with a room, window, and door arrangement "comparable to a tier of cells."[184] New Orleanian housing codes were worthless. Like Brunner in Savannah, Dodd wrote that housing laws for African Americans needed revision to prevent the construction of shanties.[185]

Dodd connected health and poverty as well, linking city epidemiological problems to medical charity conditions. Physicians were paid poorly, and their "mediocre skill and inferior medicine," Dodd wrote, did not "favor the patient's recovery."[186] Hospitals like Charity Hospital and the Eye, Ear, Nose and Throat Hospital provided care for the indigent, segregated between 1,400 white beds and only 400 African American beds.[187] This was not the sufferers' fault. Dodd wrote that the city's per capita expense for health protection was thirty-six cents a citizen, while most cities relied on seventy-five cents for a mediocre health department.[188] Dodd made his recommendations. Robin's health department had no public health nurses, three part-time physicians, and fifty-seven sanitary inspectors, only fifteen of whom were fighting disease; the department needed more full-time physicians and at least one "trained in epidemiological investigations," and an annual budget not less than $200,000, setting per capita costs "slightly over 50 cents."[189] Dodd found the city's abysmal epidemiological situation unsurprising.

[184] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans*, 134-137.
[185] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans*, 143.
[186] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans*, 146.
[187] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans*, 147.
[188] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans*, 162.
[189] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans*, 162-163.

While he conducted his investigation, the health department's monthly two-page report lauded "public improvements" like city park growth and paved streets, making New Orleans "the winter capital of America."[190] The city offered "to the white home-seeker" a life quality and expectancy equal to "most favored large cities of the world," and celebrated an improved annual mortality: a white mortality rate of 13.57 and African-American rate of 26.63 in 1917.[191] Authorities were inviting to "white home-seekers," who congratulated themselves for declining white mortality and high African American mortality, confirming their hegemony.

Dodd was suspicious of their promises. New Orleans had fewer whooping cough deaths than other cities. However, whooping cough mortality was over one-third higher for African Americans than whites, even though department case reports were peculiarly lower for African Americans than whites. Dodd wrote that either whooping cough exacted incredible lethality on persons of color compared to whites, or, what was "much more probable" was that case reporting for African Americans was poor, as their deaths composed half the reported cases.[192] Diphtheria was similar. While the diphtheria death rate was low, whites had higher morbidity rates, while African Americans had higher mortality rates. The difference, Dodd explained, was better white case reporting, and the "less prompt antitoxin treatment" for African-American children.[193] Typhoid was similar: a white mortality rate of 18.1 and African-American rate of 30.1 between 1911 and 1916, worsened due to faulty case reporting "more marked among the colored."[194]

[190] "Month of May, 1918," Commission Government Monthly Report of Health Department of the City of New Orleans, LA (New Orleans: Brandao Printing Co., 1918). New Orleans Public Library Louisiana Division/City Archives & Special Collections.
[191] "Month of May, 1918," Commission Government Monthly Report of Health Department of the City of New Orleans, LA.
[192] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans*, 33.
[193] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans*, 39.
[194] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans*, 46.

However, as in other cities, mortality reporting was limited in totally addressing white mortality, as the reports did not differentiate between insulated whites and impoverished whites.

New Orleans suffered heightened TB activity compared to other Southern cities, with triple the African-American mortality rate over white mortality. Per 100,000 persons between 1911 and 1916, white mortality was 176.4 while African Americans, without a preventive TB program of their own, recorded a mortality rate of 565.3.[195] Dodd ascribed TB mortality to city-wide poverty, inaccessible medical care, malnutrition, and poor housing. Stagnant wages and a rising cost of living meant that most New Orleanians would not seek medical attention for TB. He studied 917 death certificates from TB victims, and found that one fourth died without medical attention, with coroner signatures indicating that victims were "found dead in the house" or had "died of hemorrhage in street."[196] Citizens were not only unable to pay for treatment, but had to continue working to survive, hastening the disease's course. Charity hospitals could help such individuals, but Dodd recognized that if they could not pay for a physician, they probably could not afford "to lose the day's wages," and there were no night clinics to visit after working hours.[197]

Dodd was also agitated by the extent of malnutrition. He remembered watching for hours on Christmas morning as "thousands of poor children" filed by in a "never-ending line" to receive gifts from local businesses – a parade with few healthy bodies.[198] Dodd's assessment of the city's housing conditions continued to be a benchmark for his assumptions about New Orleanian health. He wrote that African Americans lived in "converted warehouses" where the only ventilation sources were "a wooden door and wooden shuttered windows," and in the inner city, many rooms

[195] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans,* 55-57.
[196] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans,* 58-59.
[197] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans,* 59.
[198] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans,* 59.

had no windows at all. To keep warm during winter, Dodd wrote that "battered windows are pulled tight and stuffed with rags," turning the room pitch black; he remarked "Is it any wonder that tuberculosis is high with the negro?"[199] He was frustrated with municipal TB control, writing pointedly that his comments on government activities against TB would "occupy but little space" in his report, because there was no program or campaign in place at all.[200]

The hospital system was also ineffective. Most TB patients at Charity Hospital were homeless, remaining at the hospital until death.[201] Some treatment was provided by the Louisiana Anti-Tuberculosis League, but Dodd doubted their performance as well. The League was designed in 1906 as a state association to support Louisiana hospitals and Charity Hospital in fighting TB.[202] In 1908, it opened its central TB sanatorium for incipient cases, Camp Hygeia, two hours from New Orleans without onsite physicians and prohibited to African Americans.[203] Only twenty-nine of 500 reported cases in 1918 were African American, despite the city's TB problem being "centered about the negro."[204] The League's dispensary had no laboratory, and even though the board offered to examine sputum samples in 1917, the number of samples were only half the reported League cases that year. This indicated to Dodd that the League was not examining samples regularly, and that African-American TB cases were grossly underreported.[205] For the

[199] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans*, 60.
[200] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans*, 61.
[201] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans*, 62.
[202] Sigard Adolphus Knopf, *A History of the National Tuberculosis Association: The Anti-Tuberculosis Movement in the United States* (New York: National Tuberculosis Association, 1922), 98.
[203] "Camp Hygeia," *A Tuberculosis Directory: Containing a List of Institutions, Associations and Other Agencies Dealing with Tuberculosis in the United States and Canada* (New York: National Association for the Study and Prevention of Tuberculosis, 1916), 28.
[204] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans*, 63.
[205] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans*, 63.

League to fight TB and support Charity Hospital, Dodd recommended that the League lift Camp Hygeia's prohibition against persons of color and make provisions "for negro patients."[206]

Dodd's report identified the connections between disease, poverty and defective public health, linking cyclical destitution, insalubrious living conditions, and indifferent municipal leadership with city epidemiological woes. To Dodd, this was partly due to Reconstruction-era negligence and isolation, but he went further, recognizing city pathogenic problems as tethered to racism, but not as racial problems themselves as other investigators believed. He connected high African-American mortality to Jim Crow social architecture, rather than arguing the immunological fragility-hardiness paradox molded by racist interpretations of epidemiological data. The conditions Dodd outlined within weeks of the flu's second wave were conducive to high African-American flu mortality, and are integral to understanding the New Orleanian response.

"Nature is Not Mocked. She Demands 'Pay' Always": The Flu in the 'Crescent City'

Although New Orleans's flu mortality rate was the third highest nationwide, Robin believed the city's epidemic presented an opportunity to test faith in "modern science and sanitation."[207] He wanted to convince skeptics that the city was competitive with other cities in safety and life expectancy, and that the fight against the flu demonstrated global confidence in the city's health. He wrote that the city's mortality rate was commensurate to others, and that African-American mortality rate had reached a new low, although it was still double the white rate.[208]

[206] Dodd, *Report of the Health and Sanitary Survey of the City of New Orleans*, 64-66.
[207] W. H. Robin, "Report of W. H. Robin, M.D.," in *Biennial Report of the Board of Health for the Parish of Orleans and the City of New Orleans 1918-1919* (New Orleans: Brandao Printing Co., 1919), 7. Williams Research Center, The Historic New Orleans Collection.
[208] Robin, "Report of W. H. Robin, M.D.," 8-9.

But Robin's assessment was not true. The board reported 53,791 total flu cases between October 1918 and January 1919, with 3,511 deaths from the flu and associated pneumonias.[209] They also explicitly reported 1,158 white and 460 African-American flu deaths between October and December 1918, contributing to 1,618 of the year's 1,752 defined overall flu deaths.[210] In raw numbers, whites died more than African Americans, although African Americans possessed historically higher mortality rates. In 1918, persons of color still faced higher mortality rates:

Figure 5: New Orleanian Mortality Rates per 1,000 for October 1917 and 1918

	Annual Avg. Rate	**Oct. 1918 Rate**	**Oct. 1917 Rate**	**1918 Pop.**
White:	18.54	59.27	12.17	283,000
Black:	31.59	88.96	23.41	106,000

The combined death rate in 1918 per 1,000, excluding non-residents, was 22.09, but for October, death rates were 59.27 for whites from an 18.54 annual average, and 88.96 for African Americans from a 31.58 annual average, culminating in a total rate of 67.31 from the total population.[211] This contrasted October 1917's death rates (12.17 for whites and 23.41 for African Americans, with a total rate of 15.21).[212] For explicitly-defined flu deaths from October to December, white mortality was 4.09 per 1,000 ($\frac{1,158}{283,000} \cdot 10^3 = 4.09$) and African-American mortality was 4.34 per 1,000 ($\frac{460}{106,000} \cdot 10^3 = 4.34$). These rates appear similar, but consider the morbidity and mortality misreporting, or absence of reporting, highlighted months earlier in Dodd's report. African-American mortality skyrocketed to 88.96 per 1,000 from the 1918 average of 31.58 and

[209] "Influenza Cases and Deaths. October, 1917 to April 30th, 1918. Broncho-Pneumonia, Pneumonia and Pulmonary Tuberculosis Deaths," *Biennial Report of the Board of Health for the Parish of Orleans and the City of New Orleans 1918-1919*, 10-11.
[210] "Table No. 1 – Giving the Mortality from All Causes, for the Year 1918, Classified According to Color and Sex," *Biennial Report of the Board of Health for the Parish of Orleans and the City of New Orleans 1918-1919*.
[211] "Table No. 3 – Death Rate per 1000 per Annum by Months," *Biennial Report of the Board of Health for the Parish of Orleans and the City of New Orleans 1918-1919.*
[212] "Death Rate, Per 1,000 Per Annum by Months," *Biennial Report of the Board of Health for the Parish of Orleans and the City of New Orleans 1918-1919.*

September's 19.50, as city-wide mortality increased in October due to the pandemic.[213] The misreporting that Dodd illuminated manifested in late 1918. Official statistics only include explicit flu deaths, creating the illusion that mortality rates between races were commensurate. But most African-American deaths from the virus were likely not reported as flu deaths, as Dodd indicated about other diseases months prior, and as city overall mortality rates outside defined flu cases illuminate. Poverty, segregation, inaccessible medical care, and inaccurate reporting inhibited the documentation of the exact toll of flu on the African-American community.

A reinterpretation of New Orleanian mortality between 1917 and 1918 revealed more about the relationship between race and mortality. These calculations rely on Figure 5's data above:

Figure 6: Estimated Dead for October 1917 and 1918 (Death Rate · Population)

	Est. Dead for Oct. 1918	**Est. Dead for Oct. 1917**	**Est. Flu Deaths in Oct. 1918**
White:	$\frac{59.27}{1{,}000} \cdot 283{,}000 = 16773$	$\frac{12.17}{1{,}000} \cdot 283{,}000 = 3444$	$16773 - 3444 = 13329$
Black:	$\frac{88.96}{1{,}000} \cdot 106{,}000 = 9430$	$\frac{23.41}{1{,}000} \cdot 106{,}000 = 2482$	$9430 - 2482 = 6948$

To calculate the approximate flu deaths in October 1918, subtract the number of October 1917 deaths from the October 1918 deaths, since it was expected there would be a comparable number of deaths in any given October without epidemic disease affecting those numbers. Thus, the estimated flu death rates in October 1918 were 47.1 per 1,000 for whites ($\frac{13{,}329}{283{,}000} \cdot 10^3 = 47.1$) and 65.55 per 1,000 for African Americans ($\frac{6{,}948}{106{,}000} \cdot 10^3 = 65.55$). With these numbers, it is possible to address how many times larger the October 1918 mortality rate was, compared to the October 1917 mortality rate by dividing the October 1918's death rate by October 1917's death rate,

[213] "Death Rate, Per 1,000 Per Annum by Months," *Biennial Report of the Board of Health for the Parish of Orleans and the City of New Orleans 1918-1919.*

considering the population size for both years was relative. It is also possible to compare October 1918 flu mortality rates with the average mortality rate for the year 1918 with a similar equation:

Figure 7: October 1918 Flu Mortality Rates and Comparative Mortality Rates

	Oct. 1918 Rate/Oct. 1917 Rate	**Oct. 1918 Rate/Avg. 1918 Rate**
White:	$\frac{47.1}{12.17} = 3.87$	$\frac{47.1}{18.54} = 2.54$
Black:	$\frac{65.55}{23.41} = 2.8$	$\frac{65.55}{31.58} = 2.08$

Figures 5 through 7 reflect two aspects of New Orleanian flu mortality previously unexplored in the historiography and unapparent to health officers like Robin. From the recorded statistics, the African-American flu mortality rate of 65.55 per 1,000 was higher than it was for whites, who suffered a rate of 47.1 per 1000. The flu disproportionately killed African Americans in New Orleans. However, whites experienced higher overall loss at the pandemic's peak in October than African Americans. In October 1917, families may have expected to lose one member compared to four people in white families and just under three for African-American families in October 1918, dependent on family size. October's high mortality was unusual among whites, but not as unusual among African Americans who faced high disease mortality rates before 1918. While African Americans suffered higher flu mortality rates that October, white mortality rates increased by a larger amount, perhaps contributing to the myth of a democratic pandemic. The amount of loss in white communities may have helped fuel the racism persons of color already faced in New Orleans, compounded by the effects of de jure segregation and the poverty downstream of it.

New Orleans was as devastated compared to the rest of the nation as African-Americans were, compared to whites. It possessed one of the most highly-active ports in the country and had a reputation for poverty. In a post-pandemic report, Robin reported 54,089 flu cases from an

estimated population of 384,000, and 3,489 deaths from both influenza and pneumonia.[214] One 1930 report written by statistician Edgar Sydenstricker showed that, per 100,000 persons, New Orleans experienced a mortality rate of 709.3, topped only by Philadelphia (768.5) and Pittsburgh (1,008.7).[215] Tabulation by the medical geographer Gerald F. Pyle showed similar results. Of an estimated population of 382,273, he noted between September 1918 and January 1919 a mortality rate of 24.0 per 1,000.[216] To Pyle this was the fourth highest mortality rate across American cities, exceeded by San Francisco (25.8) and Philadelphia (27.7), and just above Pittsburgh (22.9).[217] New Orleans was struck hard by the flu because of its heavily trafficked port, abject poverty, powerless infrastructure, and thin public health provisions, compounded by racism and segregation. The various reports differ and were conducted over the twentieth century as new statistics became available. Some placed New Orleans ahead of Pittsburgh, while others showed that Pittsburgh suffered astronomically. But the various results concluded that New Orleans certainly featured in the top three cities for highest pandemic mortality rates nationwide.

The flu became a communal enemy after 1918. Virtuous language appeared in health almanacs due to post-war patriotism and a newfound connection between body and state. One advisory warned that poor health hindered the "highest development" of the individual and the

[214] Robin, "Report of W. H. Robin, M.D.," 8.
[215] Selwyn D. Collins, W. H. Frost, Mary Gover and Edgar Sydenstricker, "Mortality from Influenza and Pneumonia in 50 Large Cities of the United States, 1910-1929," *Public Health Reports* 45, no. 39 (September 26, 1930): 2302. For more on Philadelphia and Pittsburgh see Christina M. Stetler, "The 1918 Spanish Influenza: Three Months of Horror in Philadelphia," *Pennsylvania History: A Journal of Mid-Atlantic Studies* 84, no. 4, Special Issue: Pennsylvania and the Great War, Part 2 (Autumn 2017): 462-487, and James Higgins, "'With Every Accompaniment of Ravage and Agony': Pittsburgh and the Influenza Epidemic of 1918–1919," *The Pennsylvania Magazine of History and Biography* 134, no. 3 (July 2010): 263-286.
[216] Gerald F. Pyle, *The Diffusion of Influenza: Patterns and Paradigms* (Totowa: Rowman & Littlefield, 1986), 44-47. For Pyle's assessment of global mortality, see K. David Patterson and Gerald F. Pyle, "The Geography and Mortality of the 1918 Influenza Pandemic," *Bulletin of the History of Medicine* 65, no. 1 (1991): 4-21. See also Rodolfo Acuna-Soto, Cécile Viboud, and Gerardo Chowell, "Influenza and pneumonia mortality in 66 large cities in the United States in years surrounding the 1918 pandemic," *PLoS ONE* 6, no. 8 (August 2011): e23467.
[217] Pyle, *The Diffusion of Influenza,* 46-47. Inaccurate initial reporting from San Francisco caused investigators to assume the city experienced the worst mortality nationwide. Sydenstricker's 1930 report, however, detailed that San Francisco possessed a mortality rate of 635.6 per 100,000 to New Orleans' 709.3.

collective.[218] Vaccination gained popularity, as New Orleanians marveled its capabilities in newspapers reporting the American empire's disease control campaign in the Philippines.[219] The 1919 health almanac expanded the connection between individual and society in the war against disease. Advisories linked domestic space to disease in the community, neglecting the social, economic, and political conditions facilitating infection. Clean homes were the center of epidemiology, and New Orleanians were expected to arm themselves with fresh air, sunshine, sweeping, mopping, and dusting.[220] This new war also required faith in health authorities. Progressive health policy favored science in cities with robust public health capabilities, but this was almost non-existent in the South. To fight a future flu pandemic, board members found they needed to eliminate "ignorance and unbelief" in flu transmission and distribution observations, and the "carelessness" of disobeyers.[221] They promoted cooperation through poetry, using the flu as a benchmark. Take these two, for example, published in 1919:

> There was a man in our town, And he was wondrous wise.
> When Spanish "flu" first came along, It took him by surprise.
> But when he knew he had the "flu," With all his might and main,
> Did what his doctor made him do, And soon was well again.
> Another man in our town, Was not so wondrous wise.
> He, too, fell victim to the "flu," As you might realize.
> He followed faithfully each cure Suggested by each friend.
> A dozen methods brought him to A most untimely end.[222]

> As along the street you trip, Do not spit! You'll spread the grippe.
> Here's some good advice for you, Do not cough. You'll spread the "flu".
> Do not sneeze! You base deceiver, Or you'll spread catarrhal fever.
> Listen now to my cadenza, Watch out for the influenza.[223]

[218] December 1918, *Louisiana State Board of Health Almanac 1918*, 28.
[219] "No Danger in Vaccination," *Louisiana State Board of Health Almanac 1918*, 32.
[220] January 1919, *Louisiana State Board of Health Almanac 1919*, 2.
[221] *Louisiana State Board of Health Almanac 1919*, 8.
[222] Sandoral Sal., "Grip of 'Flu,'" *Louisiana State Board of Health Almanac 1919*, 18.
[223] Bernalillo Leo., "The 'Flu' And You!" *Louisiana State Board of Health Almanac 1919*, 24.

Southern health remained static. Authorities believed disease to be a threat more pressing than military conflict, excited about post-1918 national and international health. But instead of the flu, the board attacked venereal disease (VD), because it was wrongly attributed to African Americans, although it was prevalent among returning troops. The peril was given importance due to its moral assumptions. Authorities warned against "sowing 'wild oats'" that would bring "crops of disease and suffering" over the community, cautioning that "nature is not mocked. She demands 'pay' always."[224] While health organizations dramatically expanded and reformed, New Orleanian health stagnated. Authorities remained indifferent to the evolving viral environment.

The case of the Eye, Ear, Nose and Throat Hospital, which served the destitute, was emblematic of this ineptitude. The hospital staff turned to previous donors after the war, calling upon those "who so generously helped" in the past, but only three parishes donated a mere fifty dollars to the hospital.[225] The hospital hoped the state would remember them and invite more donations, citing statistics that they had survived 1918 without one flu death. Admissions and cases did not increase during the pandemic, and there were no reported fatalities.[226] But the hospital was struggling, requiring more funding and manpower to preserve its buildings.[227] By 1920 Dr. Chas. Chassaignac of the hospital wrote that "**our house** is tumbling down upon us," and "we **must** have a new hospital."[228] The hospital's chief surgeon, Dr. R. C. Lynch, announced a "crying need" for new patient quarters, like other New Orleanian hospitals who held "little hope for immediate

[224] "Peril Greater Than War," *Louisiana State Board of Health Almanac 1919*, 32.
[225] "Report of the President for 1918," *Twenty-Ninth and Thirtieth Annual Reports of the Eye, Ear, Nose and Throat Hospital of New Orleans, LA., January 1, 1918 to December 31, 1919* (New Orleans: E. P. Andree Printing Company, 1920): 12.
[226] Jos. A. Hincks, "Report of the Secretary for 1918," *Twenty-Ninth and Thirtieth Annual Reports of the Eye, Ear, Nose and Throat Hospital of New Orleans, LA., January 1, 1918 to December 31, 1919*, i.
[227] Chas. Chassaignac, "Report of the House Committee for 1918," *Twenty-Ninth and Thirtieth Annual Reports of the Eye, Ear, Nose and Throat Hospital of New Orleans, LA., January 1, 1918 to December 31, 1919*, 36-37.
[228] Chassaignac, "Report of the House Committee for 1919," 38.

improvement."[229] Municipal attention to medical facilities and health capabilities were nonexistent after the pandemic, and health concerns were still directed from outside institutions, like the Rockefeller Foundation, *into* the South, not from institutions *within* the South.

Charity Hospital provides further evidence that the flu highlighted the need for more funding, training, and equipment. In 1919, the hospital's vice president J. P. Henican reminded officials that his hospital required extensive upgrades to its mortuary, made apparent during the pandemic, when staff faced difficulty managing overwhelming numbers of corpses.[230] Government inattention created problems in how staff treated the sick. There were 409 African-American and 662 white beds available in the hospital.[231] The number of beds for either race were not enough to be effective in a pandemic. But Dodd's documentation of the extent of disease in impoverished African-American communities, and the degree of care required to soothe their suffering suggests that 409 beds for black people were certainly not enough:

Figure 8: Charity Hospital Statistics from September to December 1918

	Outdoor Clinic Cases:[232]		General Admissions:[233]		Deaths:[234]	
	White	**Black**	**White**	**Black**	**White**	**Black**
September:	1,277	1,235	893	618	78	57
October:	682	807	1,227	643	222	136
November:	835	857	763	411	106	62
December:	861	971	786	478	102	56

[229] R. C. Lynch, "Report of the Surgeon-in-Charge of the Ear, Nose, and Throat Department for 1919," *Twenty-Ninth and Thirtieth Annual Reports of the Eye, Ear, Nose and Throat Hospital of New Orleans, LA., January 1, 1918 to December 31, 1919*, 74-75.
[230] J. P. Henican, "Annual Report of the Vice-President," *Report of the Board of Administrators of the Charity Hospital to the General Assembly of the State of Louisiana, 1918* (New Orleans, 1919), 11-12. Louisiana State Museum Historical Center.
[231] "Superintendent's Report," *Report of the Board of Administrators of the Charity Hospital to the General Assembly of the State of Louisiana, 1918*, 17.
[232] "Out-Door Clinic for Year 1918," *Report of the Board of Administrators of the Charity Hospital to the General Assembly of the State of Louisiana, 1918*, 45.
[233] "Admissions, 1918," *Report of the Board of Administrators of the Charity Hospital to the General Assembly of the State of Louisiana, 1918*, 46.
[234] "Deaths, 1918," *Report of the Board of Administrators of the Charity Hospital to the General Assembly of the State of Louisiana, 1918*, 52.

Total:	**3,655**	**3,870**	**3,669**	**2,150**	**508**	**311**

It appears that whites fared worse than African Americans during the pandemic, but consider the admissions trend. There are almost two hundred fewer African-American deaths than white deaths, but while white outdoor clinic cases dropped at the pandemic's height in October, white general admissions increased by several hundred patients. Meanwhile, as African-American outdoor clinic cases also dropped in October, their general admissions increased by only twenty-five. Neither whites nor African Americans sought assistance from hospitals in large numbers during the pandemic. For those who did, persons of color were mostly treated in outdoors on the hospital porches, while whites were treated inside the hospital itself. The hospital specifically identified 1,181 white and 406 African-American flu patients, with 196 white and eighty-four African-American deaths.[235] The white CFR was 16.6 percent, while the black CFR was 20.7 percent.

The racial stratification and health conditions of New Orleans undoubtedly shaped the course of the flu through the city, contributing to the third highest mortality rate in the country. Like elsewhere in the U.S., hospitals were overburdened, and health systems collapsed. But in New Orleans, Southern social dimensions molded a different flu than the one experienced elsewhere. Squalid living conditions for the general population and certainly for persons of color, coupled with municipal indifference and lackadaisical public health measures, contributed to an environment conducive for high flu mortality. The negligence of authorities in African-American mortality reporting distorts a clear image of New Orleans' flu, but even with documented figures, African Americans undeniably faced higher mortality rates than whites, increasing the city death toll that surpassed some of the largest and most populated cities in the U.S.

[235] "Report of Record Room – Year 1918," *Report of the Board of Administrators of the Charity Hospital to the General Assembly of the State of Louisiana, 1918*, 58.

Chapter Three: Poverty, Pellagra, and the Flu Pandemic in Nashville

The 1918 flu in Nashville was exacerbated by Southern penury and underdevelopment like in Jacksonville and New Orleans, identified in the epidemiological reporting of preceding years. Nashville's flu experience was captured in personal testimonies, which ratified the grim conditions hinted at in official documentation. In the mid-nineteenth century, Nashville had the highest disease mortality rate in the U.S. due to its living conditions and inept public health.[236] Cholera, and scarlet and yellow fevers posed epidemic threats while malaria lingered in wet weather and pellagra harassed the malnourished. Nashville was landlocked and still suffered epidemics familiar to Southern port cities. An 1895 report indicated there were 1,816 deaths in the city compared to the previous year's 295, and white infant mortality decreased while African-American infant mortality increased.[237] Whites suffered a mortality rate of 15.42 per 1,000 persons, while African Americans suffered a rate of 29.37 per 1,000. The chief killer was TB that year, which killed 300 Nashvillians: eighty-two whites and 218 African Americans.[238] Health officer Dr. N. G. Tucker argued for more resources for the city's disease hospital, calling attention to the lack of patient accommodations. He anticipated a future emergency that would result "in a very serious dilemma," but funding and manpower were limited.[239] If diseases like malaria and yellow fever contributed to Southern distinction, so too did the inability of authorities to combat them.

In 1898, Nashville's new health officer, Dr. Larkin Smith, observed that of 1,601 deaths in 1898, 797 were white and 804 were African American, while 68,942 whites and 41,892 African

[236] John B. Thomison, "Disease in Nashville: A Short History," *Journal of the Tennessee Medical Association* 76, no. 3 (March 1983): 151-152.
[237] N. G. Tucker, "Twenty-First Annual Report of the City Health Officer," *Twenty-First Annual Report of the City Health Office of Nashville, Tenn., to the Board of Health, for the Fiscal Year Ending December 31, 1895* (Nashville: Brandon Printing Company, 1896). Vanderbilt University Special Collections, History of Medicine Collections at Eskind Biomedical Library.
[238] Tucker, "Twenty-First Annual Report of the City Health Officer."
[239] Tucker, "Twenty-First Annual Report of the City Health Officer."

Americans made up Nashville's population of 110,834. Smith compared this racial dichotomy to other cities, with attention to the impact of African-American mortality on total city mortality.[240] High African-American mortality raised total mortality, although African-American mortality statistics were never defined in city promotional material. This was unacceptable to a health officer seeking to reduce mortality and make Nashville attractive. He wrote that high African-American mortality was due to "improvidence, ignorance, lamentable neglect of personal cleanliness," and that "the negro" needed to "contend with his racial susceptibility" to disease.[241]

While officials implicated black bodies and behavior for city epidemiology, government debates ensued about isolation hospitals. A 1912 report declared the city isolation hospital unreliable after it was constructed far from the city and "surrounded by backwaters," severing access to impoverished sufferers.[242] Officials proposed the erection of an isolation hospital within the city to be completed that year, but citizens were hesitant about an isolation hospital near their neighborhoods, and public health measures were useless on the impecunious, who were unable to "procure proper medical attention" and "afford suitable nursing."[243] These calls continued unheeded into 1914, when health officer Dr. W. E. Hibbett wrote that the state could not hope for "material benefits" in disease reduction until the hospital's construction.[244]

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[240] Larkin Smith, "Report of the City Health Officer," *Condensed Annual Statement of Mortality in the City of Nashville, Tenn., for the Year Ending December 31, 1898,* 5. Vanderbilt University Special Collections, History of Medicine Collections at Eskind Biomedical Library.
[241] Smith, "Report of the City Health Officer," 5.
[242] W. E. Hibbett, "Report of the City Health Officer," *Thirty-Eighth Annual Report of the City Health Officer of Nashville, Tenn., to the Board of Health for the Year Ending December 31, 1912* (Nashville: Marshall & Bruce Company, 1913), 7. Vanderbilt University Special Collections, History of Medicine Collections at Eskind Biomedical Library.
[243] Hibbett, "Report of the City Health Officer," 7.
[244] W. E. Hibbett, "Report of City Health Officer," *Fortieth Annual Report of the City Health Officer of Nashville, Tenn., for the Year Ending December 31, 1914* (Nashville: Baird-Ward Printing Company, 1917), 4. Vanderbilt University Special Collections, History of Medicine Collections at Eskind Biomedical Library.

One disease shaping Nashvillian mortality was pellagra, which was exacerbated by Southern penury. In a 1916 Vanderbilt University report, pathologists James W. Lobling and William Petersen wrote that since 1914, pellagra inflicted severe economic and physical suffering, and that while before 1907 few physicians "knew its nature," by 1916 there were thousands of city cases.[245] Pellagra is a nutritional disorder caused by niacin (vitamin B3) deficiency, leading to dermatological and gastrointestinal complications. By World War II, niacin-infused flour practically eradicated it from developed countries.[246] But in 1916, scientists were still learning about the disease. There were associations between pellagra and diet, but these were convoluted by climatological and racial observations. Lobling and Petersen were perplexed by its racial epidemiology. African Americans did not appear as susceptible as whites during cooler months. Fifty percent of their white patients developed pellagra in spring months compared to thirty percent of their African-American patients, while only forty-four percent of white patients developed pellagra in summer months compared to sixty-six percent of African-American patients. The data puzzled them. Most pathologists believed pellagra was "due to photodynamic substances," but Lobling and Petersen considered that if such were true, African Americans, "because of their dark skin," would require more sun exposure to get sick compared to whites.[247]

Lobling and Petersen noticed that all their patients consumed excess carbohydrates, an apparent Southern trend. Indigent patients ate corn, corn-bread, and grits, as well as sugar cane

[245] James W. Lobling and William Petersen, *A Preliminary Report Upon the Epidemiology of Pellagra in Nashville, Tennessee* (Nashville: Vanderbilt University Department of Pathology, 1916), 1 and 12. Vanderbilt University Special Collections, History of Medicine Collections at Eskind Biomedical Library.
[246] Savvoula Savvidou, "Pellagra: A Non-Eradicated Old Disease," *Clinics and Practice* 4, no. 637 (2014): 22-23. For more on pellagra and hookworm, see Stephen J. Kunitz, "Hookworm and Pellagra: Exemplary Diseases in the New South," *Journal of Health and Social Behavior* 29, no. 2 (June 1988): 139-148. Pellagra etiology in the South was fully addressed by Dr. Joseph Goldberger in 1926, who injected his wife and himself with the blood and feces of patients to prove to physicians that pellagra was not transmissible. See Alan M. Kraut, *Goldberger's War: The Life and Work of a Public Health Crusader* (New York: Hill and Wang, 2003).
[247] Lobling and Petersen, *A Preliminary Report Upon the Epidemiology of Pellagra in Nashville, Tennessee*, 16-17.

molasses, turnip-tops, wild mustard, green onions and peas, and cheap apples and peaches.[248] They were unconvinced that pellagra was totally a malady of the poor but recorded some connection. They considered water quality and residential privy conditions, finding that among their patients only two percent of houses had screens on windows, and that privies were proximal to kitchens. They discovered a difference in contact histories between whites and African Americans. 84.5% of white patients provided histories of their travels and contacts, compared to 57.9% of African-American patients. The pathologists believed this was due to the "failure" of African Americans "to remember dates and addresses," therefore providing porous contact histories, if any.[249] They found that food prices and costs of living did not rise dramatically enough to produce pellagra outbreaks. Wages actually increased since 1911, and the only downturn in the city economy was due to World War I's outbreak in 1914.[250] They wrote that if pellagra was due to "dietary deficiency essential to poverty," then deaths would be higher in unsewered areas, because those in the "'pellagra class'" would be financially unequipped to live in sewered parts of the city.[251] However, death rates seemed equal in areas with and without sewers. White and black susceptibility appeared equal aside from seasonality, but whites contracted the disease more frequently than African Americans while African Americans faced higher mortality rates than whites.[252] This was unsurprising to the researchers, and they never inquired into why African Americans possessed higher death rates. They never compared Nashvillian socioeconomics to other cities as Dodd did in New Orleans in the summer of 1918. Perhaps they would have found what Dodd found: that Nashville was connected to Southern poverty, not exempt from it.

[248] Lobling and Petersen, *A Preliminary Report Upon the Epidemiology of Pellagra in Nashville, Tennessee*, 21.
[249] Lobling and Petersen, *A Preliminary Report Upon the Epidemiology of Pellagra in Nashville, Tennessee*, 25-27.
[250] Lobling and Petersen, *A Preliminary Report Upon the Epidemiology of Pellagra in Nashville, Tennessee*, 28.
[251] Lobling and Petersen, *A Preliminary Report Upon the Epidemiology of Pellagra in Nashville, Tennessee*, 40.
[252] Lobling and Petersen, *A Preliminary Report Upon the Epidemiology of Pellagra in Nashville, Tennessee*, 63.

Lobling and Petersen were unpersuaded that pellagra, a disease of poverty, was connected to Nashvillian destitution. Their report was emblematic of Nashville's unresolved sociomedical problems heading into 1918. Their conclusions were not pointed against the poor, nor were they chimerically racist or classist, but their assumptions were clouded by the limitations of medical knowledge in which suppositions disregarding the disease-poverty dyad filled the void. They never denied that poverty was a factor, but did not find the correlation themselves, because poverty depended on where the impoverished lived. Their report provides insight into the socioeconomic conditions connected to disease morbidity and mortality, and the contours of prevailing medical thought. These features shaped the course of the flu through Nashville.

Four Characters in Search of an Exit: The Flu Reaches 'Music City'

In 1918, Nashville's population of 120,000 swelled by 35,000 "desperately crowded immigrants" working at a powder plant in Old Hickory to 155,000.[253] Old Hickory was a planned industrial community built in January 1918, erected in Davidson County but just outside of Nashville by the E. I. DuPont de Nemours & Company and the federal government to produce powder for the war.[254] There, thousands from Nashville and elsewhere, including Mexico, clustered together for work. In 1978, John B. Thomison wrote there were 40,000 city flu cases between October 1 and November 15, 1918, of which 468 died, with a mortality rate of 3.0 per 1,000.[255] From newspaper headlines, he assumed Nashville's flu was not as severe as elsewhere. But in 1986, Gerald F. Pyle updated Thomison's work, and recalculated Nashville's mortality rate as 21.6 per 1,000 persons between September 1918 and January 1919 – one of the highest mortality

[253] John B. Thomison, "The 1918 Influenza Epidemic in Nashville," *Journal of the Tennessee Medical Association* 71, no. 4 (April 1978): 265.
[254] Carroll Van West, "Old Hickory," *Tennessee Encyclopedia of History & Culture* (Nashville: Rutledge Hill Press, The Tennessee Historical Society, 1998).
[255] Thomison, "The 1918 Influenza Epidemic in Nashville," 265.

rates in the U.S.[256] By February 1919, there were 875 flu deaths, resulting in an excess death rate of 610 per 100,000, rendering Nashville's mortality "one of the most severe in the country."[257]

Nashville's flu was captured in official documents and newspapers as well as personal testimony. In August 1918, Henry Armistead Whitaker (1889-1937), a twenty-nine year old accountant from New York, was stationed at Camp Greenleaf, Ft. Oglethorpe, near Chattanooga,. From the camp he wrote regularly to his wife, Dorothy Rand Whitaker. Also serving at Ft. Oglethorpe was Reverend Elbert Leach Orr (1879-1941), a thirty-nine-year-old Nashvillian pastor and Army chaplain. He also wrote to his wife, Edna Elizabeth Stewart Orr (1884-1966), who wrote back when she could while parenting their two daughters. Meanwhile, twenty-three-year-old Lou Cretia Owen prepared for her journey to Old Hickory. She was hired as a welfare worker at the DuPont plant, with an October 1 starting date.[258] The experiences of Whitaker, the Orrs, and Owen reflected the various perspectives of the pandemic and the collective experience of Southerners, who faced the flu with a fragile public health system, cyclical poverty, and citizen-government friction already precipitating an environment conducive to high mortality.

On September 29, the flu reached epidemic proportions in Nashville, and infected Dr. Hibbett, the health officer who urged the isolation hospital's construction in 1912. DuPont officials denied claims that the flu reached Old Hickory, dispelling rumors circulating days before Lou Cretia Owen's first day of work.[259] But the flu did reach Old Hickory, and the outbreak was expected to initiate a "crisis in Nashville within the week."[260] Authorities were aware of its

[256] Pyle, *The Diffusion of Influenza*, 46-47.
[257] "Nashville, Tennessee," *Influenza Encyclopedia: The American Influenza Epidemic of 1918-1919*, University of Michigan Center for the History of Medicine and Michigan Publishing, University of Michigan Library. Accessed December 2, 2019, https://www.influenzaarchive.org/cities/city-nashville.html#
[258] Deborah L. McConnel, "Lou Cretia Owen and the Old Hickory Munitions Plant During World War I," *Tennessee Historical Quarterly* 58, no. 2 (Summer 1999): 129-130.
[259] "Spanish 'Flu' Hits Nashville," *Nashville Banner*, September 29, 1918, 10.
[260] "Scourge of Flu Closes Y.M.C.A. at Old Hickory," *Nashville Tennessean*, September 30, 1918, 8.

strength. On October 1, the virus encompassed the state, and officials, led by Hibbett and USPHS Captain R. C. Derivaux, convened that night to discuss strategy.[261] Old Hickory's DuPont plant was crucial to Nashville's military and economic importance, and Derivaux visited the plant that day to assess the situation. A DuPont representative informed the *Nashville Banner* there was no need to panic, because the company had "adopted all possible precautionary measures."[262] But in the city, conditions deteriorated. The city hospital, headed by Dr. W. F. Fessey, filled with flu patients. Fessey told the *Banner* that hundreds sought admission to the hospital, but all physicians could do, given their limited resources, was "advise them as to home treatment and send them away."[263] Nashville was grappling with the weight of the global pandemic, crushed under regional penury and public health unpreparedness, connecting the South to the rest of the developing world.

The day before, Henry Whitaker wrote to his wife from a Ft. Oglethorpe supply room. He heard there were flu cases in the camp, but did not ponder it much, and neither did his fellow soldiers. He hoped there would be no quarantine, and that the number of flu cases would decrease.[264] But in twenty-four hours, the camp's epidemiological conditions deteriorated, and the number of cases skyrocketed. Now, he expected a major quarantine of his company, as others had been.[265] That night he attended a minstrel show, performed in black face, at the local Y.M.C.A. The performers advised troops sleeping in field tents to seal their tent flaps, because a soldier "left his open the other night, and in flew Enza."[266] That day, Owen opened her diary for the first time.

[261] "Influenza Now Common in all Parts of State," *Nashville Tennessean*, October 1, 1918, 5.
[262] "Doctors to Confer on Local Epidemic," *Nashville Banner*, October 1, 1918, 7.
[263] "Doctors to Confer on Local Epidemic," *Nashville Banner*, 7.
[264] Henry Armistead Whitaker, Letter to Dorothy Rand Whitaker on September 30, 1918. Henry Armistead Whitaker papers, Stuart A. Rose Manuscript, Archives, and Rare Book Library, Emory University.
[265] Whitaker, Letter to Dorothy Rand Whitaker, October 1, 1918.
[266] Whitaker, Letter to Dorothy Rand Whitaker, October 1, 1918.

She was proud of her hiring, and ready to play her role among women workers in the war effort. On October 1, she started her new job, and never noticed the flu cases emerging around the plant.[267]

On October 2, newspapers reported an "unprecedented condition" at Fessey's hospital, where most patients, few of whom were African American, were "in critical condition and will die" because of limited accommodations, forcing physicians to turn down new patients.[268] The virus's pathological nature barely troubled officials compared to "hysteria bred from the germ of hyperbole."[269] They reassured Nashvillians that their share of the pandemic was no worse than elsewhere, but it was. It was distinct, and central to that distinction was Old Hickory.

On October 3, Owen opened her diary for its second entry. As in Ft. Oglethorpe, conditions deteriorated. The flu was "raging" at Old Hickory, and a visit to a makeshift hospital erected almost overnight revealed a nightmarish atmosphere "in the trail of the disease":

> A dormitory has been opened for a hospital for women and girls. To this building each day patients stricken during the night are brought. A woman doctor stays in the building and a nurse visits each patient frequently. The problems of caring for the large number that have developed the disease is great. The chief matron is ill and only four members of the woman's work staff are left to carry on the program…
>
> As I pass down the corridor at the hospital, I see a young girl a war bride, who repeats deliriously that she is married and begs to have her secret kept. In an adjoining room, a young girl pleads for relief. The nurse goes from room to room soothing the patients and superintends their treatment. She scarcely sleeps. I found the girl-bride's marriage certificate of her wedding. She married a sailor and declares that he will not return to her if her marriage is announced. She pleads with us to keep the secret from her mother. The doctor says that she cannot recover and advises me to notify her mother of her condition. I cannot reach her parents at the address she gave. Probably it is not correct. This is one of the tragedies occurring here.[270]

[267] Lou Cretia Owen, Diary entry dated October 1, 1918, 1. Lou Cretia Owen Papers 1918-1919, Tennessee State Library and Archives.
[268] "City Hospital Full; 50 Calls Turned Down," *Nashville Tennessean*, October 2, 1918, 1.
[269] "Physicians Discuss Influenza Epidemic," *Nashville Tennessean*, October 2, 1918, 1.
[270] Owen, Diary entry dated October 3, 1918, 3-4.

These were not the conditions reflected by newspapers, DuPont officials, or the health authorities who visited Old Hickory two days earlier. To them, Old Hickory's flu was more than manageable, but Owen's diary reveals this was not the case. Either within forty-eight hours the virus underwent an amplification in ferocity, gathering strength among crowded African-American and immigrant workers because of the crowded, substandard living conditions, or conditions were wrapped with morale-preserving reassurance and mistruth.[271] Foremost on the minds of most Americans was the war, and not the pandemic. Nashville's authorities intended on keeping it that way.

On October 4, national advisories against gathering or coughing in crowds surfaced alongside advice unique to Southerners. Officials told Nashvillians they would find many attempting to flee the flu in vain, because "it is prevalent everywhere."[272] Memories of past epidemic refugees and exoduses from Southern cities resurfaced, like the 1888 yellow fever epidemic in Jacksonville. Southerners understood the practice of running from epidemics to climates and ecologies less conducive to pestilences like yellow fever and malaria, but never before had they faced an epidemic of this magnitude, which followed its victims wherever they went. Fleeing epidemics was and still is a universal phenomenon practiced worldwide throughout centuries to avoid plague, cholera, typhus, smallpox, and yellow fever. But in the early twentieth-century U.S., the practice was absent in Northern cities as public health and urbanization expanded and eliminated the threat of malaria and yellow fever. The unique disease ecology of the South continued to harass Southerners and force them to flee northward, even after the century's turn.

That day, Owen struggled to maintain morale in Old Hickory, where untrained and overworked personnel lacked the resources to treat infected employees. Thirty of her coworkers

[271] Thomison, "The 1918 Influenza Epidemic in Nashville," 266.
[272] "Efforts Made to Check Flu," *Nashville Tennessean*, October 4, 1918, 9.

were dead, and there was no protocol for corpses. "When the epidemic is over," she wrote, "records will show that some were buried in the city's burying ground and their graves will be unmarked and their bodies unclaimed."[273] As to the delirious bride, she found that death had:

> Claimed the young war-bride. We failed to communicate with her mother. Consequently another tragedy was added to the list and while somewhere a sailor dreams of his wife, she goes to a nameless grave. Her personal possessions were stored in the safety first office. The variety of articles stored in this office indicate the colorful drama that grips the plant. While looking through some things stored there today, we found unclaimed watches, assignment cards, rings, pins and jewelry that were valued for sentimental reasons. These possessions were taken from the deceased and are held for relatives to claim.[274]

Amidst tragedy, Owen found meaning at Old Hickory, even as Derivaux swore conditions had improved.[275] She remembered enrolling in a summer Y.M.C.A.-Red Cross course in Nashville entitled "Home Nursing and Care of the Sick," and although she could not serve as a nurse overseas, she found purpose at Old Hickory, relying on her training to fight the most disastrous pandemic in modern history. American women were at the center of it. She wrote that "years will pass and memories of these glamorous days will fade," requiring her to "keep a record of the part that women are taking" in the war and pandemic effort.[276] For Owen, the flu simultaneously inflicted terror and provided opportunity. Department vacancies were being created by the flu, and the "executive ability" of women was "being demonstrated to a surprising extent. Women are taking an important place" in the plant's fight against the flu – a woman's fight.[277]

Still, the flu was damaging. On October 6, Owen wrote there were 4,000 women living on property and only four left to oversee their work, with their top supervisor ill. She and her

[273] Owen, Diary entry dated October 4, 1918, 6.
[274] Owen, Diary entry dated October 4, 1918, 6.
[275] "Situation Better at Powder Plant," *Nashville Tennessean*, October 5, 1918, 12.
[276] Owen, Diary entry dated October 5, 1918, 8.
[277] Owen, Diary entry dated October 5, 1918, 8.

coworkers were "accustomed to hearing agonizing screams and pleas for relief" erupting from Old Hickory's hospitals.[278] Nashville's conditions were equally Dantesque, as the city's best medical teams were deployed to rural communities, leaving clinics shorthanded.[279] Interviewed by the *Tennessean*, Dr. Olin West of the state health board contradicted Owen and Fessey's accounts, promising Nashvillians that Old Hickory's conditions had improved. He ridiculed what he felt were exaggerated reports, and praised Old Hickory's physicians for handling the flu so smoothly that plant hospitals were "dismissing influenza patients faster than they are receiving new cases."[280] The board sought to calm a restless and sick Nashville.

Meanwhile at Ft. Oglethorpe, Whitaker wrote to his wife, squatting outside a supply house in the gutter, pretending to be resting from a volleyball game. He was shocked at the new quarantine camp's size. Several days prior, he glanced upon troops erecting tents in the quarantine zone, but their gates hung open and there was minimal activity.[281] Now, the quarantine extended across the camp, and it was flooded with men, a few from his company. He wrote from the gutter because one of the supply house men was coughing, so "until it is diagnosed," he wrote, "yours truly is doing the exempt act as much as possible."[282]

A day later in the same camp, Elbert Leach Orr was writing to Mrs. Orr back home in Nashville from Lookout Mountain, in Georgia. He was worried about conditions at the camp and his family. Mrs. Orr wrote him a letter informing him that their daughters had contracted the virus. Six-year old Katherine slept constantly while four-year old Victoria Louise was "sick enough to

[278] Owen, Diary entry dated October 6, 1918, 11.
[279] "Board Issues a Flu Communique," *Nashville Tennessean*, October 7, 1918, 8.
[280] "State Board of Health Assists," *Nashville Tennessean*, October 8, 1918, 12. "Reports of Deaths are not Correct," *Nashville Banner*, October 8, 1918, 12.
[281] Whitaker, Letter to Dorothy Rand Whitaker, October 3, 1918.
[282] Whitaker, Letter to Dorothy Rand Whitaker, October 7, 1918.

be cranky," becoming bedridden.[283] She was thankful there were not many men at her husband's camp, because troops were "dying by the dozens" in populated camps.[284] He was aware of the threat. With his building shuttered and meetings suspended, he assisted another chaplain in the quarantine. "Poor, home-sick fellows," he wrote of the quarantined soldiers, "they wanted stamps, paper, envelopes, letters written – everything."[285] He visited the infirmary, where personnel treated troops using saturated gauze placed over their airways, and planned to help at the hospital later that week, where the worst cases were. He worried about the soldiers. "How they touch your heart," he wrote, "sick and homesick – one has to help them, or get away."[286] Whitaker was becoming one of those men. That morning, he felt unwell, and took pills to suppress infection. He knew what was coming. "Do not worry about me dear," he wrote to his wife, "for it is not the influenza that is dangerous but the pneumonia that sometimes comes afterwards due to lack of care."[287]

In Old Hickory that night, Owen retired to her diary. The flu "overshadowed everything" at the plant, and everywhere she went there was federal presence, because the plant was "a government war project, located in the South and operated by Southern labor. It is in a way an experiment in industry here."[288] The flu attacked Old Hickory almost overnight before authorities could respond, infecting hundreds within days. Six temporary hospitals were erected when the main hospital was overrun, and the Y.M.C.A. building admitted the sick by turning its offices, gymnasium, and lobby into field hospitals filled with cots. Old Hickory's women workers fought the flu directly. "Secretaries turned their attention to serving patients," while others "acted as

[283] Edna Elizabeth Orr, Letter to Elbert Leach Orr on October 8, 1918. Orr Family Papers 1905-1966. Tennessee State Library and Archives.
[284] Orr, Letter to Elbert Leach Orr on October 8, 1918.
[285] Orr, Letter to Edna Elizabeth Orr on October 9, 1918.
[286] Orr, Letter to Edna Elizabeth Orr on October 9, 1918.
[287] Whitaker, Letter to Dorothy Rand Whitaker, October 9, 1918.
[288] Owen, Diary entry dated October 9, 1918, 17.

chaplain to the dying," and those issuing "cigars and candy across the counters now served soup and broth."[289] The hardened DuPont women epitomized the American spirit Owen was inspired by. "They are courageous," she wrote, "and ready to face hardships if necessary."[290] Their experience suggested that federal response to the pandemic was no better than the local one.

Southern social dimensions remained intact. Mexican labor dominated the plant's immigrant labor pool, separated in a village alongside African-American workers, and this segregation from white labor produced stratified medical care. Marginalized groups constructed makeshift hospitals from bunk houses in the Mexican section, and from the African-American Y.M.C.A. building. Scouts extracted African-American and Mexican sick from their quarters to the hospitals. Twenty-six physicians across Old Hickory's white, black, and immigrant hospitals, supported by fifty from Nashville, were not enough "for patients to receive the care necessary":

> Often they lie for hours in pain waiting for attention. Then… at one time, twenty-six doctors have been ill and there is never a time when all the doctors and nurses can attend to their duty. Serious cases are sent to the base hospital. When a case is taken there it is a sign that it is regarded serious. The patients do not know this and are glad to be transferred to the hospital. They are helpless and in the hands of the company officials.[291]

Owen wrote that "negro doctors for the negro village" were outstanding, heightening the morale of the sick, who knew "that they are given care and will continue to get it."[292]

At Ft. Oglethorpe, Orr continued soothing the ailments of troops in the quarantine zone. He hoped his family would escape pneumonia. New cases emerged daily, and days before, he felt "a little cold," although he slept well and had "fine appetite."[293] He observed the flu's movement

[289] Owen, Diary entry dated October 9, 1918, 18.
[290] Owen, Diary entry dated October 9, 1918, 17.
[291] Owen, Diary entry dated October 9, 1918, 19.
[292] Owen, Diary entry dated October 9, 1918, 20.
[293] Orr, Letter to Edna Elizabeth Orr on October 9, 1918.

via camp reports and found that it was expanding in major cities. He pleaded with Mrs. Orr to take care of herself and their daughters, looking forward to "normal life" – to him, the "greatest blessing of all – to stop killing the men."[294] He felt lingering flu symptoms, but kept busy by distributing magazines and writing letters, providing stamps, candy, and apples to troops, and transporting telegrams to families near the camp. Some quarantined soldiers were healing, while others approached him "bleeding like stuck-pigs."[295] He pondered his own susceptibility, and prayed he could "stay well and keep able to work among the fellows while I am here."[296] His family's condition worried him, but the quarantine conditions consumed his time.

On October 10, West returned to the *Banner* in Nashville. Frustrated and determined to regain control of public sentiment, he reiterated that false Old Hickory flu reports continued to circulate to the war effort's detriment. He alluded to an "organized effort" to "pervert the truth" and hinder government efforts in Nashville by "the sensational talebearer."[297] But another *Banner* article two days later referred to mortality as the heaviest since "the cholera epidemic swept the city."[298] They referred to the 1873 cholera epidemic that killed 4,000 of the city's 27,000 citizens, drawing upon the city's collective memory of disease even when citizens may not have experienced that epidemic themselves.[299] One article that day entitled "Police Sergeant Acts Doctor and Saves Flu Victim" recounted the story of a Nashville police officer who stumbled upon a man in the street within the flu's death-grip, incapable of admission to Fessey's floundering hospital because he was "entirely without funds."[300] The officer took the man to a boarding house,

[294] Orr, Letter to Edna Elizabeth Orr on October 9, 1918.
[295] Orr, Letter to Edna Elizabeth Orr on October 10, 1918.
[296] Orr, Letter to Edna Elizabeth Orr on October 10, 1918.
[297] "'Flu' Situation in Nashville," *Tennessee Banner*, October, 10, 1918, 10.
[298] "Pneumonia Takes Heavy Toll," *Nashville Banner*, October 12, 1918, 5.
[299] Thomison, "The 1918 Influenza Epidemic in Nashville," 265.
[300] "Police Sergeant Acts Doctor and Saves Flu Victim," *Nashville Tennessean*, October 12, 1918, 11.

where his life was saved. In the South, playing "doctor" meant more than practicing healing methods. It meant having the resources to employ and receive care and survive.

Whitaker wrote to his own wife that day. "Please excuse the scragglyness of this little note but it is dark here," Whitaker wrote, "by here I mean quarantine."[301] He had contracted the virus. His handwriting and shortened letters reflected it. He was now one of the men Orr was fighting to save. Physicians anticipated his survival if they could defeat pneumonia. Within twenty-four hours he had pulled through a fever and bunked with other sick men from the supply house. He was weak and underfed, but glad he was alongside "plenty of friends" in the quarantine, if he had "sufficient energy to enjoy them."[302] In quarantine, men defeated the flu by living as they had, before surgical masks, cots, and mass graves. Whitaker and a friend decided to "make hot lemonade over a candle," pillaging the quarantine kitchen and pestering men on the chance they could "scrape up a lemon."[303] They acquired sugar, water, and one lemon to split between them, boiling water with a candle before a friend entered their tent with a pitcher of hot lemonade. They swallowed both their fellow soldier's pitcher of lemonade and their own candle-warmed lemonade, and battled fever together that same night.[304]

Whitaker, the Orrs, and Owen were characters of larger Southern tensions illuminated by the pandemic: the citizen-government friction on health guardianship. In Jacksonville, Armstrang doubted modern medicine and what he felt was the myth of federal protection that connected Southerners. In New Orleans, Dodd was unsurprised with high mortality, especially among African Americans, considering living conditions, poverty, and municipal indifference.

[301] Whitaker, Letter to Dorothy Rand Whitaker, October 10, 1918.
[302] Whitaker, Letter to Dorothy Rand Whitaker, October 11, 1918.
[303] Whitaker, Letter to Dorothy Rand Whitaker, October 12, 1918.
[304] Whitaker, Letter to Dorothy Rand Whitaker, October 12, 1918.

Nashvillian sentiment manifested itself on the *Tennessean*'s front page, where frustrated citizens defined their line. On September 7, before the second wave of the pandemic arrived, the USPHS and city authorities enforced sanitary measures in domestic space, placing responsibility on the citizenry.[305] Officials were trying to modernize Nashville's health infrastructure by reinventing sewer systems and mandating privy construction. They especially wanted to safeguard Old Hickory's health, with the DuPont plant a primary concern. Two weeks later the flu reached epidemic proportions. Residents felt that order mandating domestic privy construction was inadequate. It placed responsibility on citizens for cleanliness within domestic space, while lackadaisical officials contributed nothing to municipal space. Authorities struck down a resolution on October 10 that would repair Nashville's street-flushing machines and resume sanitary measures in fighting the flu.[306] The following day, an overwhelmed citizenry responded by demanding their representatives "flush the streets":

> An outraged public demands the flushing of the downtown streets and sewers – AND THEY DEMAND IT NOW. Personal likes and dislikes, political moves to benefit political futures, must be cast aside. The cry today is for action. God pity the man who, in the midst of a scourge, can't view things from other than a selfish standpoint. The *Tennessean* calls upon the City Commissioners to lay aside their differences – AND DO. This is not the time to discuss negligence or failure to perform duty, be it right or wrong. THE PUBLIC KNOWS THE STREETS OF NASHVILLE NEED FLUSHING, AND DEMAND THEY BE FLUSHED WITHOUT FURTHER QUIBBLING.
>
> The *Tennessean* is in receipt of a long communication from one of the commissioners, explaining and elucidating, asking that it be published. The Tennessean does not think the people of Nashville care a whoop at this time for explanations – but the Tennessean does know THAT THE PEOPLE OF NASHVILLE WANT THE FILTH AND ACCUMULATED DIRT OF SIX WEEKS STANDING cleared from the streets – and, once again, calls upon the City Commissioners to DO THEIR DUTY. FLUSH THE STREETS AND FLUSH THEM IMMEDIATELY.[307]

[305] "Must Safeguard County's Health: Every Home Required to Observe Rules For Sanitation," *Nashville Tennessean,* September 7, 1918, 5.
[306] "May Flush Streets to Help Down 'Flu,'" *Nashville Banner*, October 10, 1918, 2.
[307] "Flush the Streets," *Nashville Tennessean*, October 11, 1918, 1.

One day later, authorities promised to resume street flushing once apparatus was repaired, after discontinuing the practice for weeks.[308] The flu is a respiratory virus, and is connected to crowded streets, not dirty ones. But the pandemic meant something different for Nashvillians angered at municipal indifference and the condition of city public health. The flu illuminated the need for effective health policy and sanitary procedure, not predicated on taxpaying citizens, but on the representatives, who promised to protect the citizenry if they were elected to seats of power. The virus highlighted the city's porous infrastructure and inability of political actors to combat disease. Flushing the streets was not about beating back the flu. It was about ensuring the accountability of municipal agencies in protecting human health, in a region wrought with contagions.

On October 13, Mrs. Orr wrote to her husband, still battling the flu. Friends and neighbors were dying all around her. One friend lost four sons in a US Army camp, and two more extended relatives. But Mrs. Orr's daughters survived. They were now eating "like little pigs," and their resilience inspired her to "get my appetite again and get fat one of these days."[309] While she ached "for the poor homesick lads away… and sick," she was proud of her husband's courage.[310] He wrote back two days later, thankful they never developed pneumonia, as quarantine zone conditions worsened. The volume of death made it "impossible to take care of the corpses," he wrote, as "hundreds have been stacked up in the morgue like so many butchered pigs."[311] His family was spared, but the quarantined men he had grown to love were not. Field exercises, the quarantine's conductivity, cold nights, and cramped conditions took its toll outside the European battlespace. They both knew this virus was different that previous ones. On a train she stumbled

[308] "Flushing of Streets is Ordered Resumed," *Nashville Banner*, October 12, 1918, 3.
[309] Orr, Letter to Elbert Leach Orr on October 13, 1918.
[310] Orr, Letter to Elbert Leach Orr on October 13, 1918.
[311] Orr, Letter to Edna Elizabeth Orr on October 15, 1918.

upon two children, "one of whom kept calling for her mother," and learned that "her mother was in the baggage car and two weeks before, the father had been buried. Both died of influenza."[312]

Owen wrote little that week in Old Hickory. By October 16, she had contracted the flu. She concluded that entry early, resolute to "overcome the flu" and "determine[d] that it will not keep me down."[313] Two days later she was resting at home, in Nashville. Traveling through the city for the first time since working at the plant, she wrote that the city's denizens:

> Scarcely realize that a war is raging in Europe or that a large industry is grinding out powder in Tennessee. Snug in their homes, they are free of the sacrifices made in other places. They fear contact with influenza patients and their world is a small one.[314]

Nashville was unrecognizable, and Owen did not understand why citizens locked themselves away in their houses instead of joining the national campaign toward victory in Europe and mobilizing to conquer the flu. By October 23, the flu appeared to be receding, as Hibbett told the press "we are through the worst of it," and two days later, Owen found solace in her diary once more.[315] She survived the flu, and found it abating upon returning to the plant, with patients being transported from makeshift hospitals to official ones.[316] The flu necessitated the conditions that realized Owen's dream of a city led by female American patriots. Old Hickory's women battled the flu more fiercely than the flu battled Old Hickory. Her coworkers labored tirelessly and never capitulated. While she was home, the plant opened 300 positions for women, vacated by the ill. Applications even came from outside Tennessee, elsewhere in the South. Ninety-five applicants were hired on October 24, one day before her return.[317] Nashville's women, like those in the Red

[312] Orr, Letter to Elbert Leach Orr on October 16, 1918.
[313] Owen, Diary entry dated October 16, 1918, 22.
[314] Owen, Diary entry dated October 18, 1918, 23.
[315] "Danger of Flu Not Yet Passed," *Nashville Tennessean*, October 23, 1918, 7.
[316] Owen, Diary entry dated October 25, 1918, 25.
[317] "Ninety-Five Women are Placed at Powder Plant," *Nashville Tennessean*, October 24, 1918, 11.

Cross, promised they would "gladly respond" to any future crisis.[318] Owen never mentioned the flu again, and concluded her diary on January 25, 1919. She, alongside myriad other women, were pivotal in facing the deadliest pandemic in modern history.

Ft. Oglethorpe's conditions also improved. Whitaker survived the flu and left the quarantine on October 15 after five days. The "Army is OK when you're well," he wrote, "but it's a dreary place when you're not."[319] In Nashville, Mrs. Orr missed the company of friends whom she had not heard from. People were still dying, with hospitals "full and overflowing, porches and offices, full of beds," some with only three physicians available.[320] She wanted to visit friends, but was afraid of spreading the virus, and the infection was still at her doorstep. "We have two new cases next door today," she wrote.[321] But by October 22, she was relieved. The flu seemed to be disappearing, although it had "taken a far greater toll than the war."[322] Her family was still coughing, but they escaped pneumonia. They were going to recover fully. Days later, her husband responded, relieved of the passing pandemic. There were no new camp cases, and "orders are being received for new men."[323] But tragedy befell most, and the Orrs did not escape it. Mrs. Orr wrote solemnly to her husband that his "brother-in-law died this morning of pneumonia," leaving behind "a young wife and three little ones."[324] It was time to restore some sense of normalcy. She hoped the quarantine would be lifted by that Sunday, in time for church service. It was. That day, West, Hibbett, and Derivaux agreed the public gathering ban be lifted citywide within the week.[325]

[318] "What the Local Red Cross Did During the Epidemic," *Nashville Tennessean*, November 3, 1918, 6.
[319] Whitaker, Letter to Dorothy Rand Whitaker, October 16, 1918.
[320] Orr, Letter to Elbert Leach Orr on October 19, 1918.
[321] Orr, Letter to Elbert Leach Orr on October 21, 1918.
[322] Orr, Letter to Elbert Leach Orr on October 22, 1918
[323] Orr, Letter to Edna Elizabeth Orr on October 28, 1918.
[324] Orr, Letter to Elbert Leach Orr on October 29, 1918.
[325] "'Flu' Ban to be Lifted on Friday," *Nashville Banner*, October 29, 1918, 1.

Flu cases procrastinated into winter, as Nashvillians rebuilt their communities and sorted the dead. In one home down the street from the Orrs, three bodies were found. "There goes a little casket now," she wrote, as children's coffins were shuttled up and down the street.[326] While the whites shed their fears, African Americans still grappled with the flu. On November 5, Mrs. Orr observed that cases continued in black neighborhoods.[327] Its prevalence was diminishing, but its capabilities were not. She knew of four funerals being conducted in one day, while in neighboring homes there were "one or two dead and three or four sick."[328] A friend suggested turpentine to treat symptoms, but Mrs. Orr's physician recommended quinine and whiskey, although it seemed "plentiful in this part of the country" already.[329] She doubted its efficacy.

In October, authorities were experimenting with various treatments against the flu and reintroduced whiskey as a remedy. On October 9, criminal court Judge J. D. B. DeBow (1861-1947) ordered law enforcers to reroute captured liquor stocks from Nashville's bootleggers to hospitals and charity clinics, repurposing gallons of alcohol for clinical use.[330] Among the institutions receiving liquor was Fessey's hospital with ten cases of liquor, and Old Hickory's DuPont plant with fourteen cases. On October 14, Hibbett ordered whiskey retrievable via a physician's prescription, which was reported to the health office, along with the household's number of sick.[331] Some doctors believed the liquor was unhealthy generally, but also threatened flu sufferers because some liquor was spiked with chemicals to produce the expected "kick."[332] They advocated for quality liquor in small doses, rather than careless prescription and overreliance.

[326] Orr, Letter to Elbert Leach Orr on October 30, 1918.
[327] Orr, Letter to Elbert Leach Orr on November 5, 1918.
[328] Orr, Letter to Elbert Leach Orr on November 5, 1918.
[329] Orr, Letter to Elbert Leach Orr on November 5, 1918.
[330] "Liquor Used on Order of Court," *Nashville Tennessean*, October 9, 1918, 6.
[331] "'Flu' Situation Much Improved," *Nashville Banner*, October 14, 1918, 4.
[332] "Physicians Oppose Use of Bad Liquor," *Nashville Tennessean*, October 21, 1918, 4.

Whitaker and the Orrs survived. There were no more tents left in the nearly-deserted Ft. Oglethorpe quarantine, but companies were still suffering fatigue from recovery, so they staged their own racialized entertainment. "Last night we had a couple of n****** up from Co #12," Whitaker wrote, "one played the guitar while the other danced… the coons were good."[333] While racism remained intact, the flu forced authorities to reassess public health. Derivaux believed it would be impossible to eliminate a recurrence of the flu. He recommended new resolutions to officials, such as prompt disease reporting from physicians, strengthening of laboratory and statistical analytics, and sanitary engineering focused on rural Tennessee.[334] But in this new war against disease, Southern cities needed to overcome more than virions. On New Year's Day 1919, Orr wrote to his wife. "I am glad for the long, bitter, anxious year of 1918 to close," he said:

> It passed like many other great years have passed – like a disturbed dream to those of us who did not suffer calamity, like a nightmare to those who did suffer calamity. The curtain was drawn upon a stupefied world that has not yet begun to realize its tremendous losses and burdens. Only a study of… history (and they will be written only after many have forgotten the shock of it all) can ever reveal… the year's crimes. And so we go on.[335]

The testimonies of the Orrs, Whitaker, and Owen are some of the reasons Nashville is integral to this study, beyond statistics and official documentation. Their correspondence reveals dimensions of the pandemic only whispered by authorities and newspapers: the scale and depth of lethality; the unexpectedness, immediacy, and secrecy of the pandemic's impact; the suffering and anxiety; the extent of gender in shaping the pandemic, which had only been hinted at by previous historians. Their experiences add to the history of the flu in the South, in which poverty and underdevelopment played a leading role in the experience and the outcome.

[333] Whitaker, Letter to Dorothy Rand Whitaker, November 25, 1918.
[334] "Communicable Diseases to be Given Attention," *Nashville Tennessean*, December 12, 1918, 6.
[335] Orr, Letter to Edna Elizabeth Orr on January 1, 1919.

Conclusion: The Flu in the South and the World

The South was not a colonial outpost, and belonged to no empire but the American empire, which was posed as a contender for superpower nation in 1898 after acquiring Spanish territories and ascending the pyramid of international power by 1918, although still strongly isolationist after World War I.[336] But although the South was part of a developed western country that fared better than most, it did not experience the flu in the same way that wealthier, industrialized corners of the U.S. did. Just as the pandemic entailed different experiences and results between the U.S. and Africa, Latin America, South and East Asia, and the Middle East, the U.S. South experienced the flu differently than its continental neighbors to the north and west. Southerners did not enjoy the robust health system available in major cities like New York City or Chicago, nor did they have egalitarian access to care. Accessible treatment during the pandemic depended on where one lived, as in Nashville, where hospitals equipped to treat disease were located beyond city borders, out of the range of impoverished residents. Or, as in New Orleans, medical care was race-dependent, and discriminatory in its admissions and location of treatment, as in Charity Hospital. In Jacksonville, commentary in local newspapers criticized the perceived myth of modern medical care altogether. They expected to fight the flu alone, as they had done in epidemics decades prior.

But beyond Southern poverty and inaccessible medical care, racial stratification ensured discriminatory care and disproportionate mortality between whites and African Americans, facilitated by unbalanced medical, housing, and sanitary measures in black neighborhoods. In Jacksonville, soup kitchens served families in ways that isolated and excluded African Americans from their services by requiring them to fulfill special conditions. Dodd assumed this behavior on

[336] For American colonial medicine in the Philippines between 1898 and the New Deal, see Warwick Anderson, *Colonial Pathologies: American Tropical Medicine, Race, and Hygiene in the Philippines* (Durham: Duke University Press, 2006).

the part of whites was typical of the South, and found that high African-American disease mortality in New Orleans was solely based on oppressive socioeconomic and political forces constructed by the municipal government and the health board, contrary to the arguments of health officers in Jacksonville, Savannah, and elsewhere. Instead of blaming black bodies for mortality by relying on pseudo-immunology, Dodd implicated poverty, fractured public health infrastructure, incompetent city leaders, and unjust housing laws for high African-American mortality.

The epidemiological assumptions of physicians and officials, nurtured by the undercurrents of the eugenics movement, were debated by progressives like Dodd, and Brunner, who himself practiced racial paternalism. American medical epistemology evolved in the 1910s, but in the South, it still reflected dreams of racial utopia and untamed white supremacy. Authorities emboldened their campaign by arguing that inherent weakness explained high African-American mortality. By late 1918, the same conditions that fueled imagined epidemiology against African Americans also illuminated the disproportionate impact of the flu on impoverished African-Americans. Indeed, the flu was not the democratic killer historians previously suggested, but discriminatory based on conducive Southern social architecture. Race was central to distinguishing the Southern flu from the rest of the country. Like most other American epidemics, it may be called a 'white and black' disease in the South, as much as an imperial one transnationally.

The cities evaluated in this study were part of a larger history of the global pandemic. Some aspects of the pandemic connected the South to the rest of the nation: its ferocity, age distribution, and unexpectedness and scale, although these aspects were global as well. In other ways, the flu connected the South with the rest of the developing world. High mortality among the impoverished and marginalized, isolation and rurality, medical paralysis, and inadequate authority response were similar to the experience of poor countries and indigenous populations. Incidental to globalization

and the final gasps of conventional colonialism, David Killingray has called the pandemic an "imperial disease" that reshaped colonial health administrations, stimulated modern global health policy, and illuminated the functionality of imperial health systems, while disproportionately killing the destitute and indigenous groups like Native Americans and the Maori.[337]

In South Africa, the pandemic forced the redesign of health infrastructure after hundreds died pervasively in crowded slums, with a stark mortality contrast between white and black South Africans. South Africa faced the fifth worst flu mortality rate worldwide, with half a million deaths in what Howard Phillips calls the single-most destructive event in that country's demographic history.[338] In East Africa, food shortages and administrative absenteeism added to the suffering of impoverished Kenyans, raising the mortality rate to 25.0 per 1,000 persons, near the rate of Nashville and New Orleans.[339] Native Kenyans suffered most. In the British Caribbean, Jamaica, Belize, and Guyana suffered severely, fueled by the poverty of West Indian laborers and indigenous groups.[340] British imperialists were indifferent to the plight of their Caribbean colonies after the flu, leaving underdevelopment intact. In Bogotá, Colombia, hundreds died due to cyclical poverty and useless sanitation precautions, as care was relegated to private institutions like the Junta de Socorros.[341] And of the 50 to 100 million pandemic deaths worldwide, 10 to 20 million

[337] David Killingray, "A New 'Imperial Disease': The Influenza Pandemic of 1918-19 and its Impact on the British Empire," *Caribbean Quarterly* 49, no. 4 (December 2003): 32 and 43. See also Marcella M. Alsan, Michael Westerhaus, Michael Herce, Koji Nakashima, and Paul E. Farmer, "Poverty, Global Health and Infectious Disease: Lessons from Haiti and Rwanda," *Infectious Disease Clinics of North America* 25, no. 3 (September 2011): 611–622.
[338] See Howard Phillips, "The Local State and Public Health Reform in South Africa: Bloemfontein and the Consequences of the Spanish 'Flu Epidemic of 1918," *Journal of Southern African Studies* 13, no. 2 (January 1987): 210-233. See also Howard Phillips, "South Africa's Worst Demographic Disaster: The Spanish Influenza Epidemic of 1918," *South African Historical Journal* 20, no. 1 (1988): 57-73.
[339] See Fred Andayi, Sandra S. Chaves, and Marc-Alain Widdowson, "Impact of the 1918 Influenza Pandemic in Coastal Kenya," *Tropical Medicine and Infectious Disease* 4, no. 91 (June 2019): 1-14.
[340] See David Killingray, "The Influenza Pandemic of 1918-1919 in the British Caribbean," *Social History of Medicine* 7, no. 1 (April 1994): 59–87.
[341] See Abel Fernando Martínez-Martín, Fred Gustavo Manrique Abril, and Bernardo Francisco Meléndez Álvarez, "La Pandemia de Gripa de 1918 en Bogotá," *Dynamis* 27 (2007): 287-307, and Fred G. Manrique-Abril, Abel F.

of them were from India, as referred to in the introduction to this study.[342] Poverty and underdevelopment associated with British colonial rule shaped that exorbitant mortality.

Between the regional penury, weak public health, and virulent racism in popular and medical spheres, the flu experience in the American South was more akin to the pandemic in the rest of the developing world than the rest of the U.S. The virus did more than kill millions and spur the maturation of national and international health cooperation. It connected the U.S. South with the Global South. The trend of recent scholarship pushes against Crosby's assertions. The work of scholars like Svenn-Erik Mamelund, Esyllt Wynne Jones, and Patricia J. Fanning have challenged broad assumptions about the pandemic's mortality by proposing regional studies reflective of the nuances of the new social historiography of medicine. Meanwhile, authors like Laura Spinney have introduced the flu in global perspective. This thesis has attempted to recast the pandemic in similar light by addressing the Southern flu and its social dimensions, while appreciating the South as an English-language historical model for the analysis of the global flu, to the degree that language limits historical research and full applicability of the model. Future studies of the flu in the South and the world will undoubtedly continue the historical gradation beyond Crosby's work, building on that initial bedrock of scholarship towards historicizing contemporary connections in applied epidemiology and global health policy. As historians probe the viability of these studies to properly address the pandemic, their analyses will undoubtedly further examine the historical connection between pestilence and poverty.

Martínez-Martin, Bernardo F. Meléndez, and Juan M. Ospina, "La Pandemia de Gripe de 1918-1919 en Bogotá y Boyacá, 91 años Después," *Infectio* 13, no. 3 (2009): 182-191.

[342] Chandra and Kassens-Noor, "The Evolution of Pandemic Influenza: Evidence from India, 1918–19," 1.

Appendix 1: Influenza Mortality Rates for all Fifty-Four FL Counties, Sept. to Dec., 1918.[343]

Legend: T = Total W = White B = Black

Alachua:	T: $\frac{121}{31,639} \cdot 10^3 = 3.8$	W: $\frac{49}{17,114} \cdot 10^3 = 2.8$	B: $\frac{72}{14,573} \cdot 10^3 = 4.9$
Baker:	T: $\frac{34}{5,622} \cdot 10^3 = 6.0$	W: $\frac{22}{4,200} \cdot 10^3 = 5.2$	B: $\frac{12}{1,422} \cdot 10^3 = 8.4$
Bay:	T: $\frac{41}{11,407} \cdot 10^3 = 3.5$	W: $\frac{27}{8,650} \cdot 10^3 = 3.1$	B: $\frac{14}{2,757} \cdot 10^3 = 5.0$
Bradford:	T: $\frac{67}{12,503} \cdot 10^3 = 5.3$	W: $\frac{39}{9,011} \cdot 10^3 = 4.3$	B: $\frac{28}{3,492} \cdot 10^3 = 8.0$
Brevard:	T: $\frac{15}{8,505} \cdot 10^3 = 1.7$	W: $\frac{9}{6,006} \cdot 10^3 = 1.4$	B: $\frac{6}{2,483} \cdot 10^3 = 2.4$
Broward:	T: $\frac{7}{5,135} \cdot 10^3 = 1.3$	W: $\frac{4}{3,538} \cdot 10^3 = 1.1$	B: $\frac{3}{1,572} \cdot 10^3 = 1.9$
Calhoun:	T: $\frac{16}{8,775} \cdot 10^3 = 1.8$	W: $\frac{11}{6,367} \cdot 10^3 = 1.7$	B: $\frac{5}{2,408} \cdot 10^3 = 2.0$
Citrus:	T: $\frac{19}{5,220} \cdot 10^3 = 3.6$	W: $\frac{11}{2,695} \cdot 10^3 = 4.0$	B: $\frac{8}{2,523} \cdot 10^3 = 3.1$
Clay:	T: $\frac{28}{5,621} \cdot 10^3 = 4.9$	W: $\frac{14}{3,549} \cdot 10^3 = 3.9$	B: $\frac{14}{2,072} \cdot 10^3 = 6.7$
Columbia:	T: $\frac{29}{14,290} \cdot 10^3 = 2.0$	W: $\frac{18}{7,291} \cdot 10^3 = 2.4$	B: $\frac{11}{6,999} \cdot 10^3 = 1.5$
Dade:	T: $\frac{123}{42,753} \cdot 10^3 = 2.8$	W: $\frac{66}{29,983} \cdot 10^3 = 2.2$	B: $\frac{57}{12,680} \cdot 10^3 = 4.4$
De Soto:	T: $\frac{42}{25,434} \cdot 10^3 = 1.6$	W: $\frac{32}{21,079} \cdot 10^3 = 1.5$	B: $\frac{10}{4,347} \cdot 10^3 = 2.3$
Duval:	T: $\frac{859}{113,540} \cdot 10^3 = 7.5$	W: $\frac{472}{65,453} \cdot 10^3 = 7.2$	B: $\frac{387}{47,989} \cdot 10^3 = 8.0$
Escambia:	T: $\frac{282}{49,386} \cdot 10^3 = 5.7$	W: $\frac{205}{34,137} \cdot 10^3 = 6.0$	B: $\frac{77}{15,221} \cdot 10^3 = 5.0$
Flagler:	T: $\frac{5}{2,442} \cdot 10^3 = 2.0$	W: $\frac{3}{1,481} \cdot 10^3 = 2.0$	B: $\frac{2}{958} \cdot 10^3 = 2.0$
Franklin:	T: $\frac{17}{5,318} \cdot 10^3 = 3.1$	W: $\frac{9}{1,481} \cdot 10^3 = 3.1$	B: $\frac{8}{2,484} \cdot 10^3 = 3.2$
Gadsden:	T: $\frac{254}{23,539} \cdot 10^3 = 1.0$	W: $\frac{97}{8,727} \cdot 10^3 = 1.1$	B: $\frac{157}{14,812} \cdot 10^3 = 1.0$
Hamilton:	T: $\frac{20}{9,873} \cdot 10^3 = 2.0$	W: $\frac{8}{5,610} \cdot 10^3 = 1.4$	B: $\frac{12}{4,263} \cdot 10^3 = 2.8$

[343] Death data from *Thirtieth Annual Report of the State Board of Health of Florida 1918* (Jacksonville: Office of the Secretary and Main Laboratory, 1919). Population data from the 1920 Florida Census: Table 9 - Composition & Characteristics of the Population for Counties: 1920.

Hernando: T: $\frac{19}{4{,}548} \cdot 10^3 = 4.1$ W: $\frac{6}{2{,}723} \cdot 10^3 = 2.2$ B: $\frac{13}{1{,}825} \cdot 10^3 = 7.1$

Hillsborough: T: $\frac{518}{88{,}257} \cdot 10^3 = 5.8$ W: $\frac{396}{71{,}629} \cdot 10^3 = 5.5$ B: $\frac{122}{16{,}588} \cdot 10^3 = 7.3$

Holmes: T: $\frac{44}{12{,}850} \cdot 10^3 = 3.4$ W: $\frac{40}{11{,}816} \cdot 10^3 = 3.3$ B: $\frac{4}{1{,}034} \cdot 10^3 = 3.8$

Jackson: T: $\frac{136}{31{,}224} \cdot 10^3 = 4.3$ W: $\frac{52}{17{,}902} \cdot 10^3 = 2.9$ B: $\frac{84}{13{,}320} \cdot 10^3 = 6.3$

Jefferson: T: $\frac{40}{14{,}502} \cdot 10^3 = 2.7$ W: $\frac{7}{3{,}981} \cdot 10^3 = 1.7$ B: $\frac{33}{10{,}521} \cdot 10^3 = 3.1$

Lafayette: T: $\frac{41}{6{,}242} \cdot 10^3 = 6.5$ W: $\frac{35}{5{,}129} \cdot 10^3 = 6.8$ B: $\frac{6}{1{,}113} \cdot 10^3 = 5.3$

Lake: T: $\frac{20}{12{,}744} \cdot 10^3 = 1.5$ W: $\frac{7}{8{,}027} \cdot 10^3 = 0.7$ B: $\frac{13}{3{,}817} \cdot 10^3 = 4.7$

Lee: T: $\frac{17}{1{,}540} \cdot 10^3 = 1.7$ W: $\frac{12}{8{,}027} \cdot 10^3 = 1.4$ B: $\frac{5}{1{,}247} \cdot 10^3 = 4.0$

Leon: T: $\frac{30}{18{,}059} \cdot 10^3 = 1.6$ W: $\frac{7}{5{,}892} \cdot 10^3 = 1.1$ B: $\frac{23}{12{,}167} \cdot 10^3 = 1.8$

Levy: T: $\frac{36}{9{,}921} \cdot 10^3 = 3.6$ W: $\frac{25}{5{,}961} \cdot 10^3 = 4.1$ B: $\frac{11}{3{,}960} \cdot 10^3 = 2.7$

Liberty: T: $\frac{28}{5{,}006} \cdot 10^3 = 5.5$ W: $\frac{13}{2{,}764} \cdot 10^3 = 4.7$ B: $\frac{15}{2{,}242} \cdot 10^3 = 6.6$

Madison: T: $\frac{96}{16{,}516} \cdot 10^3 = 5.8$ W: $\frac{38}{8{,}021} \cdot 10^3 = 4.7$ B: $\frac{58}{8{,}492} \cdot 10^3 = 6.8$

Manatee: T: $\frac{40}{18{,}712} \cdot 10^3 = 2.1$ W: $\frac{17}{12{,}901} \cdot 10^3 = 1.3$ B: $\frac{23}{5{,}804} \cdot 10^3 = 3.9$

Marion: T: $\frac{120}{23{,}968} \cdot 10^3 = 5.0$ W: $\frac{42}{11{,}080} \cdot 10^3 = 3.7$ B: $\frac{78}{12{,}887} \cdot 10^3 = 6.0$

Monroe: T: $\frac{84}{19{,}550} \cdot 10^3 = 4.2$ W: $\frac{77}{15{,}208} \cdot 10^3 = 5.0$ B: $\frac{7}{4{,}315} \cdot 10^3 = 1.6$

Nassau: T: $\frac{17}{11{,}340} \cdot 10^3 = 1.4$ W: $\frac{10}{6{,}310} \cdot 10^3 = 1.5$ B: $\frac{7}{5{,}029} \cdot 10^3 = 1.3$

Oskaloosa: T: $\frac{52}{9{,}360} \cdot 10^3 = 5.5$ W: $\frac{45}{7{,}520} \cdot 10^3 = 5.9$ B: $\frac{7}{1{,}840} \cdot 10^3 = 3.8$

Okeechobee: T: $\frac{7}{2{,}132} \cdot 10^3 = 3.0$ W: $\frac{7}{1{,}887} \cdot 10^3 = 3.7$ B: $\frac{0}{211} \cdot 10^3 = 0$

Orange: T: $\frac{59}{19{,}890} \cdot 10^3 = 2.9$ W: $\frac{33}{14{,}423} \cdot 10^3 = 2.2$ B: $\frac{26}{5{,}464} \cdot 10^3 = 4.7$

Osceola: T: $\frac{26}{7{,}195} \cdot 10^3 = 3.6$ W: $\frac{14}{6{,}072} \cdot 10^3 = 2.3$ B: $\frac{12}{1{,}122} \cdot 10^3 = 10.6$

Palm Beach: T: $\frac{17}{18{,}654} \cdot 10^3 = 0.9$ W: $\frac{4}{13{,}042} \cdot 10^3 = 0.3$ B: $\frac{13}{5{,}512} \cdot 10^3 = 2.3$

Pasco:	T: $\frac{15}{8{,}802} \cdot 10^3 = 1.7$	W: $\frac{4}{6{,}704} \cdot 10^3 = 0.5$	B: $\frac{11}{2{,}098} \cdot 10^3 = 5.2$
Pinellas:	T: $\frac{57}{28{,}265} \cdot 10^3 = 2.0$	W: $\frac{41}{23{,}701} \cdot 10^3 = 1.7$	B: $\frac{16}{4{,}553} \cdot 10^3 = 3.5$
Polk:	T: $\frac{86}{38{,}661} \cdot 10^3 = 2.2$	W: $\frac{37}{29{,}302} \cdot 10^3 = 1.2$	B: $\frac{49}{9{,}359} \cdot 10^3 = 5.2$
Putnam:	T: $\frac{58}{14{,}568} \cdot 10^3 = 3.9$	W: $\frac{24}{7{,}822} \cdot 10^3 = 3.0$	B: $\frac{34}{6{,}742} \cdot 10^3 = 5.0$
St. Johns:	T: $\frac{35}{13{,}061} \cdot 10^3 = 2.6$	W: $\frac{20}{8{,}335} \cdot 10^3 = 2.3$	B: $\frac{15}{4{,}721} \cdot 10^3 = 3.1$
St. Lucie:	T: $\frac{18}{7{,}886} \cdot 10^3 = 2.2$	W: $\frac{14}{5{,}967} \cdot 10^3 = 2.3$	B: $\frac{4}{1{,}895} \cdot 10^3 = 2.1$
Santa Rosa:	T: $\frac{42}{13{,}670} \cdot 10^3 = 3.0$	W: $\frac{32}{10{,}821} \cdot 10^3 = 2.9$	B: $\frac{10}{2{,}849} \cdot 10^3 = 3.5$
Seminole:	T: $\frac{31}{10{,}986} \cdot 10^3 = 2.8$	W: $\frac{16}{5{,}933} \cdot 10^3 = 2.6$	B: $\frac{15}{5{,}044} \cdot 10^3 = 2.9$
Sumter:	T: $\frac{17}{7{,}851} \cdot 10^3 = 2.1$	W: $\frac{15}{5{,}633} \cdot 10^3 = 2.6$	B: $\frac{2}{2{,}218} \cdot 10^3 = 0.9$
Suwanee:	T: $\frac{107}{19{,}789} \cdot 10^3 = 5.4$	W: $\frac{61}{11{,}842} \cdot 10^3 = 5.1$	B: $\frac{46}{7{,}947} \cdot 10^3 = 5.7$
Taylor:	T: $\frac{65}{11{,}219} \cdot 10^3 = 5.7$	W: $\frac{41}{6{,}671} \cdot 10^3 = 6.1$	B: $\frac{24}{4{,}546} \cdot 10^3 = 5.2$
Volusia:	T: $\frac{75}{23{,}374} \cdot 10^3 = 3.2$	W: $\frac{36}{15{,}159} \cdot 10^3 = 2.3$	B: $\frac{39}{8{,}199} \cdot 10^3 = 4.7$
Wakulla:	T: $\frac{9}{5{,}129} \cdot 10^3 = 1.7$	W: $\frac{3}{2{,}768} \cdot 10^3 = 1.0$	B: $\frac{6}{2{,}361} \cdot 10^3 = 2.5$
Walton:	T: $\frac{46}{12{,}119} \cdot 10^3 = 3.7$	W: $\frac{35}{9{,}688} \cdot 10^3 = 3.6$	B: $\frac{11}{2{,}431} \cdot 10^3 = 4.5$
Washington:	T: $\frac{27}{11{,}828} \cdot 10^3 = 2.2$	W: $\frac{16}{8{,}871} \cdot 10^3 = 1.8$	B: $\frac{11}{2{,}957} \cdot 10^3 = 3.7$

References

Primary Sources

Newspapers:

The Florida Times-Union (Jacksonville, Florida) September – October 1918
Jacksonville Public Library, Florida Collection.

The Nashville Banner (Nashville, Tennessee) September – December 1918
Influenza Encyclopedia, University of Michigan.

The Nashville Tennessean (Nashville, Tennessee) September – December 1918
Influenza Encyclopedia, University of Michigan.

The Lakeland Evening Telegram (Lakeland, Florida) September 1918
Florida Digital Newspaper Library, University of Florida.

Archival Collections:

Centers for Disease Control and Prevention History Collection. David J. Sencer Museum, CDC Headquarters, Atlanta, Georgia:

U.S. Public Health Service Quarantine Station Book 1909-1919.

City of Savannah Research Library & Municipal Archives, Savannah, Georgia:

Brunner, William F. *Annual Report of the Department of Public Health of the City of Savannah, GA., For the Year Ending December 31, 1912.* 1912.

Brunner, William F. *Annual Report of the Department of Public Health of the City of Savannah, GA., For the Year Ending December 31, 1914.* 1914.

Brunner, William F. *Annual Report of the Department of Public Health of the City of Savannah, GA., For the Year Ending December 31, 1915.* 1915.

"Smallpox Report" 1902-1904.

Vital Statistics Register-Birth and Death Registers Vol. 2: Birth and Death Register 1917-1919.

Jacksonville Historical Society Archives, Jacksonville, Florida:

T.O.S. Ye Heroes of Ye Epidemic. Jacksonville: DaCosta Printing and Publishing House, 1888.

"Yellow Fever in Florida, 1877." *Florida Health Notes*: Published by the Florida State Board of Health – Jacksonville 38, no. 10 (October 1946).

"Yellow Fever Remedy." 1888. Anonymous.

Louisiana State Museum Historical Center, New Orleans, Louisiana:

Louisiana State Board of Health Almanac 1918-1928.

Report of the Board of Administrators of the Charity Hospital to the General Assembly of the State of Louisiana, 1918. New Orleans, 1918.

Twenty-Ninth and Thirtieth Annual Reports of the Eye, Ear, Nose and Throat Hospital of New Orleans, LA., January 1, 1918 to December 31, 1919. New Orleans: E. P. Andree Printing Co., 1920.

Stuart A. Rose Manuscript, Archives, and Rare Book Library, Emory University, Atlanta, Georgia:

Henry Armistead Whitaker Papers 1916-1936.

Tennessee State Library and Archives, Nashville, Tennessee:

Lou Cretia Owen Papers 1918-1919.

Orr Family Papers 1905-1966.

The New Orleans Public Library Louisiana Division/City Archives & Special Collections, New Orleans, Louisiana:

Dodd, Walter L. *Report of the Health and Sanitary Survey of the City of New Orleans: Conducted Jointly by the Board of Health for the Parish of Orleans and the City of New Orleans and the Metropolitan Life Insurance Company of New York 1918-1919*. New Orleans: Brandao Printing Co., 1918.

Minutes of the Board of Health, May 12, 1914 – December 14, 1932.

"Month of May, 1918." Commission Government Monthly Report of Health Department of the City of New Orleans, LA. New Orleans: Brandao Printing Co., 1918.

Williams Research Center, The Historic New Orleans Collection, New Orleans, Louisiana:

Biennial Report of the Board of Health for the Parish of Orleans and the City of New Orleans 1918-1919. New Orleans: Brandao Printing Co., 1919.

Vanderbilt University Special Collections, History of Medicine Collections at Eskind Biomedical Library, Nashville, Tennessee.

Condensed Annual Statement of Mortality in the City of Nashville, Tenn., for the Year Ending December 31, 1898.

Fortieth Annual Report of the City Health Officer of Nashville, Tenn., for the Year Ending December 31, 1914. Nashville: Baird-Ward Printing Company, 1917.

Lobling, James W., and William Petersen. *A Preliminary Report Upon the Epidemiology of Pellagra in Nashville, Tennessee*. Nashville: Vanderbilt University Department of Pathology, 1916.

Thirty-Eighth Annual Report of the City Health Officer of Nashville, Tenn., to the Board of Health for the Year Ending December 31, 1912. Nashville: Marshall & Bruce Company, 1913.

Twenty-First Annual Report of the City Health Office of Nashville, Tenn., to the Board of Health, for the Fiscal Year Ending December 31, 1895. Nashville: Brandon Printing Company, 1896.

Published Material:

A Tuberculosis Directory: Containing a List of Institutions, Associations and Other Agencies Dealing with Tuberculosis in the United States and Canada. New York: National Association for the Study and Prevention of Tuberculosis, 1916.

Allen, L. C. "The Negro Health Problem." *American Journal of Public Health* 5, no. 3 (March 1915): 194-203.

Bass, C. C. "Parasitology in Relation to Medical Problems of the South." *Science*, New Series 67, no. 1740 (May 1928): 454 – 456.

Brunner, William F. "The Negro Health Problem in Southern Cities." *American Journal of Public Health* 5, no. 3 (March 1915): 183-190.

Deaderick, William Heiskell, and Loyd Oscar Thompson. *The Endemic Diseases of the Southern States*. Philadelphia and London: W. B. Saunders Company, 1916.

Falligant, Louis A. *Report on the Epidemic of Yellow Fever ("La Maladie Du Diable") in Savannah, Georgia, During the Months of September, October and November, 1876*. Savannah: The Morning News Print, 1888. Revised Ed.

Florida State Board of Health. *Florida Health Notes: Official Bulletin* 13, no. 3 (November 1918).

Folkes, H. M. "The Negro as a Health Problem," *The Journal of the American Medical Association* (October 8, 1910): 1246-1247.

Fort, A. G. "The Negro Health Problem in Rural Communities." *American Journal of Public Health* 5, no. 3 (March 1915): 191-193.

"Proposed Federal Health Program." *Science*, New Series 48, no. 1235 (August 30, 1918): 215-216.

Stiles, Charles Wardell. "Hook-worm Disease in the South—Frequency of Infection by the Parasite (*uncinaria americana*) in Rural Districts." *Public Health Reports* 17, no. 43 (October 24, 1902): 2433-2434.

Terry, C.E. "The Negro: His Relation to Public Health in the South." *The American Journal of Public Health* 3, no. 4 (April 1913): 300-306.

Thirtieth Annual Report of the State Board of Health of Florida 1918. Jacksonville: Office of the Secretary and Main Laboratory, 1919.

Secondary Sources

Bibliography

Arnold, Catharine. *Pandemic 1918: Eyewitness Accounts from the Greatest Medical Holocaust in Modern History*. New York: St. Martin's Press, 2018.

Barry, John. *The Great Influenza: The Story of the Deadliest Pandemic in History*. New York: Penguin Books, 2005.

Beardsley, Edward A. *A History of Neglect: Health Care for Blacks and Mill Workers in the Twentieth-Century South*. Knoxville: University of Tennessee Press, 1987.

Bhutta, Zulfiqar A., and Johannes Sommerfeld, Zohra S. Lassi, Rehana A. Salam and Jai K. Das. "Global Burden, Distribution, and Interventions for Infectious Diseases of Poverty." *Infectious Diseases of Poverty* 3, no. 21 (July 2014): 1-7.

Brewer, William M. "Poor Whites and Negroes in the South Since the Civil War." *The Journal of Negro History* 15, no. 1 (January 1930), 26-37.

Brown, D. Clayton. "Health of Farm Children in the South, 1900-1950." *Agricultural History* 53, no. 1, Southern Agriculture Since the Civil War: A Symposium (January 1979): 170-187.

Chandra, Siddharth, and Eva Kassens-Noor. "The Evolution of Pandemic Influenza: Evidence from India, 1918–19." *BMC Infectious Diseases* 14, no. 510 (2014): 1 – 10.

Collier, Richard. *The Plague of the Spanish Lady: The Influenza Pandemic of 1918-1919*. New York: Atheneum, 1974.

Cowart, John W. *Crackers & Carpetbaggers: Moments in the History of Jacksonville, Florida*. Morrisville: Lulu Press, 2005.

Crooks, James B. *Jacksonville After the Fire, 1901-1919: A New South City*. Jacksonville: University of North Florida Press, 1991.

Crosby, Alfred W. *America's Forgotten Pandemic: The Influenza of 1918*. Cambridge: Cambridge University Press, 1989.

Crosby, Alfred W. *Ecological Imperialism: The Biological Expansion of Europe, 900-1900*. Cambridge: Cambridge University Press, 1986.

Crosby, Alfred W. *Epidemic and Peace, 1918*. Westport: Greenwood Press, 1976.
Crosby, Alfred W. *The Columbian Exchange: Biological and Cultural Consequences of 1492*. Westport: Greenwood Press, 1972.
Davis, T. Frederick. *History of Jacksonville, Florida and Vicinity: 1513 to 1924*. Gainesville: University of Florida Press, 1964. First pub. 1925.
Evans, Richard J. "Epidemics and Revolutions: Cholera in Nineteenth Century Europe." In *Epidemics and Ideas: Essays on the Historical Perceptions of Pestilence*. Cambridge: Cambridge University Press, 1992. Ed. Terence Ranger and Paul Slack.
Fairlie, Margaret C. "The Yellow Fever Epidemic of 1888 in Jacksonville." *The Florida Historical Quarterly* 19, no. 2 (October 1940): 95-108.
Gagnon, Alain, and Matthew S. Miller, Stacey A. Hallman, Robert Bourbeau, D. Ann Herring, David J.D. Earn, Joaquin Madrenas. "Age-Specific Mortality During the 1918 Influenza Pandemic: Unravelling the Mystery of High Young Adult Mortality." PloS ONE 8, no. 8: e69586 (August 2013): 1 – 9.
Gamble, Vanessa Northington. "'There Wasn't a Lot of Comforts in Those Days:' African-Americans, Public Health, and the 1918 Influenza Epidemic." *Public Health Reports* 125, Supp. 3: The 1918-1919 Influenza Pandemic in the United States (April 2010): 114-122.
Garrett, Franklin M. *Atlanta and Environs: A Chronicle of Its People and Events Vol. II*. Athens: University of Georgia Press, 1954. 1982 Reprinting.
Goldfield, David R. "The Business of Health Planning: Disease Prevention in the Old South." *The Journal of Southern History* 42, no. 4 (November 1976), 557-570.
Grantz, Kyra H., Madhura S. Rane, Henrik Salje, Gregory E. Glass, Stephen E. Schachterle, and Derek A. T. Cummings. "Disparities in Influenza Mortality and Transmission Related to Sociodemographic Factors Within Chicago in the Pandemic of 1918." *PNAS* 113, no. 48 (November 2016): 13839 – 13844.
Hattery, Angela, and Early Smith. "Social Stratification in the New/Old South: The Influences of Racial Segregation on Social Class in the Deep South." *Journal of Poverty* 11, no. 1 (2007): 55 – 81.
Hays, J. N. *The Burdens of Disease: Epidemics and Human Response in Western History*. New Brunswick: Rutgers University Press, 1998.
Hoehling, A.A. *The Great Epidemic: When the Spanish Influenza Struck*. Boston: Little, Brown and Company, 1961.
Humphreys, Margaret. "How Four Once Common Diseases Were Eliminated from the American South." *Health Affairs* 28, no. 6 (November/December 2009): 1734-1744.
Humphreys, Margaret. "Malaria in America," in *The Global Challenge of Malaria: Past Lessons and Future Prospects*. New Jersey: World Scientific, 2014. Ed. by Frank M. Snowden and Richard Bucala.
Humphreys, Margaret. *Malaria: Poverty, Race, and Public Health in the United States*. Baltimore: Johns Hopkins University Press, 2001.
Humphreys, Margaret. "The Influenza of 1918: Evolutionary Perspectives in a Historical Context." *Evolution, Medicine, and Public Health* 2018, no 1 (January 2018): 219–229.
Influenza Encyclopedia – The American Influenza Epidemic of 1918–1919: A Digital Encyclopedia, University of Michigan Center for the History of Medicine and Michigan Publishing, University of Michigan Library. https://www.influenzaarchive.org/index.html

Jester, Barbara, and Timothy M. Uyeki, Daniel B. Jernigan, Terrence M. Tumpey. “Historical and Clinical Aspects of the 1918 H1N1 Pandemic in the United States.” *Virology* 527 (January 2019): 32-37.

Johnson, N.P., and J. Mueller. “Updating the Accounts: Global Mortality of the 1918-1920 "Spanish" Influenza Pandemic.” *Bulletin of the History of Medicine* 76, no. 1 (Spring 2002): 105 – 115.

Jones, Esyllt Wynne. *Influenza 1918: Disease, Death, and Struggle in Winnipeg*. Toronto: University of Toronto Press, 2007.

Kelman, Ari. *A River and Its City: The Nature of Landscape in New Orleans*. Berkeley: University of California Press, 2003. 2006 edition.

Kendall, John Smith. *History of New Orleans Vol. I*. Chicago: The Lewis Publishing Company, 1922.

Khan, Ali S. *The Next Pandemic: On the Frontlines Against Humankind’s Gravest Dangers*. New York: Public Affairs, 2016.

Killingray, David. “A New 'Imperial Disease': The Influenza Pandemic of 1918-19 and its Impact on the British Empire.” *Caribbean Quarterly* 49, no. 4 (December 2003): 30-49.

Killingray, David, and Howard Phillips. *The Spanish Influenza Pandemic of 1918-1919: New Perspectives*. London & New York: Routledge, 2003.

Knopf, Sigard A. *A History of the National Tuberculosis Association: The Anti-Tuberculosis Movement in the United States*. New York: National Tuberculosis Association, 1922.

Logsdon, Joseph, and Caryn Cossé Bell. “The Americanization of Black New Orleans, 1850-1900.” In *Creole New Orleans: Race and Americanization*. Baton Rouge: Louisiana State University Press, 1992. Ed. Arnold R. Hirsch and Joseph Logsdon.

Luk, Jeffrey, and Peter Gross, William W. Thompson. “Observations on Mortality during the 1918 Influenza Pandemic.” *Clinical Infectious Diseases* 33, no. 8 (October 2001): 1375–1378.

Mamelund, Svenn-Erik, Clare Shelley-Egan and Ole Rogeberg. “The Association Between Socioeconomic Status and Pandemic Influenza: Protocol for a Systematic Review and Meta-Analysis.” *Systematic Reviews* 8, no. 5 (2019): 1 – 6.

Merritt, Webster. *A Century of Medicine in Jacksonville and Duval County*. Gainesville: University of Florida Press, 1949.

McConnel, Deborah L. “Lou Cretia Owen and the Old Hickory Munitions Plant During World War I.” *Tennessee Historical Quarterly* 58, no. 2 (Summer 1999): 128-139.

McKinney, Louise. *New Orleans: A Cultural History*. Oxford: Oxford University Press, 2006.

McNeill, William H. *Plagues and Peoples*. New York: Anchor Books, 1977.

Morens, David M., and Jeffery K. Taubenberger, Anthony S. Fauci. “Predominant role of bacterial pneumonia as a cause of death in pandemic influenza: implications for pandemic influenza preparedness.” *The Journal of Infectious Diseases* 198, no. 7 (October 2008): 962 – 970.

Morens, David M., and Anthony S. Fauci. “The 1918 Influenza Pandemic: Insights for the 21st Century.” *The Journal of Infectious Diseases* 195, no. 7 (April 2007): 1018–1028.

Morens, David M., and Jeffery K. Taubenberger, Hillery A. Harvey, and Matthew J. Memoli. “The 1918 Influenza Pandemic: Lessons for 2009 and the Future.” *Critical Care Medicine* 38 (April 2010): E10-E20.

Nickol, Michaela, E., and Jason Kindrachuk. “A Year of Terror and a Century of Reflection: Perspectives on the Great Influenza Pandemic of 1918–1919.” *BMC Infectious Diseases* 19, no. 117 (2019): 1-10.

Orwell, George. *Nineteen Eighty-Four*. London: Martin Secker & Warburg, 1949.

Parker, William N. “The South in the National Economy, 1865-1970,” *Southern Economic Journal* 46, no. 4 (April 1980): 1019 – 1048.
Phillips, Howard. “The Re-appearing Shadow of 1918: Trends in the Historiography of the 1918-19 Influenza Pandemic.” *Canadian Bulletin of Medical History* 21, no. 1 (2004): 121 – 134.
Plaspohl, Sara S., and Betty T. Dixon, and Nyssa Owen. “The Effect of the 1918 Spanish Influenza Pandemic on Mortality Rates in Savannah, Georgia.” *The Georgia Historical Quarterly* C, no. 3 (January 2016): 332-339
Potter, C. W. “A History of Influenza.” *Journal of Applied Microbiology* 91, no. 4 (October 2001): 572-579.
Pyle, Gerald F. *The Diffusion of Influenza: Patterns and Paradigms*. Totowa: Rowman & Littlefield, 1986.
Reid, Ann H., and Jeffery K. Taubenberger. “The Origin of the 1918 Pandemic Influenza Virus: A Continuing Enigma.” *Journal of General Virology* 84, no. 9 (September 2003): 2285–2292.
Rosenberg, Charles E. *Explaining Epidemics: and Other Studies in the History of Medicine*. Cambridge: Cambridge University Press, 1992.
Ross, Diane D. “Influenza Epidemic of 1918.” *The New Encyclopedia of Southern Culture: Vol. 22: Science and Medicine*. Chapel Hill: University of North Carolina Press, 2012. Ed. J. G. Thomas and C. R. Wilson. 212-214.
Savvidou, Savvoula. “Pellagra: A Non-Eradicated Old Disease.” *Clinics and Practice* 4, no. 637 (2014): 22-23.
Savitt, Todd L., and James Harvey Young. *Disease and Distinctiveness in the American South*. Knoxville: University of Tennessee Press, 1988.
Schulte, Joann. “1918 Influenza Epidemic in Florida.” Florida Department of Health *Vital News* 19, no. 1 (March 2006): 3. Published by the Office of Vital Statistics.
Selwyn D., W. H. Frost, Mary Gover and Edgar Sydenstricker. “Mortality from Influenza and Pneumonia in 50 Large Cities of the United States, 1910-1929.” *Public Health Reports* 45, no. 39 (September 1930): 2277-2328.
Shryock, Richard Harrison. *Medicine and Society in America, 1660-1860*. Ithaca and London: Cornell University Press, 1960.
Smith, John David. *An Old Creed for the New South: Proslavery Ideology and Historiography, 1865-1918*. Carbondale: Southern Illinois University Press, 1985. 2008 ed.
Smith, Gavin J. D., Justin Bahl, Dhanasekaran Vijaykrishna, Jinxia Zhang, Leo L. M. Poon, Honglin Chen, Robert G. Webster, J. S. Malik Peiris, and Yi Guan. “Dating the Emergence of Pandemic Influenza Viruses.” *PNAS* 106, no. 28 (14 July 2009): 11709 – 11712.
Sommerfeld, Johannes. “Science & Society: Plagues and Peoples Revisited.” *EMBO Reports* 4 (2003): 32–34.
Spinney, Laura. *Pale Rider: The Spanish Flu of 1918 and How It Changed the World*. New York: Public Affairs, 2017.
Steege, Andrea L., and Sherry Baron, Shelley Davis, Judith Torres-Kilgore, Marie Haring Sweeney. “Pandemic Influenza and Farmworkers: The Effects of Employment, Social, and Economic Factors.” *American Journal of Public Health* 99, no. S2 (October 2009): S308-S315.
Straight, William M. “Florida and the Spanish Flu.” *Journal of the Florida Medical Association* 68, no. 8 (August 1981): 644 – 654.

Taubenberger, Jeffery K., and David M. Morens. “1918 Influenza: The Mother of All Pandemics.” *Emerging Infectious Diseases* 12, no. 1 (January 2006): 15 – 22.

Taubenberger, Jeffrey K. Johan V. Hultin, and David M. Morens. “Discovery and Characterization of the 1918 Pandemic Influenza Virus in Historical Context.” *Antiviral Therapy* 12, no. 4, Pt. B (2007): 581-591.

Thomison, John B. “Disease in Nashville: A Short History.” *Journal of the Tennessee Medical Association* 76, no. 3 (March 1983): 151-155.

Thomison, John B. “The 1918 Influenza Epidemic in Nashville.” *Journal of the Tennessee Medical Association* 71, no. 4 (April 1978): 261-270.

Tindall, George Brown. *The Emergence of the New South: 1913-1945 Vol. 10*. Baton Rouge: Louisiana State University Press, 1967.

Trask, Benjamin H. *Fearful Ravages: Yellow Fever in New Orleans, 1796-1905*. Lafayette: University of Louisiana at Lafayette Center for Louisiana Studies, 2005.

Troesken, Werner. *Water, Race, and Disease*. Cambridge and London: The MIT Press, 2004.

Webb Jr., James L. A. “The Historical Epidemiology of Global Disease Challenges.” *The Lancet* 385, no. 9965 (January 2015): 322 – 323.

Weiner, Marli F., and Mazie Hough. *Sex, Sickness, and Slavery: Illness in the Antebellum South*. Urbana: University of Illinois Press, 2012.

West, Carroll Van. *Tennessee Encyclopedia of History & Culture*. Nashville: Rutledge Hill Press, The Tennessee Historical Society, 1998.