Pox and Partisanship: The Politics of Health in Puerto Rico, 1898-1917

Linda C. Magaña

Thesis submitted in fulfilment of the requirements
for the degree of Doctor of Philosophy
in History of Science and Medicine

Green Templeton College, University of Oxford
Trinity 2015

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This thesis explores the development of Puerto Rican public health institutions and policy from 1898 to 1917. I ground the research in the major constitutional legislative actions (Foraker Act of 1900, Jones Act of 1917) taken by the United States to highlight both the key political moments in the colonial relationship between the metropole and colony and the accompanying ramifications for the public health institutions on the island. Case studies of epidemic disease outbreaks—smallpox, hookworm disease, and bubonic plague—facilitate an assessment of how political partisanship, international philanthropic groups, and interest group politicking affected the execution of campaigns responding to these diseases. I show that the circulation of personnel, philosophies, materials, and technologies within the American sphere of influence alone resulted in a sanitary imperialism that was a unique and cosmopolitan amalgamation of the latest medical and public health science of the day. I contend that the annexation and administration of Puerto Rico was above all haphazard in the early years of the twentieth century. The narrative that emerges from other historians who argue that highly specific themes or debates were the central issue does not fit the archival record. Such single-factor explanations as race, gender, sexuality, religion, or economic expansion mask the importance of highly particular factors on the ground. This thesis demonstrates that an understanding of the Puerto Rican context requires a more nuanced and even-handed approach than previous literature has provided. Health policy and institution building from 1898 to 1917 is a story of the continuous attempt to disentangle public health from partisan politicking. In large part, public health and disease campaigns were conceptualized as a means of enhancing commercial ties with the international community and improving the economic outlook of the island.

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Long Abstract

At roughly 3,500 square miles, the island of the Commonwealth of Puerto stands as one of the United States' most enduring contradictions—a pseudo-colonial territory challenging the American principles of liberty and self-determination. Swept into the country's sphere of influence following the Spanish-American War of 1898, Puerto Rico remains a symbol of American imperialism, a relic of a formal empire that many political scientists and historians would argue never existed in the conventional sense. In the past century, fluctuations of attention and neglect toward Puerto Rico from the U.S. federal government have played out in all realms, be it political, economic, or social, but perhaps most conspicuously, in public health and medicine.

This thesis explores the development of Puerto Rican public health institutions and policy from 1898 to 1917. I ground the research in the major constitutional legislative actions (Foraker Act of 1900, Jones Act of 1917) taken by the United States to highlight both the key political moments in the colonial relationship between the metropole and colony and the accompanying ramifications for public health institutions on the island. Case studies of epidemic disease outbreaks—smallpox, hookworm disease, and bubonic plague—facilitate an assessment of how political partisanship, international philanthropic groups, and interest group politicking affected the execution of campaigns responding to these diseases. As I show, the overall health and disease environment of the island cannot

be understood apart from the continuously shifting political situation between Washington and San Juan in these first decades of the American intervention in Puerto Rico.

The historiographical frameworks, source base, and approach that I use are essential given the limitations of existing scholarship on U.S. medical interventions in Puerto Rico. While the American impact on public health and medicine in their colonial possessions of Cuba and the Philippines has been told eloquently in recent years by Mariola Espinosa and Warwick Anderson, the third part of that triumvirate of American acquisitions, the small island of Puerto Rico, remained largely absent from the historiography until the last decade and the publication of Nicole Trujillo-Pagán's *Modern Colonization by Medical Intervention: U.S. Medicine in Puerto Rico* in 2013. In this monograph, the author strives to illustrate the contentious nature of political and professional battles in the new colonial environment at the turn-of-the-twentieth century. She investigates the medical profession and the public health campaigns against smallpox and hookworm disease. Rather strikingly, the author envisions colonial politics as an ongoing struggle between labor and capital.

Essentially, Puerto Rican health and politics is reduced to a Marxist duality of 'haves' versus 'have nots.' While admirably shedding light on a major gap in the historiography of American colonialism, Trujillo-Pagán's discussion harkens back to the late 1960s and early 1970s, when a new group of historians and social scientists, including E. Richard Brown, skeptically viewed organizations like the Rockefeller Foundation as inherently self-interested capitalists machines which served American imperialism through their attempts to improve the health and productivity of the developing world's labor force. Her reliance on journal articles, published government reports and ex post facto physicians' memoirs, fails to capture the complexity of this

period and serves as a direct counterpoint for this thesis. Through the analysis of archival materials, I argue that abstract notions of an American "civilizing mission" did not determine the actions taken by the military and civil administrations in power in the first decades of the American intervention in Puerto Rico. Rather, between 1898 and 1917, the administration acted based on the need to respond to public health emergencies.

The American "civilizing mission" articulated by Theodore Roosevelt and others in the early twentieth century and its subsequent manifestations as a racialized typology of different groups may have guided the public health reforms accomplished in the other newly acquired territories of the Philippines and Cuba. However, neither the military governments nor the early civil governments in Puerto Rico operated according to such grandiose principles. The urgent and tangible crises of the island placed heavy demands upon the limited financial and physical resources of the various medical bodies, which acted most effectively outside of the tense political environment of San Juan and Washington. Rich and diverse archival sources from the U.S. National Archives, the Rockefeller Archives, and the Archivo General de Puerto Rico show that in the face of widespread turmoil and fear, especially in the cases of smallpox, hookworm disease, and bubonic plague, public health leaders could not always rely on a Congress which could be either ignorant or neglectful, nor could they turn to an insular legislature bogged down in constant negotiations over appointments and appropriations. The impact of the "splendid little war" on the health and disease environment of Puerto Rico would continue to be felt in the decades that followed as various interest groups worked to solidify their own path to a sustainable future.

The guiding purpose of this work is to understand the health politics of U.S. imperialism in Puerto Rico during the early decades of the twentieth century. How does the history of public health policy and institutional development in Washington and San

Juan interact and diverge? What does the history of response to epidemic disease on the island reveal about the role of scientific success and American foreign standing? In considering the cases of smallpox, hookworm disease, and bubonic plague, it becomes apparent that the degree of political strife and partisanship in the capitals of the United States and Puerto Rico directly affected health and disease outcomes. During the military government instituted in 1898, Congress essentially left the daily affairs of Puerto Rico to be determined by the military governors, as the relevant Senate and House committees were more concerned with determining the economic and political fate of the newly acquired island territories. From 1898 until 1900, American medical men in Puerto Rico, in cooperation with local medical professionals, developed and executed an island-wide smallpox vaccination campaign, provided relief efforts in the wake of the San Ciriaco hurricane, and established a Superior Board of Health and Board of Charities with little, if any, interference from Washington bureaucrats. While the smallpox vaccination campaign and the Superior Board of Health operated without the interference of party politics, the new civil government that took control of the island in 1900 quickly encountered the obstacle of politicking when it came to work on health and sanitation.

Following the passage of the Foraker Act of 1900, no substantive Congressional discussion on improving the public's health in Puerto Rico took place for nearly a decade. While leaders and officials within the Bureau of Insular Affairs and the Army Medical Corps called for American legislative intervention, Congressional leaders rejected efforts to control sanitation policy, preferring to give the island's government some level of autonomy in these matters. Still, members of the Puerto Rican executive branch and military medical men with first-hand experience, such as Dr. Bailey K. Ashford, recognized the need to systematically remedy the health system (or lack thereof) if for no other reason than American economic self-interest. Ashford and his collaborators

purposefully established their system of anaemia clinics outside of the regular channels of insular bureaucracy, a bureaucracy that likewise produced no major public health legislation between 1900 and 1911.

I show that hookworm disease, in particular, provides critical insights into the manoeuvrings of health politics, as it was a condition afflicting the vast majority of the laboring population and severely inhibited economic productivity. When governmental responses to epidemics remained confined to the insular level, the implementation of disease campaigns became major sources of political conflict and subject to partisan pressures. In the case of hookworm disease, this partisanship transcended the physical boundaries of the island and ensnared figures on the mainland as well. Most importantly for this thesis, largely unconsidered archival materials suggest the need for a more nuanced picture of the central character of this work, Ashford, than in previously published literature. For instance, Trujillo-Pagán spends a great deal of her narrative questioning the legacy of Ashford. While contextualizing his work in the political and social climate of the day, Trujillo-Pagán selectively uses Ashford's own words against him, especially his 1934 autobiography, *A Soldier in Science*, which undoubtedly presents a nostalgic gloss on the life's work of a dying man. She casts doubt on the authenticity of his scientific achievements, reducing him to a 'useful ally' who capitalized on his father-in-law's influence. However, hundreds of personal letters of Ashford offer a different narrative. Letters exchanged with leaders of the Rockefeller Sanitary Commission and the Secretary of War, among others, articulate a thoughtful and coherent philosophy for combatting hookworm disease and improving health and sanitary conditions on the island.

This thesis demonstrates that public health leaders consistently shaped their interventions to maximize improvements for the public's health, and to not only minimize

economic losses, but to increase future growth. In the Puerto Rican context, the first decade of American occupation had done little in the way of generally improving the socioeconomic outlook of the island's residents. At the same time, the island's major industry—coffee—experienced a dramatic decrease in profits due to the change from Spanish to American currency, a loss of foreign markets due to tariff agreements, a decimation of the coffee crop following the San Ciriaco hurricane of 1899, and sustained infrastructural impediments that raised the cost of transportation of products to the coast. The primary solution offered to such problems was an increase in production, but hookworm infection lowered average productivity by 50% as compared to healthy workers. Ashford used this entering wedge to gain credibility and investment in the anti-hookworm campaign. Most importantly, the focus on labour very clearly distinguished United States sanitary imperialism from that of her European counterparts.

The anti-hookworm campaign survived the tumultuous first decade of Puerto Rico's civil government under the United States, in large part because of Ashford's insistence upon keeping the uncinariasis work independent from insular politics for all of this time. Perhaps most importantly, while Ashford's work undoubtedly changed the course of twentieth century public health in Puerto Rico and even in the American South, Ashford was more importantly able to think beyond the commonly held medical paradigms of his time. He maintained communication with an active network of the world's leading research scientists and public health experts throughout his career.

In this same vein, the Puerto Rican experience with bubonic plague in 1912 illustrates the importance of the circulation of medical knowledge in an age where not just material goods travelled at great speeds aboard steamships, but also ideas. Public health researchers and administrators catalogued their scientific achievements not for the sake of pure knowledge, but in order to gain the support of a broader coalition, raising the

economic imperative inherent in modern sanitary reform. Above all, the officials directing the anti-plague work in Puerto Rico intuitively and almost instantaneously understood the lessons learned from other port cities' experiences with plague: limit fear, protect commerce, and maintain communication (and cooperation) with the public. I draw on secondary literature as well as published primary sources to better situate the San Juan outbreak in the larger course of the third pandemic, in particular, using the American experience in San Francisco and Hawaii to understand contemporary advances in public health science. In the local landscape of an abundance of competing interest groups, Puerto Rican health officials recognized that the goals of the Sanitation Service could only be achieved if carried out with "absolute impartiality." Public health must be disentangled from political clashes.

These dynamics similarly play out in the investigation into how one of the world's first and largest biomedical philanthropies—the Rockefeller Foundation—converged around the eradication of hookworm disease as its first major foray into direct public health intervention. The burgeoning relationship between Rockefeller leaders and Puerto Rico's hookworm champion, Dr. Ashford, set the organization on a path that would lead to interventions in dozens of countries around the world. Again, using previously unconsidered archival materials from the Rockefeller Archive Center, I show that the letters exchanged between Ashford and the head of the Rockefeller Sanitary Commission, Wickliffe Rose, continuously evoke a sense of extraction—either intentional or unintentional—on the part of Rockefeller. Rose seemed quite able to solicit guidance and information without ever fulfilling the repeated requests for financial support for the island's work against hookworm.

For Puerto Rico, the development of a hookworm eradication campaign that received international praise, treated more than 300,000 of the island's population, and

directly shaped the global fight against hookworm disease by the Rockefeller medicine men, was not enough. Smallpox and bubonic plague eradication efforts triumphed because their primary activities commenced outside of standard bureaucratic channels afflicted by political games. The Army Medical Corps and the U.S. Public Health and Marine Hospital Public Health Service worked effectively with local health professionals to efficiently and rapidly quell these epidemic outbreaks. In contrast, anaemia work and public health on the island in general suffered due to bitter partisanship, limited funding, and a convoluted bureaucracy. Obviously, occupation by a foreign power and the domination of such an entity is never completely benign. Still, I have found that an understanding of the Puerto Rican context requires a more nuanced and even-handed approach than previous literature has provided. Policymaking and execution is always more than what comes across in the published briefings and legislative debates.

Periods of rapid improvement in health coincided with major American economic investment that expanded infrastructure, access to education, and generally increased the socioeconomic status of the population. However, as American philanthropic and economic interests waned, the government structures responsible for ensuring public health similarly faced stagnation. In the face of widespread turmoil, public health leaders could not always turn to Congress or the insular legislature, and most certainly, not to the unfulfilled promises of the Rockefeller Foundation. This thesis establishes the apparently paradoxical relationship between the application of innovative public health practices in particular cases and the failure to achieve sustained and large scale improvements in health outcomes in Puerto Rico.

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My intellectual journey at Oxford began a few moons ago with the intention of earning a Master's of Science in the History of Science, Medicine, and Technology. In twelve short months I would complete the degree, apply for, and enter medical school back in the United States. That course of action was not to be, and I thank my college advisor at Green Templeton, Don Chambers, for being the catalyst that pushed me to contemplate the realities of pursuing doctoral research alongside the endgame of studying medicine.

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I thank my friends who helped me survive and thrive in our very own Hogwarts, especially Dorothy Makin, Kiran Garimella, and Morwenna Bennallick. History of medicine would not have been the same without my lovely officemate, Lynsey Shaw, and my weekly lunches with Sarah Swenson.

Finally, I thank my family who have endured my bi-continental life for far too long. Between Skype homework sessions and the Royal Mail we made it through this test of endurance and faith and come out stronger in the end.

This thesis is dedicated to the memory of my grandfather, Baltazar Magaña, who didn't get to see the product of this never-ending schooling but was proud of me nonetheless. *Te extraño, abuelo.*

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List of Abbreviations and Conventions

AFL	American Federation of Labor
AGPR	Archivo General de Puerto Rico
AMPR	Asociación Médica de Puerto Rico
ADS	Anemia Dispensary Service
BCA	Biblioteca Conrado Asenjo
BIA	Bureau of Insular Affairs
BKA	Bailey K. Ashford Papers
BOH	Board of Health
CHC	Citizens' Health Committee
Corr. Gen.	Correspondencia General
FA	Finding Aid
FY	Fiscal Year
FWM	Federation of Workingmen of Porto Rico
GU	Georgetown University
IHC/D	International Health Commission/Division
NARACP	National Archives at College Park
ODG	Oficina del gobernador (Fortaleza)
POL	Liga de Propiertarios de Fincas Urbanas de San Juan (Property Owners' League of San Juan)
RAC	Rockefeller Archive Center
RCM	Recinto de Ciencias Médicas
RG	Record Group
RSC	Rockefeller Sanitary Commission for the Eradication of Hookworm Disease
SBOH	Superior Board of Health
SC	Special Collections
UPR	Universidad de Puerto Rico
USPHS	United States Public Health Service

The federal government promoted the Anglicized spelling of the island's name, "Porto Rico," until it reverted to the original spelling, "Puerto Rico," in 1932. This thesis employs the original, Spanish spelling in all cases except in titles of offices, publications, and quotations from the period.

A note on terminology: In 1902, the U.S. Marine-Hospital Service had its duties expanded and was renamed the U.S. Public Health and Marine-Hospital Service. The name was once again changed in August 1912 to the U.S. Public Health Service. I will refer to the U.S. Public Health Service or USPHS throughout the thesis.

All translations from the original Spanish are my own.

Introduction

In early 2013, more than one hundred years after American troops landed on Puerto Rican shores, the American media organization, NPR produced a special series on the island entitled, "Puerto Rico: A Disenchanted Island".[1] The opening line for the series attempted to evoke a sense of crisis and to draw public attention to an increasingly dire situation: "Puerto Rico's population is declining. Faced with a deteriorating economy, increased poverty and a swelling crime rate, many Puerto Ricans are fleeing the island for the U.S. mainland." The four-part series highlighted dramatic statistics to put the island's situation in perspective, including Puerto Rico's per capita murder rate of six times that for the U.S. as a whole. One segment compared the island's fiscal woes to Greece's recently failed economy, with the nation's highest unemployment rate and a mountain of debt downgraded to "junk" status by early 2014.

Health disparities studies over the last decade have shown the Puerto Rican population's major health indicators and self-perceptions to be significantly worse in comparison to U.S. mainlanders. The Healthy People study coordinated by the U.S. Department of Health and Human Services identifies the Puerto Rican population as having significant health risk factors like hypertension as well as high rates of diabetes, colorectal cancer, and HIV-related deaths.[2] Given such statistics and an apparently deteriorating contemporary situation, historians must examine the trajectory of health policy in Puerto Rico over the last century. In order to identify the roots of health disparities between the island and the mainland, the development of public health policy and infrastructure following the American invasion in 1898 needs to be assessed.

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[1] Greg Allen, Jasmine Garsd, and David Greene, 'Puerto Rico: A Disenchanted Island', *Morning Edition* (updated February 5-8, 2013) <http://www.npr.org/series/171208056/puerto-rico-a-disenchanted-island>.

[2] See, for example, 'A Demographic and Health Snapshot of the U.S. Hispanic/Latino Population', *2002 National Hispanic Health Leadership Summit* <http://www.cdc.gov/nchs/data/hpdata2010/chcsummit.pdf>.

Political, economic, and social restructuring on the island has undoubtedly had major implications for morbidities and mortality. A close examination of the earliest decades of the American involvement in Puerto Rico's public health system can shed light on this multifaceted situation.

At roughly 3,500 square miles, the island of the Commonwealth of Puerto stands as one of the United States' most enduring contradictions—a pseudo-colonial territory challenging the American principles of liberty and self-determination. Swept into the country's sphere of influence following the Spanish-American War of 1898, Puerto Rico remains a symbol of American imperialism, a relic of a formal empire that many political scientists and historians argue never existed in the conventional sense.[3] This small "unincorporated territory" has been at the centre of high-profile Supreme Court cases—such as the Insular Cases—and just as readily set aside for the next session of Congress to deal with. In the past century, such fluctuations of attention and neglect from the U.S. federal government have played out in all realms, be it political, economic, or social, but perhaps most conspicuously, in public health and medicine.

Within this frame, this thesis explores the development of Puerto Rican public health institutions and policy from 1898 to 1917. The research is bounded by the major constitutional legislative actions taken by the United States—specifically the Foraker Act of 1900 and Jones-Shafroth Act of 1917—to highlight both the key political moments in the early colonial relationship between the metropole and colony and the accompanying ramifications for the public health institutions on the island.[4] Case studies of epidemic

[3] See, for example: Jeremi Suri, 'The Limits of American Empire: Democracy and Militarism in the Twentieth and Twenty-First Centuries', in Alfred W. Mccoy and Francisco A. Scarano (eds.), *The Colonial Crucible: Empire in the Making of the Modern American State* (Madison, Wis.: University of Wisconsin Press, 2009).

[4] This chronological focus (1898-1917) aligns with the island's period of transition from Spanish to American rule. Following 1917 and the passage of the Jones-Shafroth Act, Puerto Ricans gained U.S. citizenship and the U.S entered World War I, encountering a different array of political, economic, and social (as well as global) challenges.

disease outbreaks—smallpox, hookworm disease, and bubonic plague—facilitate an assessment of how political partisanship, international philanthropic groups, and interest group politicking affected the execution of campaigns responding to these diseases.

In less than two decades, the responsibility for the health of the Puerto Rican population transferred between at least five different institutions: from the Spanish imperial system of "Beneficencia" to the Superior Board of Health in 1899 under Brigadier General George W. Davis' military government to the Department of the Interior under the Foraker Act of 1900 to the Department of Health, Charities, and Correction in 1904, and finally to the Sanitation Service under Act No. 81 of the 1912 Puerto Rican legislature. These rapid institutional transformations were indisputably incited and shaped by the island's ambiguous colonial status. The overall health and disease environment of the island cannot be understood apart from the continuously shifting political situation between Washington and San Juan in these first decades of the American intervention in Puerto Rico. How did American civil servants and military men determine health policy for a largely non-English speaking population an ocean away? How did partisanship impact the development of a sustainable public health infrastructure? How did American and Puerto Rican elites interact in these defining years?

The American "civilizing mission" articulated by Theodore Roosevelt and others in the early twentieth century and its subsequent manifestations as a racialized typology of different groups may have guided the public health reforms accomplished in the newly acquired territories of the Philippines and Cuba. However, neither the military governments nor the early civil governments in Puerto Rico operated according to such grandiose principles. The urgent and tangible crises of the island placed heavy demands upon the limited financial and physical resources of the various medical bodies, which

acted most effectively outside of the tense political environment of San Juan and Washington. In light of an uncontrolled disease environment, especially in the cases of smallpox, hookworm disease, and bubonic plague, public health leaders could not turn to a Congress, which could be either ignorant or neglectful, nor could they turn to an insular legislature bogged down in constant negotiations over appointments and appropriations. The impact of the "splendid little war" on the health and disease environment of Puerto Rico would continue to be felt in the decades that followed as various interest groups worked to solidify their own path to a sustainable future.

Method and Sources

The historiographical frameworks, source base, and approach that I use are essential given the limitations of existing scholarship on U.S. medical interventions in Puerto Rico. Much of current literature tends to focus on other arenas of American sanitary imperialism, but even the relatively slim offerings covering Puerto Rican public health tend to paint the American intervention following the Spanish-American War as a monolithic force of exploitation and extraction, pitting American health authorities against local health officials.[5] Rich and diverse archival sources from the U.S. National Archives, the Rockefeller Archives, and the Archivo General de Puerto Rico help to articulate a narrative that cannot be reduced to an exploitative struggle between "colonizer" and "colonized." Further sources from the U.S. Bureau of Insular Affairs and the Department of the Interior, the minutes of hearings from the pertinent committees in the U.S. Senate and House of Representatives, as well as the Annual Reports issued by the Governor of Puerto Rico provide insight into the conceptualization and framework

[5] See, for example: Nicole Trujillo-Pagán, 'The Politics of Professionalization: Puerto Rican Physicians between Spanish and U.S. Colonialism', in Juanita De Barros, Steven Paul Palmer, and David Wright (eds.), *Health and Medicine in the Circum-Caribbean, 1800-1968* (Routledge Studies in the Social History of Medicine; London: Routledge, 2009), pp. 156-58.

being negotiated among American and Puerto Rican stakeholders as they outlined a path of governance for the island.

Many of the island's published reports have been incorporated into various secondary sources, but the materials from the U.S. Bureau of Insular Affairs and Department of the Interior remain markedly underused. Likewise, the Ashford Collection at the University of Puerto Rico's Medical Campus and Ashford's papers at the Georgetown Special Collections Library provide a treasure trove of previously unexamined source material that enable a nuanced analysis of the political economy of health in Puerto Rico at the start of the twentieth century.[6] This body of sources facilitates an analysis of state activities, the power plays of elites, the negotiations of key interest groups, and the building up of medical infrastructure and public health institutions.

It does not provide the comprehensive perspective of the lived experiences of the men and women of Puerto Rico, except as they arose in written communication with leaders and bureaucrats and in published newspaper accounts. The population of turn-of-the-century Puerto Rico was largely illiterate, and even beyond this obstacle to traditional written source analysis, the island's own government archive as it currently exists was not organized until 1919. "[M]oths, worms, dampness, etc. destroyed the labor of centuries…" and the many daily newspapers that emerged in the late nineteenth century were not regularly collected and preserved until the Archivo General was formed.[7] Perhaps future research will provide us with a more thorough idea of the Puerto Rican voice in this period by reading against the grain of available sources.[8] Nevertheless, using

[6] Dr. Bailey K. Ashford (1873-1934) was an American physician-scientist who first came to Puerto Rico in 1899 following the Spanish-American War and is credited with identifying the source of pernicious anaemia among the island's population. He serves a vital character throughout this thesis.

[7] Eugenio Fernández Y García, Francis W. Hoadley, and Eugenio Astol, *El Libro De Puerto Rico (the Book of Porto Rico)* (San Juan, P.R.: El Libro Azul Pub. Co., 1923), p. 117.

[8] This imperative is already being taken up by a handful of historians. For a creative and detailed use of historic judicial records to recreate the voices of women during the period, see: Eileen Findlay, *Imposing Decency: The Politics of Sexuality and Race in Puerto Rico, 1870-1920* (Durham, NC:

the narratives of elites, we can address the need to situate the American imperial experience in Puerto Rican public health alongside developing a more systematic understanding of interest groups and stakeholders in early twentieth century Puerto Rican politics.

Historiography

While the American impact on public health and medicine in their new colonial possessions of Cuba and the Philippines has been told eloquently in recent years by Mariola Espinosa and Warwick Anderson, the third part of that triumvirate of American acquisitions, the small island of Puerto Rico, remained largely absent from the historiography until the last decade and the publication of Nicole Trujillo-Pagán's *Modern Colonization by Medical Intervention: U.S. Medicine in Puerto Rico* in 2013. In this monograph, the author strives to illustrate the contentious nature of political and professional battles in the new colonial environment at the turn-of-the-twentieth century. She investigates the medical profession and the public health campaigns against smallpox and hookworm disease. Rather strikingly, the author envisions colonial politics as an ongoing battle between labour and capital. Essentially, Puerto Rican health and politics is reduced to a crude Marxist duality of 'haves' versus 'have nots.'

While admirably shedding light on a major gap in the historiography of American colonialism, Trujillo-Pagán's discussion harkens back to the late 1960s and early 1970s, when a new group of historians and social scientists, including E. Richard Brown, sceptically viewed organizations like the Rockefeller Foundation as inherently self-interested capitalists machines which served American imperialism through their attempts to improve the health and productivity of the developing world's labour force. Her

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Duke University Press, 1999). In attempting to hone in on the story of Puerto Rican peasants, José Amador also reads institutional sources against the grain. See: José Amador, *Medicine and Nation Building in the Americas, 1890-1940* (Nashville: Vanderbilt University Press, 2015).

reliance on journal articles, published government reports and ex post facto physicians' memoirs, fails to capture the complexity of this period and serves as a direct counterpoint for this thesis. In contrast, José Amador's 2015 monograph, *Medicine and Nation Building in the Americas, 1890-1940,* builds upon a larger shift in the field in the last decade in which a dynamic range of intellectual currents associated with health and American empire are examined.[9] He explores the transnational networks of race theory, national identity, and public health developments in Cuba, Puerto Rico, Brazil, and the United States. Through the careful analysis of unpublished archival materials, I focus in on the Puerto Rican story more specifically, and I argue that abstract notions of an American "civilizing mission" did not determine the actions taken by the military and civil administrations in power in the first decades of the American intervention in Puerto Rico. Rather, between 1898 and 1917, the administration acted based on the need to respond to public health emergencies.[10]

To take a broader view, historian Jose Rigau-Pérez surmises, the twentieth century has seen the best health outcomes for Puerto Ricans to date. His analysis concludes that the general increase in the socioeconomic level of the public, the prioritization of infrastructural improvements, and the success of island-wide vaccination campaigns were the most significant promoters of health. Rigau-Pérez argues that the situation in Puerto Rico: "demuestra la veracidad del aserto de que los mejores metodos para defender la

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[9] See, for example: Amador, *Medicine and Nation Building in the Americas, 1890-1940*.; Benigno Trigo, 'Anemia and Vampires: Figures to Govern the Colony, Puerto Rico, 1880 to 1904', *Comparative Studies in Society and History,* 41/1 (1999).; Laura Briggs, *Reproducing Empire: Race, Sex, Science, and U.S. Imperialism in Puerto Rico* (American Crossroads; Berkeley: University of California Press, 2002).; Findlay, *Imposing Decency*.; Solsiree Del Moral, *Negotiating Empire: The Cultural Politics of Schools in Puerto Rico, 1898-1952* (Madison: The University of Wisconsin Press, 2013).

[10] In contrast, in the Philippines, the larger "civilizing mission" was inherent in the rhetoric and actions of American leaders from the earliest days of the occupation of Manila in 1899 as army surgeons witnessed the devastating effect of "tropical" diseases on white soldiers. For further discussion of this topic, see Chapter 2, Warwick Anderson, *Colonial Pathologies: American Tropical Medicine, Race and Hygiene in the Philippines* (Durham: Duke University Press, 2006). For a longitudinal perspective, see: Michael Adas, *Dominance by Design: Technological Imperatives and America's Civilizing Mission* (Cambridge, Mass.: Belknap Press of Harvard University Press, 2006).

salud publica son la educación y la eliminación de la miseria, el hacinamiento y la marginación."[11] For the early colonial period however, general, island-wide improvements in housing could not be financed by an insular government receiving limited federal funding and experiencing massive economic instability. As we will see, smallpox vaccination by the military government quelled epidemic outbreaks of the disease for some time, and the decades long fight against hookworm aimed to increase the health and productivity of the average, impoverished agricultural worker, leading to improved socioeconomic outcomes. In any case, with the massive infusion of American capital in manufacturing during World War II came economic growth from the 1940s through 1960s, an increased standard of living accompanied an equally demonstrable drop in the mortality rate and an increase in life expectancy.

Rigau-Perez articulates an integrally optimistic perspective on the population's health in the twentieth century that features more broadly in the secondary literature of practitioners, such as Dr. Guillermo Arbona and Dr. Bailey K. Ashford, as they reflect back on their life's work. However, linear historical overviews of the century in some ways obscures the near constant confrontation waged by the island's public health and medical professionals against infectious disease; nor do they reflect the great turbulence that characterized the first decades of the island's civil government. Following the military government that held power for less than two years in the wake of the Spanish-American War, an onslaught of epidemic infectious disease shaped the inherently chaotic and tense processes of establishing both political institutions and long-term public health and medical institutions.

[11]J. G. Rigau-Perez, 'La Salud En Puerto Rico En El Siglo XX [Health in Puerto Rico in the 20th Century]', *P R Health Sci J,* 19/4 (Dec 2000), p. 365. "The Puerto Rican example demonstrates the veracity of the assertion that the best methods to defend the public's health is with education and the elimination of misery, overcrowding, and marginalization."

More generally, the 2009 edited volume, *The Colonial Crucible: Empire in the Making of the Modern American State*, compiles the work of major scholars of the past two decades to analyse American empire in its diverse forms, from policing and citizenship to commodification and education. Many of the essays centre on the notion of American exceptionalism, with many contributors arguing that American imperialism encountered a different set of circumstance than had earlier European colonialists.[12] In both his essay in *Colonial Crucible* and much more extensively in his monograph, *Colonial Pathologies*, Warwick Anderson presents an American imperial ideology focused on maximizing the civic potential of both the "white bourgeois male" and the Filipino in a changing environment.[13] This dual commitment resulted in a "…distinctive late-colonial mode of population management and identity formation" that quite significantly diverged from the British imperial program in India.[14] The American imperial project was not simply economic extraction, but as Anderson argues, development work. In contrast, I argue that American sanitary imperialism in Puerto Rico was distinctive not in its focus on civic education or "development", but in its highly specified focus on labour productivity. The economic viability of the island dominated federal debates on the institutions and regulations to be put in place even more so than honing an educated voter. More generally, all colonial powers desired economic viability from their territories and formulated health policies to foster a healthy population. Mass vaccination campaigns proved to be quite common throughout the latter nineteenth and

[12] Perhaps more than any other imperial power, Britain and her colonies served as the focus of American study and point of contrast throughout the late nineteenth and early twentieth century for the architects of American imperial thought. They did not reference or model themselves based on the French or Germans. See: Elihu Root and Robert Bacon, *The Military and Colonial Policy of the United States, Addresses and Reports, Collected and Ed. By R. Bacon and J.B. Scott* (Cambr. Mass., 1916). Also: Paul A. Kramer, 'Empires, Exceptions, and Anglo-Saxons: Race and Rule between the British and United States Empires, 1880-1910', *The Journal of American History,* 88/4 (2002). For a discussion of the European models of imperialism, see: Michael Shiyung Liu, *Prescribing Colonization: The Role of Medical Practices and Policies in Japan-Ruled Taiwan, 1895-1945* (Ann Arbor, Mich.: Association for Asian Studies, 2009).

[13] Anderson, *Colonial Pathologies*.

[14] Ibid., p. 4.

early twentieth centuries as the need to improve individual bodies came to the fore. However, the U.S. is unique in its explicitly articulated pursuit of robust labouring populations in its island possessions (and at home). As will be demonstrated, military, civilian, and Congressional leaders understood the vital need to incorporate healthful populations into the American economic system to varying degrees. While powers such as the British and Japanese drafted legislation creating medical services and sanitary reforms, the Americans are singular in their implementation and enforcement of policies to improve the productivity and overall well-being of the labouring masses.

Initially, Americans worked from existing Spanish colonial precedents, while encountering native elites who possessed their own nationalist agendas for change in Cuba, the Philippines, and Puerto Rico. Washington offered little in the way of specific policy directives, relying on broad and general instructions for the most pressing issues. This quickly forced the development of innovative administrative capacities that were direct responses to the challenges of colonial rule (many of which were ultimately transplanted and adapted in the domestic setting). The American imperial state had no centralized colonial ministry and was not made up of a sprawling colonial bureaucracy. Scholars like Amy Kaplan[15] offer a critical understanding of American imperialism as "contingent", messy, and ad hoc.[16] Such comments and assessment leave the impression that European powers like the British and Dutch crafted a more streamlined, monolithic policy engine through an "empowered bureaucracy" and "lifetime colonial careers," a

[15] Kaplan's thesis seems to be a response to the work of revisionist scholars such as Walter LaFeber. In his 1968 classic, *The New Empire: An Interpretation of American Expansion 1860-1898*, he argued: "First, the United States did not set out on an expansionist path in the late 1890s in a sudden, spur-of-the-moment fashion. The overseas empire that Americans controlled in 1900 was not a break in their history, but a natural culmination. Second, Americans neither acquired this empire during a temporary absence of mind nor had the empire forced upon them." For more, see: Walter Lafeber, *The New Empire: An Interpretation of American Expansion, 1860-1898* (35th anniversary edition edn., Cornell Paperbacks; Ithaca, N.Y.: Cornell University Press, 1998), p. vii.

[16] Kaplan's work is discussed in: Alfred W. Mccoy, Francisco A. Scarano, and Courtney Johnson, 'On the Tropic of Cancer: Transitions and Transformations in the U.S. Imperial State', in Alfred W. Mccoy and Francisco A. Scarano (eds.), *The Colonial Crucible*, pp. 10, 24.

sentiment that does not adhere to the contingencies with which the Indian Civil Service dealt, for example.[17]

Within this framework of American imperialism, public health remained central. As the authors of *Colonial Crucible* argue, the defeat of tropical disease could be considered the greatest triumph of the American colonial project, providing crucial legitimation—in the eyes of both Americans at home and the newly colonized peoples—for the starkly anti-democratic processes of colonial conquest. From the defeat of cholera, malaria, and yellow fever, emerged new national heroes like William C. Gorgas, Walter Reed, Victor Heiser, and Bailey K. Ashford. The highly publicized successes of American tropical medicine offer perhaps the most substantive distinction between U.S. and British sanitary imperialism.

While the mortality from malaria, cholera, and smallpox fell in India during the first half of the twentieth century, the British could not compete with the publicity and drama of successfully opening the Panama Canal, made possible in large part through the control of yellow fever in the Canal Zone. Such themes are further substantiated in a paper by Francisco Scarano, in which he develops Kaplan's thesis, arguing that contingent political partisanship, struggles over meaning of nationhood and citizenship, imperial ideologies entangled with ideas of Anglo-Saxon superiority, and class confrontation between labouring rural masses and the landed powers shaped American hegemony in Puerto Rico.[18] He argues for the existence of a hegemonic process led by an emerging alliance of Puerto Rican professional elites and landowners in the late nineteenth century that the United States engaged with through the chance confluence of "policy-based factors (economic, military, political), social and ideological alignments,

[17] For a nuanced and comprehensive analysis of the vulnerabilities of the British Empire after 1900, see: John Darwin, *The Empire Project: The Rise and Fall of the British World-System, 1830-1970* (Cambridge, UK: Cambridge University Press, 2009).

[18] Francisco A. Scarano, 'Doctors and Peasants at the Intersection of Empires: The Hookworm Campaigns in Puerto Rico', *Caribbean Studies Workshop* (University of Chicago, 2012), p. 1.

and scientific measures."[19]

These themes similarly pervade works as divergent as James L. Dietz's 1986 *Economic History of Puerto Rico* and Mariola Espinosa's 2010 *Contagion and Conquest: the United States and the Fight Against Disease in the Caribbean*. Infrastructural development and disease control, explored by Dietz and Espinosa respectively, following the U.S. intervention in Puerto Rico, was not solely motivated by an interest in improving the welfare of Puerto Ricans.[20] Along the same lines as the work of Marcos Cueto, Dietz and Espinosa show that other motivations for these interventions included business interests and the protection of commerce, the maintenance and expansion of the local labour force, the protection of troops and colonial administrators, and the justification of colonial rule among metropolitan and colonial populations.

The preoccupation with the incorporation of Puerto Rico into the American economic system, whether during Congressional hearings or through presidential commissions, translated into the development of an American sanitary imperialism that was uniquely focused on the labour capacity of the population. Whereas American officials during the military and civil governments focused on improving the health of the population in order to improve the economic viability of the territory, the British in Jamaica, for example, sought to limit cost to the point of providing inferior medical service and shifting blame for disease to the poor themselves.[21] In the "model colony" of Ceylon, local governments developed public health policy primarily in response to epidemic diseases that incited state intervention.[22] Anclyostomiasis increased mortality

[19]Ibid., p. 8.

[20] See James L. Dietz, *Economic History of Puerto Rico: Institutional Change and Capitalist Development* (Princeton: Princeton University Press, 1986). and Mariola Espinosa, *Contagion and Conquest: The United States and the Fight against Disease in the Caribbean* (Wilmington, N.C.: The Publishing Laboratory, 2010).

[21] See, for example, Chapter 3 of Margaret Jones, *Public Health in Jamaica, 1850-1940: Neglect, Philanthropy and Development* (Kingston, Jamaica: University of the West Indies Press, 2013).

[22] See, for example, Margaret Jones, *Health Policy in Britain's Model Colony: Ceylon, 1900-1948* (Hyderabad: Orient Longman, 2004).

rates and decreased economic output, but only with American attention—in the form of the Rockefeller Foundation—would the disease and labour productivity be substantively addressed.[23]

The difference in the economic and political motivations underpinning interventions depended on the specific nature of the disease in question and its mode of transmission. As will be further explored in the discussion on the campaign against uncinariasis[24] in Puerto Rico, the manner by which hookworm disease spread and whom it most often affected meant that protecting commerce and U.S. personnel were of little importance to the colonial administration. Rather, officials were most concerned with ensuring a productive workforce and providing legitimation of the U.S. government of the island for both the Puerto Rican and American public.[25] Espinosa argues that disease control in Cuba and Puerto Rico served the interests of the colonizer, not the colonized.[26] However, in the case of Puerto Rico, the interests of the "colonizer" and the "colonized" were not inherently oppositional.

While the most recent work of historians like Rigau-Pérez, Scarano, and Espinosa, offer some insight into the American imperial public health, the broader projects of most authors do not focus predominantly on Puerto Rico in the twentieth century, symptomatic of the relatively thin field that is the history of science and medicine in Puerto Rico. Rodrigo Fernós is perhaps most critical of this "poorly developed discipline" in his 2006 book, *Medicine and International Relations in the Caribbean: Some Historical Variants*. He criticizes much of the literature that has emerged in the past century as the mere accumulation of facts, instead of historical interpretation that attempts to find 'the broader

[23] Ibid., p. 159.
[24] Hookworm disease and uncinariasis are synonymous terms for the infestation of the body by hookworms of the *Uncinaria americana* variety. It may be similarly identified as ancylostomiasis.
[25] Espinosa, *Contagion and Conquest*, p. 17.
[26] Ibid., p. 1.

patterns underlying this history and its "causes."'[27] He calls for a move beyond an internal history of science and medicine on the island to one that ties Puerto Rican research to North American or Spanish histories of science. In exploring the campaigns against smallpox, hookworm, and bubonic plague, I seek to incorporate Puerto Rico into the larger transnational network of medical and public health knowledge of the day, providing comparisons across mainland U.S. and their newly acquired territories, as well as with regions of the British Empire.

Fernós urges historians to consider major shifts in medical knowledge and frameworks, instead of the minutiae of research.[28] He appears to find fault with at least some aspect of most of the work by the major historians of the last decades—including James L. Dietz, Annette Ramírez de Arellano, and Simon Baatz, and his view is perhaps overly harsh.[29] Only with an articulation of at least the basic skeleton of the events and figures that shaped twentieth century health in Puerto Rico can genuine "historical interpretation" commence.

In summary, the historiography of Puerto Rican public health and medicine during the American colonial period is markedly threadbare in many respects. With continued interest in the question of American imperialism as a whole, the fight against tropical disease especially in the Puerto Rican context has begun to garner the attention of current historians, sociologists, and anthropologists. The health and well-being of the Puerto Rican population, like its history, has generated maximum interest from the American federal government when crucial political and economic legitimation are at stake.

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[27]Rodrigo Fernós, Medicine and International Relations in the Caribbean: Some Historical Variants (Lincoln, NE: iUniverse, Inc, 2006), p. 32.

[28]Ibid., p. 179.

[29] See: Dietz, *Economic History of Puerto*.; Annette B. Ramírez De Arellano and Conrad Seipp, *Colonialism, Catholicism, and Contraception: A History of Birth Control in Puerto Rico* (Chapel Hill: University of North Carolina Press, 1983).; Simon Baatz, 'Imperial Science and Metropolitan Ambition: The Scientific Survey of Puerto Rico, 1913–1934', *Annals of the New York Academy of Sciences,* 776/1 (1996).

Chapter Outline

The guiding purpose of this work is to understand the health politics of U.S. imperialism in Puerto Rico during the early decades of the twentieth century. How does the history of public health policy and institutional development in Washington and San Juan interact and diverge? What does the history of response to epidemic disease on the island reveal about the role of scientific success and American foreign standing? In considering the cases of smallpox, hookworm disease, and bubonic plague, it becomes apparent that the degree of political strife and partisanship in the capitals of the United States and Puerto Rico directly affected health and disease outcomes. As Chapter One shows, during the military government instituted in 1898, Congress essentially left the daily affairs of Puerto Rico to be determined by the military governors, as the relevant Senate and House committees were more concerned with determining the economic and political fate of the newly acquired island territories. From 1898 until 1900, American medical men in Puerto Rico, in cooperation with local medical professionals, developed and executed an island-wide smallpox vaccination campaign, provided relief efforts in the wake of the San Ciriaco hurricane, and established a Superior Board of Health and Board of Charities with little, if any, interference from Washington bureaucrats. While the smallpox vaccination campaign and the Superior Board of Health operated without the interference of party politics, the new civil government that took control of the island in 1900 quickly encountered the obstacle of politicking when it came to work on health and sanitation.

Chapter Two traces the passage of the Foraker Act of 1900 and the launch of the campaign against hookworm disease. Between 1900 and 1909, no substantive Congressional discussion on improving the public's health in Puerto Rico took place for nearly a decade. I show that hookworm disease, in particular, provides critical insights

into the manoeuvrings of health politics during this period, as it was a condition afflicting the vast majority of the labouring population and severely inhibiting economic productivity. Fundamental to this story, and left out by existing narratives, is the critical collaboration between Ashford and the Puerto Ricans themselves. Medical knowledge was not produced by the colonizer and imposed upon the colonized. Rather, knowledge surrounding the identification and treatment of hookworm disease was co-produced by Ashford and his Puerto Rican colleagues. Most significantly, the Puerto Rican population served as the living representation of the positive transformative power of this knowledge, and they convinced their family and neighbours of the benefits of this work. Despite this potent collaboration, when governmental responses to epidemics remained confined to the insular level, the implementation of disease campaigns became major sources of political conflict and subject to partisan pressures. In the case of hookworm disease, this partisanship transcended the physical boundaries of the island and ensnared figures on the mainland as well. Most importantly, largely unconsidered archival materials suggest the need for a more nuanced picture of the central figure in this story, Dr. Bailey K. Ashford, than in previously published literature.[30]

Chapter Three analyses a resurgence of federal legislative interest in Puerto Rico in 1909, associated with a budget crisis and with the growing fervour for remedying the sanitation woes of the island. While leaders and officials within the Bureau of Insular Affairs and the Army Medical Corps called for American legislative intervention, Congressional leaders rejected efforts to control sanitation policy, preferring to give the

[30] Although early twentieth century American reform movements often centre on Christian missionaries who travelled the globe alongside the expanding American empire, missionaries remain absent from the archival record detailing the story of hookworm eradication work. Ashford created careful partnerships with his Puerto Rican counterparts and political and economic elites, but his records do not include the mention of Catholic or Protestant missionary collaborators. Protestant reformers in Puerto Rico did take advantage of the opening of this new mission field following the Spanish-American War and established a number of major hospitals. Additionally, missionaries often focused on saloons, prostitution, and other "deviant" behaviours. See, for example, Laura Briggs, *Reproducing empire*.

island's government some level of autonomy in these matters. Still, members of the Puerto Rican executive branch and military medical men with first-hand experience, such as Ashford, recognized the need to systematically remedy the health system (or lack thereof) if for no other reason than American economic self-interest. Ashford and his collaborators purposefully established their system of anaemia clinics outside of the regular channels of insular bureaucracy, a bureaucracy that likewise produced no major public health legislation between 1900 and 1911.

This thesis demonstrates that public health leaders consistently shaped their interventions to maximize improvements for the public's health, not only to minimize present economic losses, but to increase future growth. In the Puerto Rican context, the decade of American occupation had done little in the way of generally improving the socioeconomic outlook of the island's residents. At the same time, the island's major industry—coffee—experienced a dramatic decrease in profits due to the change from Spanish to American currency, a loss of foreign markets due to tariff agreements, a decimation of the coffee crop following the San Ciriaco hurricane of 1899, and sustained infrastructural impediments that raised the cost of transportation of products to the coast. The primary solution offered to such problems was an increase in production, but hookworm infection lowered average productivity by 50% as compared to healthy workers. Ashford used this "entering wedge" to gain credibility and investment in the anti-hookworm campaign. Most importantly, the focus on labour very clearly distinguished United States sanitary imperialism from that of her European counterparts.

The anti-hookworm campaign survived the tumultuous first decade of Puerto Rico's civil government under the United States, in large part because of Ashford's insistence upon keeping the uncinariasis work independent from insular politics for all of this time. Perhaps most importantly, while Ashford's work undoubtedly changed the

course of twentieth century public health in Puerto Rico and even in the American South, Ashford pushed the boundaries of American tropical medicine in both a scientific and an administrative triumph. He maintained communication with an active network of the world's leading research scientists and public health experts throughout his career.

In this same vein, Chapter Four examines the Puerto Rican experience with bubonic plague in 1912 and illustrates the importance of the circulation of medical knowledge in an age where not just material goods travelled at great speeds aboard steamships, but also ideas. Public health researchers and administrators catalogued their scientific achievements not for the sake of pure knowledge, but in order to gain the support of a broader coalition, raising the economic imperative inherent in modern sanitary reform. Above all, the officials directing the anti-plague work in Puerto Rico intuitively and almost instantaneously understood the lessons learned from other port cities' experiences with plague: limit fear, protect commerce, and maintain communication (and cooperation) with the public. I draw on secondary literature as well as published primary sources to better situate the San Juan outbreak in the larger course of the third pandemic, in particular, using the American experience in San Francisco and Hawaii to understand contemporary advances in public health science. In the local landscape of an abundance of competing interest groups, Puerto Rican health officials recognized that the goals of the Sanitation Service could only be achieved if carried out with "absolute impartiality." Public health must be disentangled from political tussles.

These dynamics similarly play out in Chapter Five with the investigation into how one of the world's first and largest biomedical philanthropies—the Rockefeller Foundation— converged around the eradication of hookworm disease as its first major foray into direct public health intervention. The burgeoning relationship between Rockefeller leaders and Puerto Rico's hookworm champion, Dr. Ashford, set the

organization on a path that would lead to interventions in dozens of countries around the world. Again, using previously unconsidered archival materials from the Rockefeller Archive Centre, I show that the letters exchanged between Ashford and the head of the Rockefeller Sanitary Commission, Wickliffe Rose, continuously evoke a sense of extraction—either intentional or unintentional—on the part of Rockefeller. Rose seemed quite able to solicit guidance and information without ever fulfilling the repeated requests for financial support for the island's work against hookworm.

For Puerto Rico, the development of a hookworm eradication campaign that received international praise, treated more than 300,000 of the island's population, and directly shaped the global fight against hookworm disease by the Rockefeller medicine men, could not remedy a structural avoidance of widespread socioeconomic and infrastructural uplift. Smallpox and bubonic plague eradication efforts, like the fight against hookworm, triumphed because their primary activities commenced outside of standard bureaucratic channels afflicted by rigidity and political games. The Army Medical Corps and the U.S. Public Health Service worked effectively with local health professionals to efficiently and rapidly quell these epidemic outbreaks. In contrast, anaemia work and public health on the island in general suffered due to bitter partisanship, limited funding, and a convoluted bureaucracy.

Obviously, occupation by a foreign power and the domination of such an entity is never completely benign. Still, I have found that an understanding of the Puerto Rican context requires a more nuanced and even-handed approach than previous literature has provided. Policymaking and execution is always more than what comes across in the published briefings and legislative debates. Periods of rapid improvement in health coincided with major American economic investment that expanded infrastructure, access to education, and generally increased the socioeconomic status of the population.

However, as American philanthropic and economic interests waned, the government structures responsible for ensuring public health similarly faced stagnation. In the face of widespread turmoil, public health leaders could not always turn to Congress or the insular legislature, and most certainly, not to the unfulfilled promises of the Rockefeller Foundation. This thesis establishes the apparently paradoxical relationship between the application of innovative public health practices in particular cases and the failure to achieve sustained and large scale improvements in health outcomes in Puerto Rico.

Chapter 1: Encountering a Diseased Environment

Introduction

Since United States Ambassador, John Hay, first described the Spanish-American War to his friend and future president, Theodore Roosevelt, as a "splendid little war," historians of war and historians of medicine have often neglected the significance of the conflict for both American domestic and foreign policy in the twentieth century. However, despite the lack of "great" battles and its mere four months duration, the Spanish-American War had a momentous impact on the Army, its Medical Department, the invaded territories, and on public health and medicine at large. Though the historical trajectory that led to the war spans much of the nineteenth century, at the dawn of the twentieth century, the war affirmed a new thirst for "imperialistic activities," served as the first engagement of American troops on foreign soil, and launched the United States' most significant engagement with tropical medicine.[1] J.T.H. Connor emphasises the surprising lack of scholarly studies on the medical history of the war and its aftermath given that the vast majority of deaths throughout these endeavours were not combat-related, but medical in nature. Still, a number of key contributions on various aspects of the public health conditions of the early American empire have emerged in recent years. Scholars such as Warwick Anderson, Mariola Espinosa, and Vincent Cirillo among others have crafted narratives highlighting three distinct fronts of the war and the corresponding calamitous spread of epidemic disease: the domestic army-camps, the Cuban campaign, and the Philippines campaign.[2] Most significantly, the fourth front of the war—Puerto Rico—remains markedly absent from most scholarship concerning American medicine

[1] J.T.H. Connor, "Before the World in Concealed Disgrace': Physicians, Professionalization and the 1898 Cuban Campaign of the Spanish-American War', in Roger Cooter, Mark Harrison, and Steve Sturdy (eds.), *Medicine and Modern Warfare* (Amsterdam: Rodopi, 1999), p. 29.

[2] On domestic army camps, see: Vincent J. Cirillo, *Bullets and Bacilli: The Spanish-American War and Military Medicine* (London: Rutgers University Press, 2004). On Cuba, see: Mariola Espinosa, *Epidemic Invasions: Yellow Fever and the Limits of Cuban Independence, 1878-1930* (London: University of Chicago Press, 2009). On the Philippines, see: Anderson, *Colonial Pathologies*.

and imperialism. What type of disease environment did troops from the United States encounter upon the invasion of Puerto Rico? What motivated their operations? How were health policies and campaigns designed and implemented on the island?

In considering the growing body of literature addressing American medicine and imperialism, the absence of a coherent exploration of Puerto Rico's transition from Spanish colony to American imperial outpost is made readily apparent. The historical scholarship addressing the crucial years from the American invasion of the island in 1898 to the establishment of a civil government under the Foraker Act of 1900 is thin at best, despite the far-reaching effects of this period on the long-term development of Puerto Rico. The military government put in place to administer the island had virtually unlimited power to change existing laws and implement new regulations as the latest session of the 55th U.S. Congress had concluded without addressing the political status of Puerto Rico.[3] Unlike in Cuba where the Teller Amendment precluded formal annexation and in the Philippines where insurgents waged a bloody war against occupying American forces, American leaders in Puerto Rico faced no sizeable political barriers or popular opposition to its presence and policies.[4]

As a result of these political circumstances, the potential to alter the Puerto Rican health and disease environment from 1898 to 1900 was quite distinct from the Cuban and Filipino environments. While medicine has been viewed as a clear "tool of empire" in both Cuba and the Philippines, in this case, Washington failed to provide any specific guidance to the military government. Filling the vacuum, the military central command in San Juan swiftly took control of the occupation. But even though concerned with the impact of the local disease environment on soldiers and with the education of the

[3] Edward J. Berbusse, *The United States in Puerto Rico, 1898-1900* (Chapel Hill: University of North Carolina Press, 1966), p. 78.
[4] Anders Stephanson, *Manifest Destiny: American Expansionism and the Empire of Right* (New York, NY: Hill and Wang, 1995), p. 77.

population regarding matters of sanitation and hygiene, the military governors of Puerto Rico did not sketch out a broad plan for health reform as a part of an American civilizing agenda. Rather, their focus remained almost exclusively on re-establishing the rule of law, allowing the Army Medical Department to operate with little external administrative interference.

The Medical Department retained leading positions on the Superior Board of Health and on the Board of Charities eventually instituted by the military governor in 1899. What is more, the elaboration of an exploitative, racialized typology that emerged within the public health efforts in the Philippines did not transpire in the earliest years of the military occupation of Puerto Rico. Native physicians and the larger population were critical elements in developing health policy and executing health campaigns. In doing so, the medical men on the ground in Puerto Rico from 1898 to 1900 acted out of contingency, addressing the most pressing health needs of the island and her population as they arose.

Before examining the specific implications of the Spanish-American War for health and disease in Puerto Rico, it is important to understand the broader context of the war and the American rationale for its first forays into empire. After providing a brief contextual overview of this period in American history, I will discuss the environment and circumstances which the U.S. Army encountered upon seizing Puerto Rico, the urgent crisis of the smallpox epidemic which led to a massive vaccination campaign, the impact of a devastating hurricane on this disrupted society, and finally, the infrastructures revamped and implemented during the period of military government.

Even in 1898, during the peak of the popular media's fascination with manifest destiny, during the frenzied debate over the ideological imperatives of America's new political significance on the international stage, and during the public outcry against the

revolt in Cuba, explicit discussion of the annexation of Puerto Rico does not appear before June 1898.[5] Setting aside the importance of Puerto Rico in the larger schemes of the war, mounting revolts in Spain's most profitable colony, Cuba, demanded the attention of Washington and McKinley's overseas diplomats. In the wake of the accidental explosion of the battleship *Maine* and the apparent inability of the Spanish to guarantee order in Cuba, the McKinley administration begrudgingly switched its foreign policy stance from one of public neutrality to advocating for the withdrawal of Spanish sovereignty.[6]

Four days after the American demand for the withdrawal of Spanish forces from Cuba, on 24 April 1898, Spain declared war on the United States. A few short weeks before the declaration of an armistice, the war that would end Spain's four-century imperial dynasty in the Caribbean reached the shores of Puerto Rico on 21 July 1898. Major-General N.A. Miles landed in the bay of Guanica without serious opposition, 'at a cost of only three killed and 40 wounded, and with a minimum of public discussion.'[7] By the twenty-seventh of the same month, his troops occupied the island's second largest city, Ponce.[8] Only weeks later, on 12 August 1898, an armistice was declared.

The island of Puerto Rico was simply lumped in with the potential annexation of the other Spanish imperial possessions. As U.S. President McKinley invoked the Monroe Doctrine in his explanation to the Peace Commissioners sent to negotiate a treaty with Spain, the Spanish flag could not remain on 'this side of the sea. This lesson of events and of reason left no alternative to Cuba, Porto Rico, and the other islands belonging to Spain

[5] Frank A. Ninkovich, *The United States and Imperialism* (Malden, Mass.: Blackwell Publishers, 2001), p. 123. The phrase "manifest destiny" did not appear as such in the popular articles or personal correspondence that I encountered for the period, though the sentiments were quite evident.
[6] Joseph Smith, *The Spanish-American War: Conflict in the Caribbean and the Pacific, 1895-1902* (London: Longman, 1994), p. 47.
[7] Ninkovich, *The United States and Imperialism*, p. 28.
[8] Lt. Col. J.P. Sanger, Henry Gannett, and Walter F. Willcox, 'Report on the Census of Porto Rico',War Department, (Washington, D.C.: Government Printing Office, 1900), p. 15.

in this hemisphere.'[9] With the ratification of the Treaty of Paris in February 1899, the U.S. gained control of Cuba, Puerto Rico, Guam, and the Philippines.

Despite a lack of involved discussion on the fate of the island, an invasion and annexation of Puerto Rico was dictated by its key geographic position in the Mona Passage. Puerto Rico needed to be conquered and held due to its potential to serve as a major military base for Spain during the war.[10] Since Columbus' first landing on the island in 1493, the Spanish had maintained continuous control over this island of strategic import. Although the island had been inhabited by a tribal society of Aruacos, Ponce de León established the first Spanish settlement on the island in 1508. Military fortification began soon after.[11] With the prospect of an isthmian canal, the United States would do the same.

Beyond its value in terms of military strategy, the island had some not insignificant economic importance to the U.S. as it was also situated in a key shipping lane to Central America and the anticipated Panama Canal, an access point of noted importance, even by President Benjamin Harrison's Secretary of State, James G. Blaine, as early as 1890.[12] Similarly, throughout the nineteenth century, Puerto Rico became an ever-growing market for American exports. The United States surpassed Spain as the island's leading trade partner in 1887, and by 1896, the island imported most of its basic foodstuffs from the U.S. and exported most of its sugar to American shores.[13]

Puerto Rico proved to be a possession of unique value for American expansionists, especially in contrast to Cuba and the Philippines. As legal scholars

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[9] Richard H. Miller, *American Imperialism in 1898; the Quest for National Fulfillment* (Problems in American History; New York,: Wiley, 1970), p. 126. For more on the Monroe Doctrine, see: Jay Sexton, *The Monroe Doctrine: Empire and Nation in Nineteenth-Century America* (New York: Hill and Wang, 2011).

[10] Ninkovich, *The United States and Imperialism*, p. 28.

[11] Fernández Y García, Hoadley, and Astol, *El Libro De Puerto Rico (the Book of Porto Rico)*, p. 73.

[12] Maria Del Pilar Argüelles, *Morality and Power: The U.S. Colonial Experience in Puerto Rico from 1898 to 1948* (Lanham, Md.: University Press of America; Miller Center, 1996), p. 17.

[13] Ibid., p. 18.

conceptualized the "imperial problem," the new territories gained through the Treaty, particularly the Philippines, represented a population different in race and civilization from the traditional American people, but also vastly different from both Puerto Rico, Cuba, and Guam.[14] The full assimilation of the Cuban population remained off the table as the Cuban occupation could only be limited and temporary. The Philippines archipelago spanned more than 115,000 square miles and included thousands of separate islands. This decentralized population was popularly viewed as "savages" who would never be Americanized, and European American settlement of the archipelago would never occur.[15]

In contrast, American political elites believed Puerto Rico could be integrated into the American system along the lines of the Hawaiians. The island had experienced a colonization boom in the eighteen century, which led to a so-called "Golden Age" for the island in the following century. A massive population increase accompanied 'intellectual and material development.'[16] Similarly, commercial development ensued with the opening of the island's ports and the cultivation of sugar cane, coffee, and tobacco as the island's chief exports.

The early nineteenth century independence movements in Central and South America had created likeminded independence fervour in Puerto Rico, with periodic uprisings documented throughout the century. The push for liberal self-government culminated in 1868 with the Lares Rebellion, called 'the greatest armed protest that had ever been made…' on the island.[17] While government militia forces put down the insurrection, greater political autonomy was granted and the independence movement continued. Toward the latter part of the nineteenth century, the Puerto Rican population

[14] Lanny Thompson, 'The Imperial Republic: A Comparison of the Insular Territories under U.S. Dominion after 1898', *Pacific Historical Review,* 71/4 (2002), p. 537.
[15] Ibid., pp. 566-67.
[16] Fernández Y García, Hoadley, and Astol, *El Libro De Puerto Rico (the Book of Porto Rico)*, p. 78.
[17] Ibid, pp. 91-93.

gained great political liberties with the granting of an autonomous charter in 1897.[18] The American invasion in 1898 was in fact aided by persons hoping to gain full independence through their offer of assistance. The lack of effective political leadership and the opposition of American military leaders forestalled further independence action, but the Union party that was to be founded under the leadership of Luis Muñoz Rivera in 1902 called for independence "as the fifth plank" of their platform.[19]

The Autonomic Charter approved by Spain in late 1897 created a system of government including a bicameral Parliament, a Governor, and five executive chiefs known as Secretaries of State.[20] The Lower Chamber was to be elected by popular vote, while the Upper Chamber included elected members and those appointed by the King. The Autonomic Charter likewise allowed for the island to be represented in the National Parliament by elected members with the same privileges and rights as peninsular representatives.[21] However, the full extent of the implications of the autonomist movement was not realized given the transfer to American sovereignty in the following year.

Military Government in Puerto Rico

In the twenty-one months following the American invasion of Puerto Rico, Washington completely set aside the Puerto Rican government that had been established under the Autonomic Charter and instituted a military government whose efficacy was undermined by constant changes in personnel. From the date of the official evacuation of the Spanish on 18 October 1898 until the transfer of power to a civil government on 1

[18] Fernández Y García, Hoadley, and Astol, *El Libro De Puerto Rico (the Book of Porto Rico)*, pp. 75-81.
[19] Ibid., pp. 91-93.
[20] Fernando Picó, *History of Puerto Rico: A Panorama of Its People* (Princeton: Markus Wiener Publishers., 2006).
[21] Fernández Y García, Hoadley, and Astol, *El Libro De Puerto Rico (the Book of Porto Rico)*, pp. 151-53.

May 1900, three different military governors held power.[22] While Puerto Ricans did not display the level of resistance and animosity toward American occupation that Cubans and Filipinos evinced, Major George G. Groff, surgeon of the U.S. Volunteers and eventual secretary of the Superior Board of Health that would be put in place, acknowledged at the end of the period of military government that: 'No advancement can be hoped for if heads of departments and the Governors are to be, continually changed. What is needed is, as in the English colonies, a longer tenure of office, or at least long enough for each individual to work out his schemes or plans for the improvement of the country.'[23]

Such long-term planning did not readily assimilate with the Army Medical Department's nineteenth century conditioning in civilian relief missions on the American Frontier. Public health efforts needed to be made in order to prevent the spread of communicable diseases to the troops and to encourage American commercial ties.[24] However, given the short tenures of both Brooke and Henry, the initial surveys and commissioned reports by leaders in Washington were vital to transmitting accurate assessments back to the capital for their work in developing such policy for the island. As will be discussed in the next chapter, eventually, during the new session of Congress, the commissions and their reports, alongside congressional hearings, would be used to construct the first Organic Act of Puerto Rico, or the "Foraker Act," the legislation in effect from 1 May 1900 to 2 March 1917 that outlined the role of the civil government.[25] The various reports and commissions offer a glimpse into the American perspective

[22] Major General John R. Brooke held office from 18 Oct. 1898 until 6 Dec. 1898, Major General Guy V. Henry held office from 6 Dec. 1898 to 9 May 1899, and Brigadier General George W. Davis held office from 9 May 1899 until 1 May 1900.

[23] Major George G. Groff, 'After Two Years' Work in Porto Rico', *The Independent ... Devoted to the Consideration of Politics, Social and Economic Tendencies, History, Literature, and the Arts* (1848-1921), 52/2697 (1900).

[24] Gaines M. Foster, *The Demands of Humanity: Army Medical Disaster Relief* (Special Studies/Center of Military History, United States Army; Washington, D.C.: Center of Military History, 1983), p. 26.

[25] Berbusse, *The United States in Puerto Rico, 1898-1900*, p. 148.

toward the overall social, economic, and cultural identity of the people, essential in better understanding the disease environment encountered by the military governors and their administrations.

Initial Surveys and Commissions

In late 1898, President McKinley appointed Dr. Henry K. Carroll as "Special Commissioner for the United States to Porto Rico" to investigate the civil, industrial, financial, and social conditions of the island, and 'to draft a plan for American government and reform.'[26] Touring Puerto Rico over a six-month period, Carroll first spent time in the capital, San Juan, investigating the administration of the island's local government. On his second trip, he travelled throughout the municipal districts, hearing testimony from representatives of all classes of the population, and receiving a 'cordial welcome everywhere.'[27] His investigations provided valuable insight into the living conditions on the island from an external, American perspective. For example, Carroll noted the aesthetic character of one of America's first imperial possessions, presumably reassuring Congress' approval of the annexation: 'The United States is to be congratulated on the acquisition of Porto Rico. It is a beautiful island, well worth the admiration of its new possessors, accustomed to the most varied and picturesque scenery in their own wide domain.'[28] A picturesque, healthful, and rejuvenating oasis seemed to meet the visitor on first glance.

In Congressional testimony and commission reports alike, the repeated focus on the aesthetic appeal of the island and her people would merge with metaphors of femininity and childishness. As Lanny Thompson explained, 'this Puerto Rican Ruth

[26] 'Reforms in Puerto Rico', *New York Times (1857-1922),* 1899 p. 9-9.
[27] Henry K. Carroll, 'Report on the Island of Porto Rico. Its Population, Civil Government, Commerce, Industries, Productions, Roads, Tariff, and Currency, with Recommendations', Treasury Department, (Washington, D.C.: Government Printing Office, 1899), p. 8.
[28] Ibid.

sought the freedom to work and to make a living, not to acquire political liberty and self-determination. The pressing issue, then, was agriculture, industry, and commerce under U.S. political tutelage.'[29] Such metaphors and sentiments would translate into a more limited form of self-government for Puerto Ricans who were viewed to be unequipped for full self-government, in addition to a distinctly American focus on the health and productivity of the labouring population. As Carroll discovered, the beautiful tropical aesthetic did not, however, correspond to an equally impressive standard of living for the vast majority of the population, the labouring classes.

Dependent upon earning daily wages in an unstable labour market, multiple families often occupied poor and cramped houses made of old boards and boxes in the poorer sections of towns and cities.[30] After inspecting homes in Yauco, Carroll pointed out, 'There were no sanitary arrangements of any kind, and the water used had [to be] brought from the river, distant a mile or more.' These homes lacked a pure supply of water, as the stone filters in use were far from adequate. Their diet depended largely upon the regularity of their wages, with Carroll noting that: 'Few of the labouring classes are robust. They are small and thin and are decidedly anaemic. More nourishing food may be said to be the universal need, and a less destructive drink than the native rum.'[31]

Despite the rise in yellow fever incidence during the last quarter century, the yellow fever profile of Puerto Rico differed greatly from that of Cuba.[32] Following an outbreak of ninety-five cases in 1896, no cases of yellow fever appeared on the island. Official records attribute the elimination of the disease to the rigid quarantine measures

[29] Thompson, 'The Imperial Republic: A Comparison of the Insular Territories under U.S. Dominion after 1898', p. 565.
[30] Carroll, 'Report on the Island of Porto Rico. Its Population, Civil Government, Commerce, Industries, Productions, Roads, Tariff, and Currency, with Recommendations', p. 49.
[31] Ibid., p. 50.
[32] The story of yellow fever in Cuba in the late nineteenth century and early twentieth century has been told in great detail. For an overview, see: Espinosa, *Epidemic Invasions*.; Nancy Stepan, 'The Interplay between Socio-Economic Factors and Medical Science: Yellow Fever Research, Cuba and the United States', *Social Studies of Science,* 8/4 (1978).; and, Amador, *Medicine and Nation Building in the Americas, 1890-1940*.

put in place immediately following the American invasion in October 1898, when the United States Public Health Service took control of inspection and quarantine operations.[33] However, this rather remarkable record did not indicate a favourable overall sanitary environment for the arriving investigative commissions. While the troops and medical officers confronted a less taxing environment recently free of the dreaded yellow fever that plagued Havana and the cholera that plagued Manila, the failure to dispose of personal waste and purify water in a sanitary fashion by local Puerto Ricans spread epidemic dysentery and diarrhoea.[34]

In addition to deteriorating imperial authority and domestic political unrest during the late nineteenth century, Spanish rule had long been characterized by an inattention or an inability to control epidemic disease. Frequent outbreaks of smallpox in the nineteenth century decimated the Puerto Rican population. In the last two decades before the Spanish-American War, syphilis and yellow fever also plagued the population. Limited infrastructural improvements correlated with a rise in "native" diseases like malaria, sprue, dysentery, and elephantiasis, alongside other "cosmopolitan diseases" such as tuberculosis.[35] Given such conditions, the emerging image of a dismal sanitary situation, described later in Carroll's report by Major and Brigade Surgeon Dr. Azel Ames, is hardly a surprise. As one Puerto Rican physician remarked:

> If past hygiene and sanitation were not in consonance with those of other countries achieving a higher cultural exponent…[i]t was the fault of the administrative system which would not conform to the demands of the time and moved in a sterile circle a *priority* of frustrated experiments, and of circumstantial calculations which never crystallized into anything *definite* for fear of the inevitable conflict with other interests.[36]

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[33] Fernández Y García, Hoadley, and Astol, *El Libro De Puerto Rico (the Book of Porto Rico)*, p. 305.
[34] Mary C. Gillett, *The Army Medical Department, 1865-1917* (Army Historical Series; Washington, D.C.: Center of Military History, 1995), p. 160.
[35] Fernández Y García, Hoadley, and Astol, *El Libro De Puerto Rico (the Book of Porto Rico)*, p. 289.
[36] Ibid., p. 287.

Each of the investigators of the island's conditions linked the general state of deprivation and need found on the island to the troubled economy. Public health and sanitary experts at the turn of the twentieth century were rapidly reaching the conclusion that public health was purchasable—greater financial resources generally translated into greater health and wellbeing for a population. As Carroll concluded, 'It is evident that the condition of the labouring classes can not be greatly improved unless agriculture becomes prosperous and minor industries are developed. This means practically a revolution in the methods of raising, and marketing crops, and it cannot be accomplished without the influx of new capital.'[37]

At the time of the American invasion, seventy-five per cent of the island's labour force was dedicated to the agricultural sector. Major crops included coffee, sugar, tobacco, bananas, and plantains. In years prior to the war, the price of coffee dropped significantly with the flooding of the market by a Brazilian product produced more cheaply with a massive output. The rate of production in Puerto Rico fell from 50 million pounds a year in 1897 to only 5 million pounds a year in 1899 as a result of the San Ciriaco hurricane in August 1899 and American tariff policies that prohibitively taxed Puerto Rican exports.[38] Puerto Rico lost its major markets for coffee, tobacco, and sugar when the Americans blocked trade with both Cuba and Spain. Military governor Davis illuminated the declining situation: 'American sovereignty for Puerto Rico has so far been disastrous to its commerce, for it has deprived the island of market where were sold nearly one-half of its total output.'[39] This bleak agricultural economy failed to provide

[37] Carroll, 'Report on the Island of Porto Rico. Its Population, Civil Government, Commerce, Industries, Productions, Roads, Tariff, and Currency, with Recommendations'. p. 56.
[38] Bailey K. Ashford, Pedro Gutierrez Igaravidez, and Porto Rico Anemia Commission, *Uncinariasis (Hookworm Disease) in Porto Rico: A Medical and Economic Problem* ([U.S.] 61st Cong., 3d Sess. Senate. Doc. 808; Washington, D.C.: Government Printing Office, 1911), p. 9.
[39] Brig. Gen. George W. Davis, 'Report of Brig. Gen. Geo. W. Davis, U.S.V. On Civil Affairs of Puerto Rico, 1899', War Department and Department of Porto Rico, (Washington, D.C.: Government Printing Office, 1900), p. 34.

adequate revenue, and taxes paid by the population failed to provide vital services including schools and clothing for children, hospitals for the sick and infirm, and adequate food and shelter for the labouring masses. Still, as most military officers observed, relative social stability persisted in this highly paternalistic system.

In the American physician-scientist Bailey K. Ashford's massive tome synthesizing ten years' work on uncinariasis and anaemia, he provides a sociocultural analysis of Puerto Rican society at the turn of the twentieth century. Ashford's descriptions are critical in understanding the link between Puerto Rican society, attitudes toward illness and medical care, the economy, and a persistently unhealthy disease environment. He spent most of his career in Puerto Rico, marrying a Puerto Rican woman and raising a family among the population he studied, starting a private practice and advising various boards of health. He became a leading medical scientist from his first days on the island as a First Lieutenant with the Army Medical Department after the Spanish-American War until his death in 1934. Thoroughly enmeshed in Puerto Rican society, Ashford described the gulf between the planter and the *jíbaro*, a 'peasant, a tiller of the soil, a man whose life is not that of the town and lacks its culture…a class of country laborers.'[40]

The representation of the jíbaro and the demographic makeup of the island's population would prove pivotal in the American occupation. Jíbaros constituted the peasant class, the supposed descendants of immigrant farmers from Spain. Epidemic diseases, war, and emigration depleted the aboriginal population, but the native population was not entirely exterminated. European immigration and the importation of African slaves augmented the aboriginal peoples. The *Libro de Puerto Rico* quixotically identifies some portion of the jíbaro population as the 'mixture of the conqueror and the

[40] Ashford, Gutierrez Igaravidez, and Porto Rico Anemia Commission, *Uncinariasis (Hookworm Disease) in Porto Rico*, p. 12.

conquered.'[41] Still, 'the great majority of them are pure white…'—critical to the American imperialists' philosophical and cultural encounter with Puerto Rico. The African population descended from slaves had married in with the "whites" creating a "mixed race." The extreme "otherness" associated with the Filipino population following the American occupation does not appear to be a factor in the occupation of Puerto Rico. Though distinct from the European American population of the United States in terms of culture and education, American imperialists viewed the island of Puerto Rico as infinitely easier to Americanize, as 'the proportion of the pure white race as compared with the entire population is considerable and grows larger each day…'[42] The "pure white race" included a small educated elite that had formed the base of political parties and the professional class, though the rural jíbaro far outnumbered them.

In repeated accounts by both military and civilian observers, the jíbaros are described as "worthless" and "lazy" common white peasants, who do not own their land and are content to remain in their pitiful condition. However, Ashford questioned these assumptions, saying:

> We cannot believe that vicious idleness comes natural to the Spanish colonist, even in the Tropics, for the very reason that we have seen these descendants at their very worst, after the neglect of four centuries of their mother country, and after the laborious increase of an anaemic population in the face of a deadly disease, whose nature was neither known nor studied, work from sunrise to sunset and seek medical attention, not because they felt sick, but because they could no longer work.[43]

Why would a peasant continue to work the plantations while suffering from incapacitating anaemia if they were supposedly innately lazy and unworthy? Such a characterization did not fit with the observations Ashford made during his time on the island.

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[41] Fernández Y García, Hoadley, and Astol, *El Libro De Puerto Rico (the Book of Porto Rico)*, p. 89.
[42] Ibid., p. 91.
[43] Ashford, Gutierrez Igaravidez, and Porto Rico Anemia Commission, *Uncinariasis (Hookworm Disease) in Porto Rico*, p. 13.

Instead, as Ashford ascertained, in order to continue working and lacking any provision of medical services by the planters, the jíbaros turned to the "curanderos" or local "charlatans" for any available treatment of their diminished state. Like their counterparts in Cuba and the Philippines, many jíbaros 'considered disease an act of God's will' and remained suspicious of the dilapidated system of hospital care.[44] Weak and seemingly incapable of protest, the jíbaros were treated as children by the upper classes, 'and the jíbaro loyally follow[ed] his educated, emancipated fellow citizen, perfectly satisfied to be guided as the latter sees fit.'[45]

Though Ashford dismissed the jíbaro from responsibility for his lack of proper diet, clothing, and shelter, he did not shift the blame to the planter class. This reflected the need to gain the support of both demographics in public health interventions. Ashford instead explained the similarly great adversity faced by the planters in the rapidly changing agricultural market and their inability to improve their methods of growing due to a lack of available capital. The backward methods of cultivation fell short in comparison to the enervating effect of the "infirmity of his labourers, their almost universal anaemia, and the ignorance of the class of labour upon which he has to depend."[46] The island's "industrial depression" required the immediate and rapid attention of the military government in order to address the island's severely unhealthy disease environment, a crisis situation for which the occupiers were more readily prepared.

Encountering A Diseased Environment

The military encountered suboptimal sanitation and disease rates across all three theatres of the Spanish-American War due to bureaucratic redundancies between

[44] Foster, *The Demands of Humanity*, p. 27.
[45] Ashford, Gutierrez Igaravidez, and Porto Rico Anemia Commission, *Uncinariasis (Hookworm Disease) in Porto Rico*, p. 13.
[46] Ibid., p. 16.

institutions and the widespread failure to comply with a century's worth of public health regulations. In particular, the American occupations of Cuba and the Philippines grappled with the continuous outbreak of epidemic diseases such as bubonic plague, cholera, and yellow fever.

Rather quickly, the United States recognized the challenge that yellow fever posed to the military occupation of Cuba. At the time of the war, Americans knew very little about the spread of the disease, and medical personnel recommended futile measures, such as moving already compromised soldiers around the island in an attempt to curtail infection rates. The deteriorating health status of the soldiers was further exacerbated by poor food and lack of adequate medical care attributed to the Army's commissary and medical department. Malaria, typhoid, and dysentery continued to spread and moving the ill soldiers anywhere else on the island would offer little reprieve. [47] Across the globe in the Philippines, the U.S. Public Health and Marine-Hospital service met a Filipino population accustomed to "unsanitary conditions" that flourished without the enforcement of Spanish sanitary laws. Endemic diseases such as amoebic dysentery, chronic malaria, and hookworm infection compromised Filipino immune systems.[48]

While escaping infectious diseases such as yellow fever and bubonic plague in the earliest months of the American occupation, the military government in Puerto Rico nevertheless struggled to address diseases of poor sanitation like typhoid and dysentery. In spite of the distribution and frequency of these diseases, a number of sanitary laws and bodies had been enumerated under the Spanish government. Rather than an absence of institutionalized medicine, the Spanish left a wide range of bodies and regulations on the books that had developed over several centuries. In 1768, the first San Juan board of health was established by royal decree in order to inspect incoming slaves and ships from

[47] Smith, *The Spanish-American War*, p. 165.
[48] Mary C. Gillett, 'U.S. Army Medical Officers and Public Health in the Philippines in the Wake of the Spanish-American War, 1898-1905', *Bulletin of the History of Medicine,* 64 (1990), p. 165.

foreign ports. The smallpox outbreak of 1804 resulted in the issuance of the first regulations for the use of vaccination against the epidemic. In the upcoming decade, decrees published created municipal boards of health, sanitary police, and sanitation bureau in each locale. Vaccination against smallpox became compulsory in 1837.

Shortly thereafter, a Royal Sub-delegation of Medicine and Surgery began regulating the practice of medicine until its abolition in 1899. The Spanish governor-general had been at the head of the Superior Board of Health, in addition to a military hospital, a municipal hospital, a female hospital for the treatment of venereal disease, and a female charity hospital. Several local physicians founded medical newspapers in the 1880s and 1890s. Under the Autonomic Charter, Luis Muñoz Rivera also established a bureau of health that was run by Pedro Gutiérrez Igaravidez who would go on to pave the way for an island-wide anti-hookworm campaign in conjunction with Dr. Bailey K. Ashford during the American occupation.[49] American military administrators deemed these structures either completely inactive or 'in every way deficient.'[50]

In spite of the sheer volume of reforms to be done, Henry K. Carroll, of McKinley's investigative commission to Puerto Rico, exhibited the optimistic tone many of the earliest American administrators felt about the future work of the government on matters of health and disease:

> With improved sanitation in the cities, already begun under United States military auspices, the health bill of Porto Rico will compare favourably with that of countries in the temperate zone. The general disregard, hitherto, of the primary principles of sanitation makes it a matter of wonder that the scourges of Porto Rico have been so few.[51]

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[49] Fernández Y García, Hoadley, and Astol, *El Libro De Puerto Rico (the Book of Porto Rico)*, pp. 287-93.
[50] John Van R. Hoff, 'Military Government of Porto Rico from October 18, 1898, to April 30, 1900', War Department and Department of Porto Rico, (Washington, D.C.: Government Printing Office, 1901), p. 148.
[51] Carroll, 'Report on the Island of Porto Rico. Its Population, Civil Government, Commerce, Industries, Productions, Roads, Tariff, and Currency, with Recommendations', p. 10.

His sanguine language starkly contrasts with Dr. Azel Ames' realism on the "Sanitary Conditions of the Cities" that he presented to Carroll in early 1899. He explained: 'Perhaps no more general filth conditions among a people living so nearly an outdoor life, and yet so densely packed in a small area, was ever known, and these conditions, both as an ever-increasing menace to themselves and recently to the lives and health of the new possessors and their representatives, have assumed the utmost importance.'[52] These distressing conditions took on such a grave importance due to the placement of military barracks directly in Puerto Rican communities; the health and disease of the civilian population posed a real threat to the military.

The "Report on the Census of Porto Rico" for the same year highlights the complete lack of sewerage and running water in San Juan at the time of occupation, creating a dependency on a water supply always at risk of contamination.[53] Army engineers who piped water into the city from the mountains finally introduced a reliable water source in 1899.[54] As Major John Van R. Hoff, president of the Superior Board of Health and chief surgeon of the Department of Puerto Rico, noted: 'The duties of our Army medical officers in this department would have been light during the past year had they been restricted to the care of the sick and wounded of the Army and the supervision of sanitary conditions affecting their commands; but there was placed upon these officers the responsibility for the welfare of the whole civil population.'[55] If the Army Medical Department and their affiliates did not address this sanitation crisis, thousands of lives stood to be lost.

Hoff judged the Puerto Rican system of sanitation and hygiene to be roughly a century behind contemporary standards. Public institutions such as hospitals, prisons, and

[52] Ibid., p. 209.
[53] Sanger, Gannett, and Willcox, 'Report on the Census of Porto Rico', p. 108.
[54] Ibid., p. 109.
[55] 'Annual Reports of the War Department for the Fiscal Year Ended June 30, 1900', War Department, (Washington, D.C.: Government Printing Office, 1900), p. 699.

orphanages were similarly 'backward' and in some cases 'dangerous to health.'[56] By Carroll's assessment, 'The public charities of Porto Rico are few, poorly supported, and poorly organized, as a rule…Every district has a hospital, generally insufficiently equipped and not well kept, but there are few orphanages and scarcely any provision for the insane, outside of San Juan, where an insane asylum is maintained by provincial funds.'[57] In sum, the military governors of Puerto Rico faced a failing economy, a stratified population with a debilitated labouring class, and a total lack of effective public health and medical infrastructure upon their formal assumption of control of the island in the fall of 1898. How could a top-down, comprehensive ideological approach to resolving such issues be imposed in this context?

Rather, an articulated American "civilizing mission" did not order the steps taken by the administrations; only matters of the greatest urgency could receive the administrations' limited resources. To be sure, no "official mind" in Washington had a step-by-step plan for the occupation of Cuba or the taming of the Philippines. However, the U.S. fascination with Cuba as a potential formal or informal possession of the country dated back to the first half of the nineteenth century. Congressional focus on curbing direct Spanish control of the island during the 1890s and a consistent lobbying force by Cuban exiles in the Northeast translated into more formal and active direction from the U.S. capitol following the passage of the Treaty of Paris. In the case of the Philippines, the outbreak of guerrilla warfare similarly required much more overt consideration of the fate of the archipelago and the role of federal agencies. The relatively peaceful takeover of Puerto Rico, coupled with the initial support of significant members of the island's political and economic elite facilitated federal inattention. The military command of the

[56]Carroll, 'Report on the Island of Porto Rico. Its Population, Civil Government, Commerce, Industries, Productions, Roads, Tariff, and Currency, with Recommendations', p. 31.
[57]Ibid., p. 33.

island and the Army Medical Department acted of their own volition to quell emergent issues.

The Smallpox Vaccination Campaign

Before the general sanitary situation of the island could be addressed, however, the threat of epidemic smallpox necessitated action. The battle to improve the insalubrious environments of cities and towns across the island had to be put on hold due to the more urgent priority of preventing further outbreaks of smallpox. Thousands of miles away in Manila, Army physicians faced an outbreak in 1898 that required a massive campaign of vaccination and revaccination, by force if necessary.[58] In both the Philippines and Puerto Rico, the Spanish failed to vaccinate the population against the disease, continuously threatening the non-immune population. Although the Spanish commenced their first smallpox vaccination campaign in 1803, by the 1890s, 'the Spanish compulsory vaccination measures,' according to Major Hoff, has been 'honoured in the breach more than in the observance,' especially in the rural areas. Throughout the last decade of Spanish rule, vaccination occurred infrequently, such that 'the vaccine orders seemed so arbitrary and the operation itself so often proved ineffective.'[59] Even in the best of circumstances, smallpox vaccination proved dangerous and scarring. With a crumbling imperial network, outbreaks of smallpox spiked across Spain's empire.[60]

With major disruptions caused by the influx of Spanish and American troops and the displacement of civilians during wartime, smallpox spread throughout Puerto Rico. While Major Hoff, maintained the vaccinations of all his troops and the cleanliness of the garrisons, it was impossible to maintain a cordon sanitaire given the close proximity of

[58]Gillett, 'U.S. Army Medical Officers and Public Health in the Philippines in the Wake of the Spanish-American War, 1898-1905', p. 574.

[59] Michael Willrich, *Pox: An American History* (The Penguin History of American Life; New York: Penguin Press, 2011), p. 144.

[60] For further information on smallpox vaccination in the Spanish empire, see, for example: Jose G. Rigau-Perez, 'The Introduction of Smallpox Vaccine in 1803 and the Adoption of Immunization as a Government Function in Puerto Rico', *The Hispanic American Historical Review,* 69/3 (1989).

native populations.[61] Though Spain could ignore smallpox outbreaks due to the geographical separation from their imperial outposts, American military leaders had to protect their troops. With reports of soldiers contracting the disease, pressure rose to take action, and he explained the dire circumstances: 'At the time of our occupation of the island the prevalence of smallpox was so general that quarantine had been declared by the neighbouring islands against the seaports. The disease existed in every direction, and was a constant menace to the people and a detriment to their material interests.'[62]

Initiated during General Henry's administration and completed under Brig. General Davis, an island-wide vaccination campaign halted the periodic epidemics of smallpox, a signature achievement. The department headquarters issued General Order No.7 from the headquarters in San Juan on 27 January 1899 declaring that all residents of the island must be vaccinated if they had not done so already, and infants born thereafter were required to be vaccinated before the age of six. By February 1899, smallpox had once again reached epidemic proportions in San Juan, reinforcing the need for a quickly and efficiently organized vaccination campaign.[63] However, by this point, the men of the Army Medical Department, including Major Hoff, his colleague, Major George G. Groff, and the chief architect and implementer, Captain Azel Ames, were in the midst of developing a systematic, scientifically sound campaign characterized by efficiency and its apolitical, broad-based support. Groff and Ames brought years of experience in public health to the campaign.

> Both men were undoubtedly influenced and prepared by their civilian posts:
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> Dr. Azel Ames, who served as a brigade surgeon with the U.S. Volunteers in Puerto Rico, had founded the board of health in Wakefield, Massachusetts. Dr. George G. Groff, who would serve with Ames as a director of vaccination in Puerto Rico, had a peacetime career as professor of organic science at Bucknell

[61] Willrich, *Pox: An American History*, p. 143.
[62] 'Annual Reports of the War Department for the Fiscal Year Ended June 30, 1900', pp. 700-1.
[63] Gillett, *The Army Medical Department, 1865-1917*, pp. 258-9.

University and president of the Pennsylvania State Board of Health.[64]

The internal letters, Senate hearings, and medical publications distinctly lack any mention of the island's elite or municipal party politics, and instead are generally praiseworthy of the campaign's astonishing triumph. Congress easily ignored public health matters in Puerto Rico as this cadre of capable physicians of the Army Medical Department took responsibility, employing the latest knowledge and tactics in turn-of-the-century public health science.

Control Measures

Groff succinctly laid out six considerations that had to be carefully attended to in order to achieve maximal success. He urged the thorough testing of vaccine produced on the island before widespread use, halting further production until the completion of testing. Each director in the field would then receive "minute description" of each vesicle of vaccine received. Like many of his medical colleagues, Groff thought the actual work would be best handled by native physicians, or their assistant practicantes, as far as possible, with very astute reasoning: 'Should they do the work, they will naturally persuade the people that the operation is a good thing, if they should not assist, it is entirely possible that they will talk in a disparaging manner of the work and so make it very difficult to get the people to submit to the operation. In other countries, vaccination riots have occurred…'[65]

The negative associations with late Spanish imperial medicine necessitated the full collaboration of Army physicians with their native counterparts, all of whom received medical training on the Spanish peninsula or other European centres as no local medical colleges existed on the island. In addition to the involvement of Puerto Rican physicians,

[64] Willrich, *Pox: An American History*, p. 129.
[65] Letter from George G. Groff (Major and Brigade surgeon) to John Van R. Hoff, February 21, 1899, Folder 442 on Smallpox and Vaccination, RG 350 NARA College Park.

the campaign also required the assistance of native "runners" who would deliver fresh vaccine from the farm to the villages and towns being vaccinated.[66] Continuing with this measured approach, Groff explained the need to have vaccinators travel throughout the various barrios, as it was not practical 'to expect any large proportion of the people to come from their nearly inaccessible mountain homes to the different municipal seats.' The vaccinators would move first through the more heavily populated cities and towns, then to the outlying barrios. With this level of direct, focused attention, the campaign would ensure initial vaccination, re-inspection, certification, and revaccination if necessary, all by the same practitioner. Finally, perhaps most ambitiously, Groff envisioned a broad sanitary survey of the island conducted in conjunction with the vaccination campaign.

While vaccinators handled the daily tasks of such a campaign, Groff outlined the plan for the Director of Vaccination and his inspector to complete a sanitary survey of each municipality, which if 'carefully taken, ought to be worth to the Government, and to the people of the Island, only a little less than the successful vaccination of all the people' Groff and his collaborators believed the survey should be published and distributed to all those interested in an exact description of the sanitary conditions of the island's towns and cities, and be made the basis of the work of the future Board of Health as they undertake 'sanitary reconstruction of the Island.'[67]

In her recent work, Nicole Trujillo-Pagán called the vaccination campaign and its survey a 'form of social and political espionage that aided the development of the colonial administration.'[68] While undoubtedly surveys provided valuable information for an occupying power, there is nothing inherently sinister about such endeavours. Colonial

[66] Ibid., p. 146.
[67] Letter from George G. Groff to John Van R. Hoff, February 21, 1899.
[68] Nicole E. Trujillo-Pagán, *Modern Colonization by Medical Intervention: U.S. Medicine in Puerto Rico* (Studies in Critical Social Sciences: Brill, 2013), p. 2.

powers have used vaccination programs to gather information that was administratively useful, but the primary motivation for Puerto Rico's vaccination efforts remained emergency response. In fact, similar operations took place across the United States as the nation 'was in the throes of an extraordinary five-year wave of smallpox epidemics…no state or territory was untouched.'[69] By removing the domestic context of American sanitary imperialism, vital continuities are likewise lost, including the positioning of Puerto Rican and American doctors within the same paradigm of Western medicine and the larger expansion of the legitimacy of the medical profession within the Progressive movement of the early twentieth century.[70]

As Kunitz has shown, a cornerstone of the Progressive movement was the drive for what he calls "social efficiency"—the idea that experts, particularly in the new and growing middle class, possessed the skills and knowledge to mediate conflicts in the larger society in the push to reorder government.[71] Sanitary reform and access to medical services became a fundamental arena for Progressive reformers interested in appealing to a broad demographic and multiple sectors. Education and housing reform could not be divorced from health and medicine as, 'In the Progressive Era the trend culminated in the belief that science fostered democracy, that its freedom, devotion to truth, and objectivity were necessary ingredients of economic and political justice.'[72] As Ames and Groff demonstrate, the medical experts and colonial administrators trained in this domestic context translated these sentiments to their work in Puerto Rico.

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[69] Willrich, *Pox: An American History*, p. 13.

[70] For a classic history that details the relationship between the government and expert, scientific knowledge, especially in terms of the evolution of the U.S. Public Health Service and the medical profession, see: A. Hunter Dupree, *Science in the Federal Government, a History of Policies and Activities to 1940* (Cambridge, Mass.: Belknap Press, 1957), pp. 300-1.

[71] Stephen J. Kunitz, 'Efficiency and Reform in the Financing and Organization of American Medicine in the Progressive Era', *Bulletin of the History of Medicine,* 55/4 (Winter 1981), p. 499.

[72] Dupree, *Science in the Federal Government*, pp. 300-1.

Overall, the fundamental optimism of this cadre of practitioner-policy makers shines through in Dr. Groff's enumeration on how Puerto Rico can be as healthy as the northern regions (i.e. the United States and Europe):

> There is no doubt at all, that when a country like Porto Rico is once cleaned up, its cities supplied with mountain water, a rigid quarantine exercised, and the ordinary health rules and regulations of civilized countries enacted and enforced, that not only will the death rate be reduced, but it will become as healthful as countries farther to the north. The air is pure, the mountain water is wholesome, it is only the accumulation of waste from human bodies (Together with improper modes of living), which makes possible the presence of common diseases in epidemic form.

Groff's letter concluded by underlining the multifaceted benefits and motivations involved with such an undertaking: 'To accomplish this great, *commercially invaluable* and *beneficent undertaking*, unprecedented in its magnitude and importance and unique in its conditions, a very carefully matured and comprehensive organization is requisite and a very considerable force and equipment are essential.'[73]

Ames would lead this mutually beneficial economic and humanitarian endeavour, again, symptomatic of the American preoccupation with labour in its public health undertakings. He submitted "A Report Concerning the Vaccination of the Department of Porto Rico and ESTIMATE OF EXPENSE" within Groff's letter to the Adjutant General of the Department of Puerto Rico, laying out the specifics of the campaign's organization. Hoff reiterated much of Groff's plan for the sanitary survey and vaccination campaign in his endorsement of the letter as it travelled through the various bureaucratic channels to the top-tier leadership of the War Department.[74]

Considering the scope of the project, Dr. Ames and the other planners determined that the importation of vaccine lymph from the United States was both too expensive and too unstable. The Puerto Rican efforts attempted to prevent the waste and inefficacy that

[73] Emphasis added; Letter from George G. Groff to John Van R. Hoff, February 21, 1899.
[74] 1st Endorsement, Headquarters of the Department of PR, San Juan, Feb. 22, 1899, John Van R. Hoff (Major and Surgeon, U.S.A., Chief Surgeon), Folder 442 on Smallpox and Vaccination, RG 350 NARA College Park.

had beset the Filipino campaign. The Philippines required a much larger scale of campaign given the size of the archipelago and the separation between population centres, in addition to continued wartime conditions.[75] The maintenance of good supplies of quality vaccination lymph was a major technical obstacle to the progress of vaccination in other regions as well, including British India and the United States. Concern among American physicians regarding the quality of vaccines emerged on the U.S. mainland. As the Americans, British, and Spanish all learned, ineffective vaccine created systematic distrust for the medical establishment and general vaccination. The delivery and production of effective vaccination lymph remained a particular problem for tropical vaccination programs until the 1950s when heat-stable, freeze-dried vaccine became available.[76]

To circumvent these problems, in discussion with Hoff, Dr. Ames decided to create a permanent vaccine farm at Coamo Springs using the island's ample supply of cattle. In order to produce enough vaccine lymph for one million vaccinations and revaccinations, the project required 2,000 healthy cattle to produce at least 16,200 charged points[77] per day.[78] The distribution was simplified by dividing the island into five departments with the population distributed as equally as possible between them. Ames described the immense amount of detail and coordination involved in the project as each division was further subdivided and placed under the jurisdiction of local mayors. These "alcaldes de barrio"[79] compiled rosters of individuals in their precincts and systematically carried out that community's vaccinations. Inspectors gave each individual a public vaccinator's certificate upon a return visit to determine the efficacy of the vaccination.

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[75] Willrich, *Pox: An American History*, p. 151.
[76] Ibid., p. 146.
[77] A charged point is equivalent to a single dose container of vaccine.
[78] Carroll, 'Report on the Island of Porto Rico. Its Population, Civil Government, Commerce, Industries, Productions, Roads, Tariff, and Currency, with Recommendations', p. 212.
[79] Roughly equivalent to small town mayors

Impact of the Campaign

While Puerto Ricans lacked personal choice in vaccination, the crisis undeniably demanded action. Since the introduction of Jennerian vaccination in San Juan in 1803, smallpox vaccination had proceeded through yearly vaccination expeditions that did little to curtail periodic severe smallpox epidemics.[80] The necessary infrastructure and funding that propelled the Americans to success did not transpire throughout the nineteenth century, despite the repeated calls of the Spanish military governors for compulsory vaccination. Still, as previously mentioned, town physicians who aided the island's fragmented efforts in previous decades pivotally served as the chief vaccinators throughout the American-devised campaign.

In only six months, over 740,000 vaccinations and 116,000 revaccinations were recorded with no death from smallpox reported in the subsequent eight months—an astonishing feat of near universal compliance for an island with little infrastructure. By one estimate, the work of the campaign amounted to 'a saving of over 6,000 human lives in ten years' time, besides the great expense attendant upon the cure of the sick, comprising a much larger number…'[81] Ames, among others, greatly hoped the Puerto Rican vaccination campaign would contribute to the professional scientific literature of their times.

The success of the Medical Department's work against smallpox could potentially improve the Department's standing in scientific communities and among their fellow military men as well. Since the Civil War, line officers, possessing no background in military hygiene or sanitation guidelines, underestimated the deadliness of disease and largely ignored the sanitary recommendations of medical officers. In some cases during

[80] José G. Rigau-Pérez, 'Strategies That Led to the Eradication of Smallpox in Puerto Rico, 1882-1921', *Bulletin of the History of Medicine,* 59/1 (Spring 1985), p. 76.
[81] Dr. Robert Hessler, 'Spanish Measles, Cuban Itch, Porto Rico Scratches', *Monthly Bulletin, Indiana State Board of Health,* V/1 (1903), p. 7.

the course of the typhoid epidemics in army camps during the Spanish-American War, superior officers treated the medical officers harshly and forced them to suppress the facts and figures of the epidemic.[82] However, 'The Medical Department demonstrated to the world the capability of scientific medicine and modern organization to control epidemic disease.'[83] According to the *Annual Report of the Supervising-Surgeon of the Marine-Hospital Service of 1899*, 'This is probably the greatest work of this kind on record, uniting the production of the vaccine and its practical use upon the island. In many of the districts 86 per cent of the vaccinated reacted. The Medical Department of the Army deserves a compliment and commendation for this success in virtually stamping out the disease.'[84]

As Groff outlined before the start of the campaign and during the entire process, thorough notes documented the inspection of the cattle that provided the lymph, the lymph's delivery and distribution to the substation, and its administration into a patient.[85] In Ames' testimony before the Senate in January 1900, he discussed the meticulously collected data, asserting, 'If it were desired to publish it, we have the data all on hand in regard to that whole undertaking, which would, if published by Congress, to my mind, contribute a knockdown argument against the opposition to vaccination.'[86] In what was perhaps an ironic tone, one commentator in the *Journal of the American Medical Association* noted, 'One of the first things that American imperialism forced upon the

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[82] Vincent J. Cirillo, 'Fever and Reform: The Typhoid Epidemic in the Spanish-American War', *Journal of the History of Medicine and Allied Sciences,* 55/4 (1 October 2000), p. 384.
[83] Foster, *The Demands of Humanity*, p. 47.
[84] U.S. Treasury Department, Office of U.S. Marine-Hospital Service, 'Annual Report of the Supervising Surgeon-General of the Marine-Hospital Service of the United States for the Fiscal Year 1899', (Washington, D.C.: Government Printing Office, 1901), p. 518.
[85] Carroll, 'Report on the Island of Porto Rico. Its Population, Civil Government, Commerce, Industries, Productions, Roads, Tariff, and Currency, with Recommendations', p. 215.
[86] U.S. Senate Committee on Pacific Islands and Puerto Rico, 'Industrial and Other Conditions of the Island of Puerto Rico, and the Form of Government Which Should Be Adopted for It.: Hearings before the Committee on Pacific Islands and Puerto Rico of the United States Senate on Senate Bill 2264, to Provide a Government for the Island of Puerto Rico, and for Other Purposes', (Washington: U.S. Government Printing Office, 1900), p. 196.

people of Porto Rico was the loathsome disease, vaccinia! The result has been that the privilege of having smallpox, wholesale and retail, *ad libitum*, as under Spanish rule, has been almost destroyed.'[87] The American antivaccination movement had 'deep and wide' roots that reflected the social and political tensions of the period: 'On the broadest level, though, the vaccination question revealed a sharp uneasiness toward the authority of medicine and the power of the state at the height of the Progressive Era, a period of time when both institutions were reaching more ambitiously than ever before into American life.'[88] Limited efficacy and the associated dangers of vaccination, alongside the failure of the medical establishment to acknowledge such limitations, coupled with the threat of expanding government to create a significant force of opposition.

The Puerto Rico campaign's success served as valuable ammunition against the protests of the antivaccinationists. During Senate hearings, Senator Gallinger commended the success of the campaign, saying, 'I have never seen any record, nor have I any knowledge, of such wholesale vaccinating as you have done in Puerto Rico.'[89] While the campaign did face obstacles in compliance, the leadership and reach of the Army Medical Department circumvented all potential legislative and political barriers in its successful undertaking.[90] Given the negative impact of disease quarantines on commerce, the effective elimination of smallpox as a threat in Puerto Rico foreshadowed the likely benefits of even further work in the realm of public health. Without interference or guidance from Washington or San Juan political leaders, the vaccination campaign solved

[87] 'Vaccination in Porto Rico', *Journal of the American Medical Association,* XXVII/5 (August 3, 1901 1901).
[88] Willrich, *Pox: An American History*, pp. 13, 252.
[89] 'Industrial and Other Conditions of the Island of Puerto Rico, and the Form of Government Which Should Be Adopted for It', p. 195.
[90] See, for example, General Orders No. 80 issued by the Headquarters of the Department of Porto Rico in San Juan on June 17, 1899, (Folder 442, RG 350, NARA) in which the penalties for Alcaldes failing to comply with vaccination assignments are laid out.

one of the most pressing health needs of the island in a few short months, an important point of comparison for later epidemic outbreaks.

News of the campaign's success spread as far afield as the monthly bulletin of the Indiana State Board of Health. As one writer commented, if the 'ignorant and filthy' masses of Puerto Rico could undergo universal vaccination, the 'enlightened' homes of Indiana should likewise be protected from the disease.[91] Nevertheless, the sense of accomplishment felt by the military administrators with the completion of the vaccination campaign would be short-lived as one of the most intense Atlantic hurricanes in recorded history struck the island soon after, devastating an impoverished country.

San Ciriaco Hurricane of 1899

In a matter of days, the San Ciriaco hurricane[92] took the lives of more than 2,200 Puerto Ricans with an estimated five hundred additional deaths for which there is no record.[93] Responding to the catastrophe, Brigadier-General Davis quickly converted the twelve military posts on the island into twelve inspection divisions to ascertain the extent of the damage and the condition of the people.[94] Reports streamed into the Department's headquarters describing the wasteland left in the wake the hurricane. By one account, 'The appearance of the surface of the country now very closely resembles a northern region that has been swept by fire, for everything is brown and lifeless.'[95] While the downed fruit trees provided sustenance in the immediate aftermath of the hurricane, the already destitute population faced imminent starvation, again requiring the occupying forces to address this major humanitarian crisis: 'For the most part we have been

[91] Hessler, 'Spanish Measles, Cuban Itch, Porto Rico Scratches', p. 7. Such a distinctly racialized and xenophobic conclusion characterized much of the relationship between American national identity and disease at the start of the twentieth century. See, for example, Alan I. Marcus, 'Physicians Open a Can of Worms: American Nationality and Hookworm in the United States, 1893-1909', *American Studies,* 30/2 (1989).
[92] Named for hitting Puerto Rico on San Ciriaco's day, 8 August 1899
[93] Hoff, 'Military Government of Porto Rico from October 18, 1898, to April 30, 1900', p. 109.
[94] Ibid., p. 206.
[95] Ibid., p. 205.

Samaritans, not soldiers, ministering to the wants of a starving population, and struggling to keep alive those who, in accordance with the Draconian laws of nature, should have made room for a fitter people.'[96]

Though such remarks may appear callous, Davis' administration and Secretary of War Elihu Root took immediate action to fend off an even greater loss of life in the months after the hurricane. On 12 August 1899, a mere four days after the hurricane, Davis established a central Board of Charities, the first organization to provide relief to the desperate Puerto Ricans. The Secretary of War authorized much of the War Department emergency fund to be used for the provisions of emergency rations, given the delay of final action by Congressional legislation and the urgent need for relief. Considering the island's economic dependence on the export of coffee, the Senate Committee on the Pacific Islands and Porto Rico worried most about relieving the distresses of the people and maintaining the labour force for the coffee plantations.[97] The support provided from Washington in the wake of the hurricane represents one of the only documented federal interventions during the military government of Puerto Rico.

The concern on the mainland resulted in an outpouring of generosity from the United States with donations of 'food stuffs, clothing, medicines, lumber, roofing, nails, and other material.' Throughout the 1890s and into the new century, U.S. philanthropic endeavours became increasingly global in nature, quite distinct from European patterns of giving.[98] The Board of Charities organized a system of receipts, returns, and vouchers as cargo was received, sorted, and guarded by army officers.[99] Physicians were assigned as inspectors to report on the state of sanitation and food supplies.

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[96] 'Annual Reports of the War Department for the Fiscal Year Ended June 30, 1900', p. 703.
[97] Hoff, 'Military Government of Porto Rico from October 18, 1898, to April 30, 1900', p. 257.
[98] Ian R. Tyrrell, *Reforming the World: The Creation of America's Moral Empire* (Princeton: Princeton University Press, 2010), p. 14.
[99] Hoff, 'Military Government of Porto Rico from October 18, 1898, to April 30, 1900', p. 197.

The Department of Puerto Rico even authorized the Board of Charities to distribute critical medicines from the army hospital's supply—to the extent that it did not impair its internal operations—until a shipment with similar supplies from the New York was received.[100] As one report pointed out, 'Regarding the entire management of the relief work, considering its stupendous proportions, the character of the people to be succoured and assisted, and the difficulties of transportation in reaching them, the returns and records indicate that it was conducted with business-like care and that the relief was honestly and intelligently applied.'[101] The administrators and staff of the Department of Puerto Rico seemed to work most effectively in executing relief efforts, leaving the responsibility of reforming local practices to the Superior Board of Health.

In addition to the Board of Charities formed by the Department, Secretary of War Elihu Root also formed the Puerto Rico Central Relief Committee to provide hurricane relief.[102] Summoning the resources of the Colonial Aid Society of the United States[103] and Women's Aid Society of Puerto Rico, Root immediately telegraphed the Merchants' Association of New York upon receiving news of the hurricane. He sought the cooperation of this powerful body with the War Department in 'raising money, food, clothing, and medical supplies.' With Governor Theodore Roosevelt as its chair, the Committee sent out a formal appeal to merchants and news outlets in New York State.[104] Soon afterwards, the Committee issued "An Appeal to the People of the United States" with local committees springing up in support. Hoff, also named president of the Board of Charities, wrote in one letter to the Secretary of the Committee, 'We can not let them

[100] Ibid., p. 230.
[101] Ibid., p. 198.
[102] While volunteer associations arose to combat specific diseases (e.g. the Anti-Tuberculosis League) or societal ills (e.g. prostitution), the Puerto Rican chapters of the American Red Cross and the YMCA were not formally organized until 1917, hence the creation of the Puerto Rico Central Relief Committee in the wake of the San Ciriaco Hurricane.
[103] Formed by the wife of General Henry upon his return to the U.S. in May 1899
[104] Hoff, 'Military Government of Porto Rico from October 18, 1898, to April 30, 1900', pp. 280-1.

starve; so we must feed and clothe them now, educate them later, and gradually bring them to an appreciation of the meaning and blessings of being part of our nation.'[105] A malnourished, sickly people needed their immediate physical needs met. Eventually, contemplating the future prosperity of the island and quite successful in its fundraising efforts, the Committee established a fund to benefit those who directly suffered from the hurricane and their children.[106] Education and the process of "Americanizing" the Puerto Ricans could only begin once a basic level of health and wellbeing was met in the general population.

Given the already high level of poverty and low standard of living among the labouring classes and the declining market for Puerto Rico's coffee export, the storm's destruction only exacerbated the downward spiral of the island's economy. From early 1899, business operations were essentially halted with a government moratorium on foreclosures. The military government lacked the authority to negotiate a loan on behalf of the plantation owners, depriving planters of much needed capital investment in planting and harvesting methods.[107]

In a letter from Hoff to a New York businessman, he lamented Congress' unsettling lack of action regarding the fate of the island, saying: 'there is just as much money here as there ever was and the security is just as good, only the relation of Porto Rico to the United States is undetermined, and until this is settled capital will remain timid.'[108] Unlike Filipinos and Cubans, Puerto Ricans had no defined place in the new American empire. Habitual parochialism and disputes within and between various Congressional committees held up formative legislative action for Puerto Rico and likely

[105] Ibid., p. 286.
[106] Ibid., p. 283.
[107] Ibid., p. 204.
[108] Ibid., p. 287.

worsened not only the health environment of the island, but also the economy.[109] With Cubans entirely off limits in terms of sustained American occupation and the Filipinos engaged in guerrilla war against the United States, Puerto Rico still occupied this in-between position. Congress would not decide the terms of its (un)incorporation for months.

The coffee planters desperately required an infusion of capital after the wind destroyed almost everything in the uplands and the location of most of their plantations. The planters depended on the profits from their coffee crop to pay taxes and other debt, however diminished, and to pay wages to the jíbaros. Even this meagre return would remain out of reach; it would require at least five years to regenerate the lost crops.[110] The coastal flooding, while damaging, actually improved the production of sugar cane, but the processing stalled, as the mills were damaged by the storm. If planters had been able to borrow money, the rebuilding efforts of mills, plantations, housing, and any number of projects could provide much needed employment for the masses of 'hungry, homeless, clothless human beings [sic].'[111] The arrival of epidemic dysentery in the mountains inspired even greater fears with the potential movement of people to the coast in search of relief.

Starvation and disease confronted the administrators of the military government, the Army Medical Department, and the Board of Charities. The death rate steadily climbed in the months after the storm.[112] Although leaders advocated wage employment as the best solution to starvation following the disaster, the military government was

[109] For an overview of Congressional politics of the late nineteenth century, see: Jeannette P. Nichols, 'The United States Congress and Imperialism, 1861-1897', *The Journal of Economic History,* 21/4 (1961).
[110] Hoff, 'Military Government of Porto Rico from October 18, 1898, to April 30, 1900', p. 221.
[111] Ibid., p. 313.
[112] The San Ciriaco Hurricane resulted in the highest number of deaths of any hurricane in Puerto Rico's history. The Santa Ana Hurricane of 1825 killed more than 1,000 people and was the most damaging hurricane under Spanish rule. See: Edward N. Rappaport and Jose Fernandez-Partagas, 'The Deadliest Atlantic Tropical Cyclones, 1492-1996', *National Hurricane Center* <http://www.nhc.noaa.gov/pastdeadlyapp1.shtml?>, accessed April 20, 2015

forced to rely on direct food distribution, a 'demoralizing and pauperizing act.' Public works like road building were badly needed, but the government did not have sufficient funds, and the raining season soon set in.[113]

Between 16 September 1899 and 22 January 1900, an average of 182,195 people were fed each day by government rations.[114] One report illustrated the danger to the military posed by worsening conditions:

> The conditions now obtaining here, which accentuate the hunger, filth, misery, and want which are the common heritage of 800,000 Porto Ricans, are ripe for an epidemic, needing only the match to start the conflagration. To prepare for all contingencies, sites for camps of refuge for all garrisons have been designated and the post commanders directed to make the necessary arrangements for immediate evacuation.[115]

The health of the troops still needed to be protected alongside the health of the people.

To improve the sanitary conditions of the island, the administrators encouraged able-bodied men to initiate repairs in exchange for food. Only the "worthy poor" deserved the food distributions as the government's new mantra took hold: 'No person shall die of starvation and no able-bodied man shall eat the bread of idleness.'[116] By order of Governor Davis, if any capable man refused to labour, his name was reported to the inspector of his division and he was blacklisted from receiving food until he returned to work, but the enforcement of this program remained difficult. Distinguishing the genuinely needy from the disingenuous in a population suffering from chronic starvation even before the hurricane was a virtually impossible task.[117] The attitude and prerogatives of Davis and his colleagues do not represent 'a racist or colonialist' mind set, but rather

[113] Hoff, 'Military Government of Porto Rico from October 18, 1898, to April 30, 1900', p. 204.
[114] 'Annual Reports of the War Department for the Fiscal Year Ended June 30, 1900', p. 699.
[115] Ibid., p. 704.
[116] Hoff, 'Military Government of Porto Rico from October 18, 1898, to April 30, 1900', p. 233.
[117] The concept of the "deserving poor" remained a strong holdover from the nineteenth century roots of public health initiatives through religious and private charity organizations.

characterize Anglo-American sentiments toward the poor on both the mainland and the island in the late nineteenth century.[118]

With the destruction of banana and plantain crops, the staple items of the peasant diet, Hoff recommended the instruction of the population in methods of planting garden fruits and vegetables—food crops with a rapid maturation process—in order to eliminate the need for government rations by the end of 1899. Just as administrators struggled to extract labour from able-bodied men, Hoff enjoyed little success in his attempts to teach new cultivation methods. As such, the Department of Puerto Rico pushed back the deadline for ending rations on four separate occasions. After 15 July 1900, supply issues would only be made to local boards of charity for the chronic poor, sick, and infirm. With Hoff's question in mind—'If the island can not then take care of its own people, when will it ever be able to do so?'—Secretary of War Root approved this final deadline.[119] Crisis management needed to evolve into sustainable aid programs.

To address the labour problem and the unlikely prospect of further assistance from Washington, the Board of Charities devised a planters' relief program. The Board—consisting of both Puerto Ricans and Americans under the direction of Major Hoff—contacted a number of banks across the island to enlist their support in recruiting credible and reliable planters in the scheme.[120] Those planters in need of labour, who passed the vetting process, received specifically allotted rations to pay each labourer employed on their plantation.[121] While the farmers' relief plan did face some challenges, a degree of success was achieved: 'Many farms were cleared which otherwise would not have been. Many labourers were employed who under any circumstances would have had to be fed,

[118] Stuart B. Schwartz, 'The Hurricane of San Ciriaco: Disaster, Politics, and Society in Puerto Rico, 1899-1901', *The Hispanic American Historical Review,* 72/3 (1992), p. 323.
[119] Hoff, 'Military Government of Porto Rico from October 18, 1898, to April 30, 1900', p. 236.
[120] Davis, 'Report of Brig. Gen. Geo. W. Davis, U.S.V. On Civil Affairs of Puerto Rico, 1899', p. 68.
[121] Hoff, 'Military Government of Porto Rico from October 18, 1898, to April 30, 1900', pp. 246-8.

and thousands of people were kept at home and alive.'[122] While the planters' relief program addressed the "able-bodied" demographic, the Board also erected temporary hospitals in order to meet the growing epidemic of dysentery and other intestinal disorders.

After evaluating the capabilities of the island's municipal hospitals, the adjutant-general's office authorized the distribution of "large amounts of medicine," along with available food and clothing, via post surgeons to municipal physicians and hospitals in need. Due to lack of available staff and funding, the Board was not capable of generally administering hospitals beyond assistance in the recruitment of physicians where needed.[123] However, the Board had to take action in the case of Ponce, where the extensive damage from the hurricane completely debilitated the city's hospitals: 'This extensive, thickly populated section was in a fair way to originate and spread broadcast [sic] disease…For the sake of the island as a whole the situation had to be met, and at once.'[124]

Under Hoff's orders, First Lieutenant Bailey K. Ashford set about erecting a hospital on 25 August 1899 to supply food and medicine for the sick. According to his report, Ashford organized a field hospital employing the highest contemporary standards of sanitation and hygiene, attempting to prevent the outbreak of typhoid that plagued the army camps in the United States. Soldiers and hospital corpsmen built latrines set away from camp, and required them to be emptied and disinfected regularly. Those who "soiled" the camp and its immediate surroundings faced punishments.

The concept of the "worthy poor" again influenced operations as, 'The admissions are only by official application of the board of health, which investigates the worthiness

[122] Ibid., p. 269.
[123] Ibid., p. 274.
[124] Ibid.

of each one desiring a bed.'[125] Ashford did not encounter infectious diseases in his patients, but more commonly, chronic cases of pernicious anaemia, malaria cachexia, and 'diseases of the heart lungs, and kidneys.' Once again, the Medical Department was best equipped to address emergency needs, and the board attempted to close the hospital after a few weeks, but its services remained in place for an additional six months to meet local demand. This provided Ashford with additional time to investigate the reason why his prescription of hearty, American food failed to address the "grave anaemia" affecting most patients, and instead led to widespread diarrhoea and dissatisfaction. His investigation would lead to one of the most important early discoveries in American tropical medicine.[126]

Infrastructural Development

While much attention was given over to the hurricane and its consequences,[127] General Davis also founded a Superior Board of Health on 29 June 1899 in order to transition to a 'systematic sanitary organization with a well-considered sanitary code' for the island. Davis' actions aligned with the parallel establishment of the Manila Board of Health which similarly sought to clean up the city and improve overall sanitary conditions for the sake of both occupying soldiers and the local population.[128] In the Puerto Rican context, Hoff created an interagency board with George G. Groff as its secretary, alongside senior officers from the Army, Navy and Marine-Hospital Service, a civil engineer and two reputable Puerto Rican physicians.[129] Given that the majority of the board's members were American, the dynamics and actions of the Superior Board of Health (SBOH) during its short tenure were largely inured to the heavy politicking that

[125] Ibid., pp. 274-6.
[126] Ibid.
[127] For further details of the San Ciriaco Hurricane and its impact, see, for example, Schwartz, 'The Hurricane of San Ciriaco: Disaster, Politics, and Society in Puerto Rico, 1899-1901'.
[128] Willrich, *Pox: An American History*, pp. 154-55.
[129] Hoff, 'Military Government of Porto Rico from October 18, 1898, to April 30, 1900', p. 8.

characterized much of the local situation.[130] From the time of the invasion to the formation of the Board, 'public sanitation was conducted under emergency conditions.' Long-term reform and improvements were not pursued during this formative period, but rather "policing" characterized most of the Board's actions.[131]

A multiplicity of medical institutions existed on the island to organize health and sanitation in theory, but legislation, implementation, and actual enforcement are very different. Still, the Hoff-led Board was not daunted by the prospects of a much needed total reformation of the island's public health system: 'I have no doubt that the attention now given by the Government to matters of sanitation and by the increasing efforts of the board of health, this island will not only be the loveliest, but the healthiest place on earth.' Unfortunately, the role of Puerto Rican physicians in conceptualizing the new American-led infrastructure is absent from the official record. Puerto Rican physicians were, however, incorporated into the new American system as members of the central and municipal boards of health. They maintained their position as the chief providers of medical service. Puerto Rican physicians educated in Europe and North America did not become scapegoats for the subpar state of sanitation on the island. Rather, the rhetoric of Davis, Hoff, and others ultimately place the blame for such a dilapidated system on the neglect of the Spanish imperial system. The Americans had to work together with their Puerto Rican counterparts, both in devising policy, responding to crisis, and meeting the needs of the larger population.

At each meeting, the Board addressed all communications submitted in the previous weeks concerning issues such as practitioner licensing, control of prostitution, and the need to secure cattle for smallpox vaccination.[132] The duties of the Board

[130] The political party system and dynamics will be addressed in "Chapter 2: The Foraker Act and the Fight Against Hookworm, 1899-1909."
[131] Hoff, 'Military Government of Porto Rico from October 18, 1898, to April 30, 1900', p. 7.
[132] Ibid., p. 25.

included the supervision of all matters relating to health and vital statistics, the supervision of all public institutions and facilities, and the supervision and licensing of all medical practitioners: 'Its powers are broad, but apparently well defined, and with an intelligent but scientific board, such as is practically insured in this instance by its composition, health and collateral matters will be when looked after in Porto Rico.'[133] Considering officials' comments on the backward or non-existent state of public sanitation, the island's public institutions similarly required a complete overhaul to meet the standards of modern sanitation.

Given the breadth of its responsibilities, the Superior Board transferred the care of the insane asylum, children's orphanages, and the rebuilding of the leper hospital to the newly created Board of Charities in August 1899. To address the inefficiencies of the local boards of health, the Superior Board called for representatives to be placed in each municipality, on the payroll of the central board, to act as a sanitary inspector and general health officer.[134] Finally, the responsibilities for the quarantine service were divided: the Public Health Service of the U.S. government carried out the external, maritime quarantine, and the Superior Board administered the internal quarantine. This involved the regulation of contagious and infectious diseases as well as the preparation for epidemic diseases.[135] The success of these desired local reforms proved much more subtle than the immediately tangible results of the vaccination campaign and the hurricane relief efforts but just as significant.

Impact of Infrastructural Reform

From its inception in June 1899 to the transfer of power to civilian government in May 1900, the Superior Board accomplished a great number of its short-term goals and

[133] 'Sanitation in Porto Rico', *Journal of the American Medical Association,* XXXIII/7 (August 12, 1899 1899).
[134] Hoff, 'Military Government of Porto Rico from October 18, 1898, to April 30, 1900', pp. 17-8.
[135] Ibid., p. 143.

seemingly set the island's public health system on a path toward long-term success. As the *Journal of the American Medical Association* commented, 'Whatever may be the permanent form of government adopted, it is hoped, for its best interests, that the efficient health measures of the provisional military control will be perpetuated.'[136] Among other accomplishments, the Board revitalized the administration of the central body responsible for the health and well-being of the civilian population, reorganized and regulated the local boards of health in the municipalities, and oversaw the establishment of a permanent vaccine station with prescribed laws for the continued immunization of the population against smallpox.

In terms of vital statistics, the Superior Board created new forms for registering births, deaths, and disease incidences, as well as appointing honorary inspectors in each district to provide further regular sanitary information to the Board. Instituting licensing and exam regulations, the Board implemented a system of accountability and competency for all medical personnel wishing to practice on the island. Through the creation of a new chemical laboratory and other measures, Hoff and his colleagues provided valued advice to the military governor and explicit guidance concerning all manners of sanitary issues such as the purity of foods and medicines and the causes of disease.[137] After recounting the plethora of endeavours of the Board, President Hoff reflected, 'I venture to state my opinion that the superior board of health of Porto Rico has justified its existence and proved itself worthy of commendation.'[138]

To assist the municipal boards of health, in April 1900, General Davis issued General Orders No. 74 mandating the creation of municipal boards of charity to 'assist the chronic indigent.'[139] To establish hospitals for the sick poor, Davis agreed to

[136] 'Sanitation in Porto Rico'.
[137] Hoff, 'Military Government of Porto Rico from October 18, 1898, to April 30, 1900', pp. 133-4.
[138] Ibid., p. 133.
[139] Ibid.

contribute funds as long as the local municipalities also contributed any combination of money, labour, or material. He rationalized, 'It is the especial desire of the military governor that the sick poor of your municipality should be properly attended to, and he has directed this board to make an allotment of fund for the repair, furnishing, and maintenance of such municipal hospitals as are particularly in need of such assistance.'[140]

In addition to the months of hurricane relief work, the central Board of Charities worked to improve the administration and maintenance of the insane asylum, leper colony, and male and female charity schools. Within these facilities, the Board attempted to decrease crowding, restore hygienic practices, and improve water and sewer systems in the newly acquired facilities. Administratively, the Board sought to employ new, qualified staffs that improved the health of their patients, while also keeping adequate medical records, registers of patients, case files, and reports to the Board could be prepared and submitted.[141] With such measures set in place, officials hoped for a continuation of efficient and regulated procedures following the transfer of power.

In the course of its work, the Board of Charities supplied the population with over 32 million pounds of food, clothing, and medicine: 'In a word, it has kept a hundred thousand people here alive who other wise would have been dead. This is the absolute measure of its accomplishment.'[142] Though this claim might appear grandiose and self-congratulatory, the Board of Charities and its predecessor did avert such high mortality figures in its coordination of relief efforts following the San Ciriaco hurricane. In organizing the clearing and cultivation of nearly a quarter of the coffee plantations in Puerto Rico, the Board of Charities helped to save the economy from the brink of collapse and to save the population from assured starvation.

[140] Ibid., p. 238.
[141] Ibid., p. 346.
[142] Ibid., p. 295.

In assessing the long-term needs of the island, the Board of Charities recommended an immediate census due to the unreliability of pre-American occupation statistics. Echoing the reports of the Superior Board of Health, the War Department, and Brigadier-General Davis among others, the Board of Charities called for a capital infusion into the country, most especially to improve public works like roads, public buildings, and railroads, and eradicate the abject poverty of the masses.[143] Without these forward-thinking projects, the effects of the short-term relief work would quickly evaporate. Puerto Rico needed funding in order to "purchase" improved outcomes, not just in terms of public health, but also in terms of general socioeconomic uplift.

Major Groff attempted to reach a wider audience than the Washington bureaucrats who received the specially commissioned reports, the annual reports produced by the Department of Puerto Rico, and the specialist literature published in professional journals. Instead, he provided a summary of the political reforms and sanitation accomplishments of the military government in Puerto Rico in an article he published in Boston's *The Independent*. Recounting the many improvements made by the Board of Charities and the SBOH, Groff lamented that starvation remained a serious threat to the well-being of the population as the economy continued to flounder. He succinctly identified the core of the problem, that is, the Puerto Rican economy entirely depended upon the sale of cash crops like sugar, coffee, and tobacco to foreign markets.

Nearly all of the island's food was imported, including the staples of rice, beans, and codfish. Since many planters remained unable to employ labourers due to the impact of the hurricane and subsequent financial difficulties, the population, lacking knowledge of subsistence farming, continued to suffer from chronic starvation. This debilitating condition reduced strength and prevented physical labour for more than three days per

[143]Ibid., p. 297.

week. The Americans had only addressed a sliver of the island's immediate needs: 'Here are a million people, with a very rich soil uncultivated, a genial climate, slowly starving to death! And why? The only explanation is that they have so long lived under bad laws and unfavourable economic conditions that now, in their extreme poverty and ignorance, they do not know enough to draw their food from the earth. They starve and they do not know it.' Education was the only foreseeable remedy in Groff's eyes.[144] The stop-gap measures set in place during much of the period of military government would no longer suffice.

Conclusion

From 1898 until 1900, the American medical men in Puerto Rico, in cooperation with local medical professionals, developed and executed an island-wide smallpox vaccination campaign, provided relief efforts in the wake of the San Ciriaco hurricane, and established a Superior Board of Health and Board of Charities with little, if any, interference from Washington bureaucrats. As this chapter has shown, the haphazard incorporation of Puerto Rico as a new American imperial territory through the Treaty of Paris, resulted in a markedly ad hoc plan of governance under military control. McKinley pushed for the acquisition of the island almost as an afterthought, and subsequently, the "civilizing mission" inciting American federal efforts in Cuba and the Philippines did not take hold in as unequivocal a manner across Puerto Rico. American military governors and their administrations on the island incorporated native physicians in their efforts to quell epidemic disease outbreaks, care for the sick, and ascertain the viability of Spanish imperial policies and institutions while Congress remained absent from such initiatives.

Puerto Rico represented a unique opportunity for the United States to explore the meaning of American tutelage and a new position on the world stage. In spite of

[144]Groff, 'After Two Years' Work in Porto Rico'.

Congressional inattention during this period, military medical men and the various commissioners surveying the island expressed a fundamental optimism for the potential uplift of the people of Puerto Rico. The American administrators did not envision an explicit race-based ideology of rule that blamed the population for the current state of affairs. Rather, as will be explored in the next chapter, American ideologues articulated a cultural paternalism that viewed Puerto Ricans as children ready to be educated in Anglo-Saxon civilization: economically, politically, and especially in terms of health and sanitation. The notion of a biological inferiority inherent among this tropical people does not come through in related Congressional debates. The cultural paternalism expressed by Washington elites cannot be reduced to a form of race-based ideology given its most basic parameters: officials considered the vast majority of the population to be "white" (not an "other" of a different skin colour) and did not vocalize any specific deficits based on the "tropicality" of their heritage. The Puerto Rican population could be socially and culturally schooled and overcome four hundred years of "backward" Spanish rule.

Unfortunately, the impending transfer of power from the military government to the first civil government under Charles H. Allen would be orchestrated under the limited provisions of the Foraker Act that would emerge from Congress in the coming months. As we will see, the legislation was 'very brief, and [made] no direction of the manner in which the military was to be superseded by the civil government.'[145] However, the work of one Army physician, Bailey K. Ashford, provided an alternative to this state of inattention as the eradication of uncinariasis—the source of much of the island's major social, economic, and physical deterioration—became a tangible and immediate route to improving the physical condition of the masses. The next chapter takes up this story.

[145]Charles H. Allen, 'First Annual Report of Charles H. Allen, Governor of Porto Rico: Covering the Period from May 1, 1900 to May 1, 1901', (Washington, D.C.: Government Printing Office, 1901), p. 14.

Chapter 2: The Foraker Act and the Fight Against Hookworm, 1899-1909

An Unintended Discovery, 1899

At the turn of the twentieth century, hookworm disease, or "pernicious anaemia" as it was called in Puerto Rico, plagued the world's labour forces in a global belt encompassing diverse regions such as Brazil, Italy, and Egypt. From the 1880s, this hookworm belt captured the attention of scientists, physicians, parasitologists, and government officials as "miner's anaemia" threatened to stall major European infrastructural projects such as the Saint Gotthard tunnel.[1] As Steven Palmer observes in his research on hookworm science, breakthroughs surrounding the identification and treatment of hookworm disease took place in the "periphery," in regions experiencing rapid economic transformations, creating occupational and environmental conditions that exacerbated the parasite infestations.[2]

In the wake of the San Ciriaco hurricane, the devastation of the coffee industry, and the devaluation of the island's currency, Puerto Rico exactly fitted that bill. In this vein, the work of Dr. Bailey K. Ashford and the Puerto Rico Anemia Commission directly addressed this global pestilence in hundreds of thousands of Puerto Ricans. While Ashford initially set out to remedy a health crisis hindering major progress among the population, his fight against hookworm, perhaps even more so than the various endeavours of the Superior Board of Health, sought to improve the long-term health outlook of Puerto Rico. This work would be undertaken in large part following the transfer of power to a civil administration ushered in with the passage of the Foraker Act in 1900.

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[1] See, for example, Rockefeller Bibliography of Hookworm. International Health Board Rockefeller Foundation, *Bibliography of Hookworm Disease* (Publication No. 11; New York City: Waverly Press, 1922).

[2] Steven Palmer, 'Migrant Clinics and Hookworm Science: Peripheral Origins of International Health, 1840-1920', *Bulletin of the History of Medicine,* 83/4 (2009), pp. 685-91.

After the San Ciriaco hurricane ravaged the island in August 1899, a young Army medical officer, Dr. Bailey K. Ashford, organized and oversaw the running of the provisional field hospital in Ponce. Writing from his hospital post in November 1899, Ashford informed the Surgeon General of the U.S. Army, 'I have the honor to report upon twenty cases of the severe anaemia found in the poor of the island…Among the first observations of the professional man here is the prevalence—the almost universality—of anaemia, especially marked among the poor and laboring class. The first opinion formed usually assigns starvation or poor food as a cause, then malaria, then the "climate."'[3] Ashford turned to the most obvious cause of the symptoms—poor diet—in his efforts to treat his patients.

In light of the visibly severe malnutrition of the jíbaros, he attempted to remedy their nutrient-deficient diet by introducing heartier American foods, but Ashford's efforts only induced a case of widespread diarrhoea. With the aid of a new Spanish cook, Ashford used rations to create a new diet, but the field hospital's sickness and death rate remained the same. In a number of published accounts, as well as in personal letters, Ashford describes the crucial process through which he rejected previous diagnoses. While earlier physicians described the pallid, weak country peasant as suffering simply from "pernicious anaemia" or "malarial fevers," Ashford found:

> After over two months' examination of many patients and much speculation, it became evident that these chronic sick, the anemics [sic] of many years, not of a few months, were all suffering from a common malady…that this protean array of symptoms had one definite cause and was not dependent upon a series of predisposing accidents of environment, concomitant disease, or mere poverty and bad hygiene.[4]

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[3] Letter from Dr. Bailey K. Ashford to the Surgeon General of the U.S. Army. 25 November 1899, Scrapbook: Original Manuscripts of the studies, reports and speeches of B.K. Ashford, M.D. 1909-1922. Part 1., Box 5, Bailey K. Ashford Papers (BKA): GTM 071016, Special Collections (SC), Georgetown University (GU).

[4] Bailey K. Ashford and Pedro Gutierrez Igaravidez, 'Summary of a Ten Years' Campaign against Hookworm Disease in Porto Rico', *Journal of the American Medical Association,* LIV/22 (May 28 1910), p. 1758.

To determine the aetiology of the disease, Ashford first examined blood specimens, eliminating malaria as the source of symptoms. He instead noticed a high count of a type of white blood cells, eosinophils, which had been linked in recent investigations to the presence of animal parasites. He discovered ova in the faeces of the same patient which he then identified using Manson's *Tropical Diseases*. Identifying the ova as those of *Anklyostomum duodenale*, Ashford proceeded with a course of the anthelminthic, thymol.[5] Some decades later, Ashford romanticized the discovery: 'He looked at the expressionless face of his jíbaro and fairly beamed. Here was the prototype of anaemic millions all over the Caribbean, all round the tropical belt that girdles the portly belly of Mother Earth. That jíbaro was becoming positively beautiful to the young doctor.'[6]

This was the realization that instigated Ashford to immediately telegraph the chief surgeon in San Juan announcing his discovery of the cause of pernicious, progressive anaemia on 24 November 1899. His letter to the Surgeon General followed several days later. Poor diet was not the direct cause of this "Puerto Rican" anaemia as many of the local medical professionals and laity had believed over the last century; instead, the most direct cause was a small parasite. Apparently undiluted scientific curiosity drove Ashford toward his discovery. He was not motivated by a racialized typology that diminished the inherent reformatory potential of the peasant population by identifying their body as a source of disease—as argued in the case of much public health work in the Philippines.[7]

Ashford's identification and his interaction with local physicians inspired optimism for the success of an intervention: 'From the exceeding kindness and the

[5] Ashford, Gutierrez Igaravidez, and Porto Rico Anemia Commission, *Uncinariasis (Hookworm Disease) in Porto Rico,* p. 24.

[6] Ibid., p. 25.

[7] For example, Anderson uses diagnoses of malaria and typhoid in the Philippines to show that, "Physicians continued to magnify the threatening microbial pathology that lurked within native bodies." See: Warwick Anderson, 'Immunities of Empire: Race, Disease, and the New Tropical Medicine, 1900-1920', *Bulletin of the History of Medicine,* 70/1 (Spring 1996), pp. 115-17.

scientific spirit shown by the local doctors here I cannot doubt but that it will be but a short time before measures will be taken, if there is sufficient extent of the disease found to alleviate the conditions.'[8] However, Ashford's announcement from Ponce put him in the centre of a controversy in which he clashed with the leading figures of the medical and political establishment of the time. Major factions among Puerto Rican physicians recognized that the health of jíbaros required holistic improvement through better diet and hygiene, improvements that considered the socio-medical and political implications of their health.[9] Ashford's more targeted, curative approach through treatment with anthelminthics did not initially convince this cohort. As European university-trained physicians, they recommended not just medication and therapy, but changes in diet, tonics, and improved hygiene—an expensive protocol, which as Ashford pointed out, did not eliminate the underlying organism.

Similarly, Ashford quickly encountered difficulty in not only engaging the medical establishment, but also the island administrators. The military government was set to handover power to a civil administration within several months and did not necessarily have the "resolve" to launch a massive anti-anaemia campaign on the eve of that transfer.[10] Ashford left the island in December 1899 for a reassignment in the United States. At the same time, Congressional hearings and negotiations commenced to determine the very nature of that civil administration.

This chapter juxtaposes the first decade of the campaign to eradicate hookworm disease alongside the development and implementation of the organic act that organized the civil government of the island. Such juxtaposition highlights the need to recognize the

[8] Letter from Dr. Bailey K. Ashford to the Surgeon General General of the U.S. Army. 25 November 1899, Scrapbook: Original Manuscripts of the studies, reports and speeches of B.K. Ashford, M.D. 1909-1922. Part 1., Box 5, BKA Papers: GTM 071016, SC, GU.

[9] Scarano, 'Doctors and Peasants at the Intersection of Empires: The Hookworm Campaigns in Puerto Rico', pp. 4-5.

[10] Ibid.

influence of Washington and San Juan interest groups in shaping the fate of Puerto Rican bodies. Emerging persons and parties in both capitals, including bureaucrats, nationalist politicians, USPHS officials, and medical elites all vied for legitimacy in determining the course of governance and public health in Puerto Rico. In these first years of uncertainty and turmoil at the start of the twentieth century, when the U.S. set out to establish a formal political relationship with the island, public health policy and infrastructure development got swept along in this tumult. The first section of this chapter traces the Congressional hearings that focused overwhelmingly on the commercial and economic potential of the island, not the basic human condition of the population being incorporated (to a degree) into the United States.

This less than optimal situation cannot be levied against Congress entirely, as the island's political establishment likewise failed to effect satisfactory change in public health policy in this first decade of civil government. Amidst this turmoil, Ashford became a central figure alongside his Puerto Rican colleagues in medicine and public health on the island, a man serving as a beacon of compromise and achievement for the Americans and Puerto Ricans. Using personal letters, essays, and newspaper articles, I show how Ashford skilfully framed the fulcrum about which the uncinariasis matter turned in order to gain support for the Puerto Rico Anemia Commission. From his initial report in 1899, Ashford intuitively understood the value and import of combatting hookworm disease not just in terms of human cost, but in relation to ensuring the protection of the Army from infection, reducing the costs of a weak hospital system, and improving the economic prosperity of both the labouring population and the owners of coffee and sugar haciendas.

Despite facing a number of setbacks, the work against anaemia established a model of care unrivalled not just in the tropics, but across the globe. Ashford collaborated

with colleagues on the island to launch the Commission and design a campaign that integrated civil society as the critical element for success. By the end of the decade, more than 310,000 people were treated at a cost of only $0.68 (USD) per person. A careful examination of sources reveals this inclusion of the media, popular elements, agricultural and labour leaders, politicians, and his professional counterparts amounted to a truly cross-cultural and cross-sector campaign. Given these dynamics, it is crucial to place the work endeavoured on the island into the global context by comparing the Puerto Rico Anemia Commission's work with similar efforts in Ceylon, Jamaica, the Philippines, and South America. The chapter concludes by examining the related historiography surrounding the mythification of Ashford. He serves as a crucial intermediary through whom we can examine the role of the military on the island, the impact of legislation on health, and the work of securing support at home and abroad in fighting hookworm disease.

Framing the Foraker Act

The Treaty of Paris of 1898 was controversial not simply because it annexed the Philippines archipelago, Guam, and Puerto Rico to the United States indefinitely and Cuba temporarily, but also because—unprecedentedly—it left the fate of the peoples of these newly acquired territories completely in the hands of Congress.[11] Following the invasion and treaty ratification, two political parties quickly emerged in Puerto Rico: the Federal Party (Partido Federal) and the Republican Party (Partido Republicano). At the outset, both parties desired the island to be organized as a territorial government of the U.S. in preparation for its admission as a state.[12] The leadership of the Autonomist

[11] Allen, 'First Annual Report of Charles H. Allen, Governor of Porto Rico: Covering the Period from May 1, 1900 to May 1, 1901', p. 14.
[12] Cesar J. Ayala and Rafael Bernabe, *Puerto Rico in the American Century: A History since 1898* (Chapel Hill: University of North Carolina Press, 2007), p. 19.

movement would also dominate party politics during this first period of U.S. rule, men like Luis Muñoz Rivera, José Celso Barbosa, and Jose De Diego.

Barbosa, a graduate of the University of Michigan medical school, brought the Republican Party into line with the new government: 'By siding with the new government he wisely aligned his party with the general repudiation of the old regime and the prevalent desire for a new Puerto Rico as part of the United States.'[13] In elections from 1899 to 1902, his party trounced the short-lived Federal Party led by Muñoz Rivera and other autonomists. The Federalists called for eventual statehood, alongside full self-government, universal suffrage, and the right to elect the island's governor. These parties, made up of men educated 'in Spain, France, or the United States' were driven by 'the ideals of nineteenth century economic and political liberalism and, in some cases, more radical democratic currents,' not so different from those of some American elites who went to Puerto Rico after the war.[14] Muñoz Rivera and Barbosa each had representatives in Washington lobbying for the interests of Puerto Rico when during the first session of the 56th Congress, in December 1899, 'the Senate created three new permanent committees; one to take charge of our relations with Cuba; another for the Philippines; and a third for the Pacific Islands and Porto Rico.'[15] The House likewise established its own Committee on Insular Affairs.

Congressional Hearings

Former Ohio governor and first-term Senator Joseph B. Foraker chaired the Senate Committee for the Pacific Islands and Porto Rico as it held a series of hearings to determine the proper status to bestow upon Puerto Rico. Meanwhile, the various military governors of the island continued to operate virtually independently until the ratification

[13] Ibid., p. 33.
[14] Ibid., p. 22.
[15] Joseph Benson Foraker, *Notes on a Busy Life, with Portraits and Other Illustrations* (Cincinnati: Stewart & Kidd, 1916), p. 51.

of the Organic Act of Puerto Rico of 1900. Throughout January and February 1900, the Committee on Insular Affairs held parallel hearings to take testimony on the character of the island. Foraker opposed resolutions put forth by Senator Vest of Missouri before the end of the war that would have denied the U.S. the ability to hold colonial dependencies.[16] As Robert Beisner observes—and as the absence of much public discussion in the newspapers of the day confirm—'In principle many opposed the annexation of Puerto Rico, but little was made of the issue, so great was the preoccupation with the Philippines.'[17] Within the United States, the fate of these newly acquired territories inspired debate on a number of fronts: politically, economically, and culturally. '[I]ssues of party loyalty, self-government, race, and national character as well as the question of whether to embrace or resist imperialism'[18] dominated public consciousness together with concerns from the middle class and labour who 'denounced the rise of the trusts and large corporations.'[19]

Similar questions and concerns swirled among the Puerto Rican commissioners who not only argued against tariff barriers between the U.S. mainland and Puerto Rico in the wake of decades of incapacitating Spanish regulation, but also pushed for significant degrees of self-government.[20] In addition to submitting letters to the Washington administration, the press, and the New York City Chamber of Commerce, the major Puerto Rican interest groups sent a number of representatives to testify during the hearings. One such representative, Tulio Larrinaga, was typical of the wealthy classes on the island, having studied in the United States before returning to the island. Representing the Puerto Rican Federal Party and a future resident commissioner of the island, he called

[16] Ibid., p. 67.
[17] Robert L. Beisner, *Twelve against Empire: the Anti-Imperialists, 1898-1900* ([1st edn.; New York,: McGraw-Hill, 1968), p. 221.
[18] Ibid., p. xv.
[19] Berbusse, *The United States in Puerto Rico, 1898-1900*, p. 25.
[20] Ibid., p. 132.

'for a territorial form of government, with all constitutional rights, and with as full a suffrage as possible.'[21] The Federalists likewise expected explicit Congressional representation for Puerto Rico.

In contrast, Dr. J. Julio Henna, delegate of the Puerto Rican Chamber of Commerce, recommended restricting suffrage to the literate population, regardless of property holdings. When asked about his views on establishing a house of delegates, Henna's position greatly aligned with that of the island Republicans: 'Well, I believe that the Americans should be the mentors of the Puerto Ricans for some time; but when a child goes to school he should be taught all the things that he can learn in the shortest possible space of time without injuring his health.'[22] Essentially, Puerto Ricans needed to be educated in the ways of self-government and democracy. Four hundred years of Spanish colonial rule had not prepared the island for immediate autonomy, even under American purview. Although the system outlined by the Autonomic Charter of 1897 established a similar parliamentary system, the collapse of the Spanish empire stalled any implementation of these institutions.

General George W. Davis, military governor of Puerto Rico, testified on multiple occasions, each time driving home this apparent historical lack of democracy: 'The people of Puerto Rico have been for centuries accustomed to the exercise of arbitrary power; to a government in which the will of the king is law; the will of the king is expressed through his ministers, and those ministers in Puerto Rico were the secretaries.'[23] Though the nature of Spain's exercise of political dominance fluctuated with the country's constitutional crises of the nineteenth century, it was true that the

[21] 'Industrial and Other Conditions of the Island of Puerto Rico, and the Form of Government Which Should Be Adopted for It', p. 338.
[22] Ibid., p. 116.
[23] R.B. Horton and U.S. House Committee on Insular Affairs, Committee Reports, Hearings and Acts of Congress Corresponding Thereto: Committee on Insular Affairs, House of Representatives, Fifty-Sixth Congress, 1900-1901 (Washington: Government Printing Office, 1904), p. 4.

island had only received nominal political autonomy in 1897, just before the outbreak of the Spanish-American war. Davis acknowledged the presence of an educated, professional class, but he did not believe their numbers were sufficient to conduct a government, and in general, Davis believed the larger population would do 'very badly' at self-government.[24] This did not preclude an educable spirit of the people; rather, Davis began transferring functions of the government to boards established with both American and Puerto Rican representation in all.

Beyond matters of a political nature, the hearings focused overwhelmingly on the commercial and economic potential of the island, a trend that would likewise dominate sanitary policy on the island and American sanitary imperialism generally. In part, this responded to testimony from the delegates of the Puerto Rican Chamber of Commerce among others with the belief that economic improvement through free trade and improved agriculture would prove critical to the survival of the population. Coffee and sugar, the two leading industries on the island, lost the free markets in Spain and Cuba that had been allowed under Spanish sovereignty. In turn, businessmen and island natives sought a better trade agreement with the U.S. and other major trading partners to make up for that loss.[25] Lucas Amadeo, a native Puerto Rican coffee and cocoa planter, represented 2,000 of the island's agriculturalists in his cry for help: 'I want to impress upon you once more the absolute necessity of immediate assistance, or it will be too late. I will conclude my statement by likening Puerto Rico to a very sick man…if you neglect to give him immediate attention, then when you get to the general treatment, you will be treating a corpse.'[26] The economic survival of the island depended on the legislation that would be drafted by these committees.

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[24] Ibid., pp. 50-51.
[25] Ibid.
[26] U.S. House Committee on Insular Affairs, 'Hearings Upon the Bill Proposing to Amend the Present Organic Law of Porto Rico January 31, 1910 to February 24, 1910', (Washington: Government Printing Office, 1910), p. 388.

Within this frame of inquiry, the health of the island came up repeatedly in discussion as a sort of side note to the larger issues of the economy and self-government. William B. Corwine of the Merchants' Association of New York City testified to the healthy environment he encountered during his visit to investigate the commercial conditions of the island.[27] He noted the absence of yellow fever and cholera, as well as the minimal presence of malaria on the island, all in stark contrast to the American experience in Cuba. Testimony continually praised the triumph of the Superior Board of Health under Davis and the success of Dr. Ames' smallpox vaccination campaign. Tulio Larrinaga incorporated the notable efforts of Ames to educate and improve the population's health into his argument for the inherent civic potential of the Puerto Rican population. In laying out his abovementioned argument for territorial government, full constitutional rights of the population, and Congressional representation, Larrinaga played on the popular reception of Dr. Ames and the increasing acquisition of personal knowledge of sanitation among the population as demonstration of the capability of Puerto Rico to quickly evolve into a model territory for the United States. Free of epidemics and occupied by a people eager to learn, Larrinaga declared the island to be 'one of the healthiest countries in the world.'[28]

Similar themes appeared in Dr. Ames' testimony as he argued passionately for Puerto Rican suffrage and territorial government. Ames served as a physician and sanitary engineer during nearly eighteen months on the island in his capacity as head of the vaccination campaign and later assignment by the Department of Labor to collect statistics. Ames was the American perhaps most acquainted with the island and its people at this time.[29] Rather uniquely, Ames testified to represent the interests of Puerto Rico for the Federal party on a wholly nonpartisan basis at Washington and without instructions

[27] Horton and Committeee on Insular Affairs, *Committee Reports,* p. 266.
[28] Ibid., p. 344.
[29] Ibid., p. 331.

from any third party.[30]

From his extensive personal experience with citizens throughout the island, Ames testified to the population's capacity and desire to be "American," countering Brig. Gen. Davis' testimony that the island had no aptitude for self-government. Ames described the superior efficiency and efficacy of the vaccination campaign and the SBOH, ranking their work as 'not quite as good when compared with Massachusetts, or Illinois, or Michigan, but better than New York and better than almost any of the Southern States.'[31] He stressed the participation of local medical providers in the Board's work as evidence of their promise, boldly affirming at a number of different points in his testimony: 'I believe I would be a great deal quicker [to] trust these men with the ballot than the 60,000 Zunis and other semibarbaric people of New Mexico and Arizona, to whom we gave it without a murmur, though they were worshiping fire as some are yet doing.'[32]

Overall, the men who had spent the most time interacting directly with the population, individuals like Larrinaga, Ames, and members of the McKinley commission, argued for the right of the Puerto Ricans to self-government. As Dietz explains, Congress implemented a great many of the recommendations put forward during these hearings in terms of finance and infrastructure building, but the business interests of the empire seemed to trump more general consideration for the well-being of the population.[33] The chief architect of the Organic Act of 1900, Secretary of War Elihu Root, was not convinced of the readiness of the Puerto Rican population for either complete self-government or American citizenship until widespread, free primary education instilled a

[30] 'Industrial and Other Conditions of the Island of Puerto Rico, and the Form of Government Which Should Be Adopted for It', p. 186.
[31] Horton and Committee on Insular Affairs, *Committee Reports*, p. 344.
[32] 'Industrial and Other Conditions of the Island of Puerto Rico, and the Form of Government Which Should Be Adopted for It', p. 189.
[33] Dietz, *Economic History of Puerto Rico*, p. 93.

common understanding of the meaning of suffrage and citizenship, and his priorities for American empire instead converged on commerce.[34]

American Imperial Ideology

Throughout the nineteenth century, new U.S. possessions underwent three stages of organization: first, the institution of a temporary district government, second, the establishment of a territorial government after a specified proportion of "white" settler population took up residence, and third, the organization as a state. The legal debates following the 1898 acquisition of Puerto Rico, Guam, and the Philippines hinged on whether Congress would initiate such a process in these regions.[35] Because the new territories were both different from one another and different from present American territories, the "imperial problem" focused on 'how to establish dominion over the islands without extensive European American settlement.'[36] As Lanny Thompson shows, Congress settled on civil government with some representative institutions that would allow limited self-government within the confines of imperial sovereignty.[37]

More explicitly, a homogenous "other" did not figure in Congressional debates over the fates of these new imperial possessions. Perceived cultural differences between the populations shaped the specific form new institutions would take. Debates were 'specific to both imperial intentions and local conditions.'[38] As in the case of school projects, policies toward Native American and African-Americans in the mainland US

[34] Root and Bacon, *The Military and Colonial Policy of the United States*, p. 167.
[35] Guam elicited the least debate and concern for the local population among the United States' new colonial possessions. As Lanny Thompson explains, 'Navy interests on Guam overwhelmed all other considerations: No immigration, no capital investment, no agricultural exports, and no civil government were ever contemplated.' See: Thompson, 'The Imperial Republic: A Comparison of the Insular Territories under U.S. Dominion after 1898,' p. 562.
[36] Thompson, 'The Imperial Republic: A Comparison of the Insular Territories under U.S. Dominion after 1898', p. 548.
[37] Ibid., pp. 554-55.
[38] del Moral, *Negotiating Empire,* p. 36.

were relevant to debates over new American territories but did not determine the overall form of new policy initiatives going forward.[39]

The primary architect of McKinley's imperial outlook, Elihu Root, was a prominent New York attorney who served as Secretary of War from 1899 to 1904 and as Secretary of State from 1905 to 1909. He studied colonial government and misgovernment to form his own principles of colonial policy.[40] Secretary Root explicitly articulated his motivations behind the language of the bill when he explained that the core significance of the annexation of Puerto Rico was bringing the island into the American commercial system.[41] His writings espouse the success of advancing the Monroe Doctrine through the acquisition of territories and the extension of 'the principles of American liberty' to the populations in Cuba, Puerto Rico, and the Philippines. Root explained further, the American constitution is but 'the expression of the conception of individual liberty that has grown through a thousand years of Anglo-Saxon freedom.'[42]

These same tropes appear repeatedly in the writings of the day. For example, Charles H. Allen, the first civil governor of Puerto Rico, remarked on this shared Anglo-Saxon destiny, saying: 'Porto Rico is really the "rich gate" to future wealth, and it will add to our national pride to see its riches developed and made of benefit to the world at large, by that indomitable thrift and industry which have always marked the pathway of the Anglo-Saxon…'[43] References to Anglo-Saxonism became increasingly frequent as a way of expressing Anglo-exceptionalism and a justification for overseas expansionism. By the end of the nineteenth century, the closure of the western frontier and limited possibilities for internal expansion corresponded with a movement in government circles

[39] del Moral, p. 7.
[40] José Trías Monge, *Puerto Rico: The Trials of the Oldest Colony in the World* (New Haven: Yale University Press, 1997), p. 37.
[41] Root and Bacon, *The Military and Colonial Policy of the United States*, p. 110.
[42] Ibid., p. xv.
[43] Allen, 'First Annual Report of Charles H. Allen, Governor of Porto Rico: Covering the Period from May 1, 1900 to May 1, 1901', p. 99.

toward the question of overseas expansion.[44] Negativity toward the notion of acquiring an overseas empire dwindled by the 1880s due to both economic and psychological changes in American politics.[45]

Walter Lafeber argued in his seminal text, *The New Empire*, that American imperialism was '[s]purred by a fantastic industrial revolution, which produced ever larger quantities of surplus goods, depressions, and violence.' Purportedly alarmed, 'by a growing radical literature that the system was not functioning properly, the United States prepared to solve its dilemmas with foreign expansion.'[46] The Puerto Rican context does not comport with LaFeber's paradigm of a conscious planned American imperial doctrine. Still, Lafeber's identification of a near exclusive interest of Americans in economic development and markets is supported by the aforementioned Congressional hearings.

Moving beyond economics, Paul A. Kramer demonstrates the idea that the American drive for empire served as part of a larger network of imperial thought and practice. He argues that Anglo-Saxonism emerged as a common bond between the United States and Great Britain in the late nineteenth century, as England served as a model and counterpoint for American foreign policy.[47] The preoccupation with blood and culture likewise manifested itself in American policy toward Native Americans most especially following the Mexican-American War. While Native Americans were initially treated as separate nations with recognized sovereignty, Chief Justice Marshall's 1831 ruling determined that the Constitution allowed for the 'governing of alien peoples without

[44] Simon Baatz, 'Imperial Science and Metropolitan Ambition the Scientific Survey of Puerto Rico, 1913–1934', *Annals of the New York Academy of Sciences,* 776/1 (1996), p. 1.
[45] Nichols, 'The United States Congress and Imperialism, 1861-1897', p. 535.
[46] Lafeber, *The New Empire*, p. 60.
[47] England's colonies likewise serve as points of reference and comparison in terms of public health and sanitation. See: Kramer, 'Empires, Exceptions, and Anglo-Saxons: Race and Rule between the British and United States Empires, 1880-1910', p. 1320.

granting them citizenship.' [48] This standard would be used for denying citizenship to the population of Puerto Rico and the Philippines during the first two decades of the twentieth century. Figures like Henry Cabot Lodge, John Hay, and Elihu Root painted Native Americans as "opposers of progress" and denied them the principle of consent of the governed. The civil government and administration put in place in the Philippines and Puerto Rico followed the path of the Bureau of Indian Affairs as it was placed under the jurisdiction of the War Department, in the Bureau of Insular Affairs.[49] However, Congress did not purport to simply duplicate the internal imperial management used for the various Native American populations. These new territories were to be considered quite distinct from the tribal organization of Native Americans.[50]

Similarly, the philosophy of Anglo-Saxon superiority and the subjugation of the Native Americans did not necessarily imply an overtly racist nationalism. Puerto Ricans did not strike American ideologues as an inferior racial class (unlike Filipino natives), most obviously because of the mixed-race composition of the people, many of whom descended from the Spanish conquistadors. Instead, imperialists like Elihu Root and Joseph Foraker exhibited prejudice against culture rather than race: 'Observing the remnant taint of Spanish culture in their old colonies, American observers were highly critical of the negative aspects of this culture…In other words, the flaws of the Hispanic Caribbean society were not attributed primarily to inherent biological flaws but rather to inefficient values and behaviors.'[51] Ultimately, under American tutelage, the people of Puerto Rico could be educated both in literacy and democracy. By crafting the proper

[48] Walter L. Williams, 'United States Indian Policy and the Debate over Philippine Annexation: Implications for the Origins of American Imperialism', 66 (1980), p. 812.
[49] Ibid., pp. 819, 28.
[50] Thompson, pp. 553-4. For a specific example of the reservation system and implications for health care, see: Stephen J. Kunitz, *Disease Change and the Role of Medicine: The Navajo Experience*, ed. Charles Leslie (Comparative Studies of Health Systems and Medical Care; London: University of California Press, 1983)..
[51] Fernós, *Medicine and International Relations in the Caribbean*, pp. 218-19.

economic policy, the innately "healthy" environment of the island could also experience commercial success. When his legislation garnered criticism in Washington and San Juan, Root asserted that all claims that the people had been treated unfairly were completely unfounded as Congress had given Puerto Rico the greatest possible gift: the American free market.[52] The point that the population must have a certain basic level of health to serve as contributors to this commercial system did not register in Root's speeches or writings on colonial and military policy.

The Foraker Act

Root and Foraker's focus on economic and political readjustment is most apparent in the formal title of the Foraker Act: "An Act Temporarily to provide revenues and civil government for Puerto Rico, and for other purposes." Although "temporarily" appears in the title, the Organic Act of Puerto Rico remained in force from May 1, 1900 until March 2, 1917 at which point it was superseded by the Jones Act of Puerto Rico. The Act was minimal in its provisions, stipulating that laws already in existence in Puerto Rico would remain in effect unless repealed or modified by military orders. The Spanish peso would be exchanged for sixty cents of U.S. currency, a marked devaluation, among other measures concerning tariff regulations. Quarantine stations would be established in places around Puerto Rico at the discretion of the Supervising Surgeon-General of the Marine-Hospital Service, and all regulations concerning the importation of disease from other countries were under the control of the U.S. government.[53]

In terms of structure for the civil government, the President held the power to appoint the Governor of Puerto Rico with approval by the Senate for a term of four years or until removed by the President. Under the same terms, the President also appointed an

[52] Root and Bacon, *The Military and Colonial Policy of the United States*, p. 53.
[53] Office of the Commonwealth of Puerto Rico, *Documents on the Constitutional History of Puerto Rico* (Washington: Office of the Commonwealth of Puerto Rico, 1964), pp. 67-68.

Executive Council, consisting of a Secretary, Attorney General, Treasurer, Auditor, Commissioner of the Interior, Commissioner of Education, and five other 'persons of good repute.' At least five members of the Council had to be native-born Puerto Ricans. The House of Delegates consisted of thirty-five members elected biennially by qualified voters. The Executive Council and the House of Delegates constituted the Legislative Assembly.[54] The law created a judicial district called "the District of Puerto Rico" and a "residential commissioner" to the United States. Foraker, as head of the Senate Committee on the Pacific Islands and Porto Rico, recommended the extension of the Constitution, the provision for an elected House of Delegates, and American citizenship for all island inhabitants who chose to accept it. Still, these preferences were not included in the final legislation.

Most obviously, American citizenship was not bestowed on Puerto Ricans as 'a majority of the Senate thought it was then premature…'[55] Opposition newspapers criticized the bill for concentrating too much power in the hands of the President, but Foraker countered the criticism, saying: 'the truth is that, by comparison, it will be seen that the civil government provided for Porto Rico is far more liberal than were any of the early Territorial governments established for our own people, and quite as liberal as our responsibilities will allow.'[56] Such responsibilities included the provision of government for the Philippines, which Congressional leaders knew to be a much more challenging scenario than the relatively peaceful initial transition that had taken place in Puerto Rico.[57]

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[54] Ibid.
[55] Foraker, *Notes on a Busy Life*, p. 84.
[56] Ibid., p. 81.
[57] This is not to say that no resistance or violence accompanied the American intervention in Puerto Rico in in 1898. For a detailed study of the armed banditry against the landed classes in the mountainous regions, see: Fernando Picó, *Puerto Rico 1898: The War after the War* (Princeton: Markus Wiener, 2004).

The organic acts put in place in the Philippines and Puerto Rico diverged on key fronts, but most importantly, 'Puerto Rico's organic act provided a much greater incorporation of the island to the United States.'[58] Different judicial and economic provisions, as well as geography, placed greater distance between the Philippines and the U.S: it did not become part of the federal court system, remained categorized as a foreign port, and was issued a new legal tender. Overall, Foraker, like Root before him, boasted that the Puerto Rico's bill did nothing but help the island, maintaining that, 'The mere fact that this law has continued in force, practically without change, ever since it was enacted, now a full fifteen years ago, is enough to indicate that it proved satisfactory when put into practical operation.'[59] The sheer endurance of the Act signified success for Foraker, rather than an inability or carelessness on the part of Congress to reevaluate the island's political or health status.

With the passage of the Foraker Act explicitly designating Puerto Ricans as colonial subjects, the newly developed political parties on the island did not consider the legislation a success and were placed in a near untenable position: 'If they denounced U.S. policy, they ran the risk of seeming anti-American…But if they chose to demonstrate their pro-Americanism by muting their discontent and adapting to the new political structures, they would help install and sanction a regime that pointedly defined Puerto Rico as a "possession" and not as a territory in preparation for statehood.'[60] Characteristic of its response to the military government, the Republicans adapted to the legislation, maintaining the party's pro-American position. The Federal party called for gradual reforms, but gave up on eventual statehood as the ultimate goal for the island. The party's leader, Luis Muñoz Rivera, resigned his post as president of the party in 1901

[58] Thompson, 'The Imperial Republic: A Comparison of the Insular Territories under U.S. Dominion after 1898', p. 560.
[59] Foraker, *Notes on a Busy Life*, p. 82.
[60] Ayala and Bernabe, *Puerto Rico in the American Century*, p. 52.

and travelled to New York as a journalist. He returned to Puerto Rico in January 1904 and joined forces with José de Diego and others to form the new Union Party in February 1904. The Unionists called for full self-government, through either statehood or independence, a position not well-received by American officials. Nonetheless, the Unionists gained control of the House of Delegates in the 1904 elections and remained in power for the next three decades.[61]

Also significant in political terms was an emerging labour movement organized as the "Federación Libre de Trabajadores" (Free Federation of Workers) under the leadership of Santiago Iglesias. The movement made a critical link with the American Federation of Labor and Samuel Gompers in New York. Iglesias met with both Presidents McKinley and Roosevelt with the help of Gompers, and during this early period under the Foraker Act, the labour movement looked favourably on the new colonial authorities.[62] Despite these fluctuating currents in island politics, 'Republican control of the House from 1900 to 1904 allowed the government the means to substitute American laws for civil law institutions in many fields.'[63]

Early Implementation

Only as the full implementation of the law took effect would political disillusionment with the U.S. set in. At the outset however, the law seemed to allow strides toward local self-government with the House of Delegates almost universally Puerto Rican and the Executive Council 'largely so.'[64] In terms of the economy, following the War, significant U.S. capital investment took place in the expanding sugar plantation economy, as well as the tobacco-growing and cigar- and cigarette-

[61] Trías Monge, *Puerto Rico: The Trials of the Oldest Colony in the World*, pp. 58-59.
[62] Ibid., pp. 61-62.
[63] Ibid., p. 59.
[64] Allen, 'First Annual Report of Charles H. Allen, Governor of Porto Rico: Covering the Period from May 1, 1900 to May 1, 1901', p. 22.

manufacturing sector. Subsequently, 'These shifts entailed changes in land tenure, income distribution, internal migration, and settlement; shifts also occurred in the relative weight of Puerto Rican and foreign owners of productive assets.'[65] Many rural dwellers became wage dependent as access to land ownership dwindled, a legacy of Spanish rule and not U.S. occupation.

The sugar industry involved major competition over sugar tariffs to protect on the one hand, domestic beet-sugar producers and sugar refiners, and on the other hand, Puerto Rican sugar producers. The Foraker Act served as a compromise, eliminating the tariff for Puerto Rican goods, but also placing a five hundred acre land limit on how much property a corporation could own on the island (a provision that went unenforced over the next four decades). The expansion of sugar cane production in all of the U.S.-controlled sugar islands—Hawaii, Puerto Rico, the Philippines, and Cuba—reveals the power of the sugar interest in Congress.[66]

In spite of the failure of real wages to increase between 1900 and 1920, population growth accelerated.[67] Completely ignoring the multiplicity of testimony concerning the improvements in sanitary conditions made by the SBOH, the swift control of smallpox, and the healthful potential of the island, the Foraker act made no formal provision for a system of health or sanitation. The SBOH established during the military government survived the transition to civil government and it was placed under the purview of the Commissioner of the Interior, a department that served as a catchall of responsibilities: 'Generally all matters which do not pertain clearly to some one of the other five departments are referred to this officer, and it so comes about that he has for the last year

[65] Ayala and Bernabe, *Puerto Rico in the American Century*, p. 33.
[66] Ibid., p. 41.
[67] Ibid., p. 34.

had charge of not only roads and bridges, public buildings, the public health, forests, and public lands, but also agriculture, mines, the telegraph service, and the insular archives.'[68]

With this degree of responsibility, expensive infrastructure developments required to improve the overall health and sanitation outlook of the island fell by the wayside. Necessary funding did not transpire: no regular system of garbage collection was put in place, nor were modern sewage and toilet systems implemented. Local authorities in each municipality maintained control of hospitals, not the insular government, leading to abundant variation in the quality of both the facilities and care. Conflicting and insufficient laws and orders to delimit powers handicapped the SBOH, in addition to the lack of local staff to depend on in the event of an emergency (or epidemic).[69] Dysentery, tuberculosis, malaria, and anaemia prevailed in these unsettled times. For this reason, Davis greatly assisted during the transition process, extending the presence of the SBOH under General Orders, No. 102, on 30 April 1900, at the request of Governor Allen. [70]

Much power devolved to the municipalities resulting in great disparities in the provision of medical care, hospital quality, water supplies, garbage collection programs, and sewage systems.[71] While Governor Allen expounded that '[t]he sanitary condition of the island and the public health has received especial attention from the civil government ever since it went into operation', the submission of the Commissioner of the Interior in the very same Annual Report contradicted such a claim.[72] He described a number of major obstacles to any sort of substantive improvements in the sanitary conditions of the island, including: a lack of funding, a lack of 'intelligent medical assistance throughout

[68] Allen, 'First Annual Report of Charles H. Allen, Governor of Porto Rico: Covering the Period from May 1, 1900 to May 1, 1901', p. 93.
[69] Ibid., p. 318.
[70] The civil government under Allen officially took power on 1 May 1900.
[71] Allen, 'First Annual Report of Charles H. Allen, Governor of Porto Rico: Covering the Period from May 1, 1900 to May 1, 1901', pp. 31-2, 54.
[72] Ibid.

the island', a lack of a sanitary department, and a lack of coherent and sufficient laws and orders delimiting its powers.[73]

While the smallpox vaccination campaign and Davis' SBOH operated without the interference of party politics, the new civil government's work on health and sanitation quickly encountered the obstacles of politicking. The desire to separate public health from politics remained a dominating theme in Puerto Rico's history under the Foraker Act. According to the Report of the Superior Board of Health, the Legislative Assembly postponed the call for the establishment of a sanitary department, allowing for the sick poor to endure in a barren landscape with little provision beyond the "quackery" that flourished in most municipalities.[74]

In this local climate of shifting responsibilities and disease priorities, medical knowledge and public health science was rapidly growing and changing around the globe at the start of the new century. Unlike the British, who were largely removed from the threat of tropical diseases from their exotic subjects while situated in their metropolitan capital, Americans were under domestic threat from diseases like yellow fever, malaria, and even hookworm.[75] The Americans were not the only imperial power to feel exposed to disease by their nearby possessions. Just as the perception of biological threat shaped American policy toward Latin American and the Caribbean, the Japanese viewed its colonies and subject peoples on the Asian mainland as a "reservoir of disease."[76] However, as Jeong-Ran Kim explains, 'Japan's sanitary defences were an expression of its political sovereignty.'[77] Japan employed sanitary policy not simply as a protection

[73] Ibid., pp. 93, 318.
[74] Ibid., p. 335.
[75] John Farley, *Bilharzia: A History of Imperial Tropical Medicine* (Cambridge: Cambridge University Press, 1991), p. 33.
[76] Jeong-Ran Kim, 'The Borderline of 'Empire': Japanese Maritime Quarantine in Busan C.1876–1910', *Medical History,* 57/2 (2013), p. 233.
[77] Ibid., p. 240.

against the spread of infectious disease, but as a means to assert its formal and informal power in these regions.[78]

In contrast, the sanitary imperialism of the United States was overwhelmingly driven by economic and commercial motivations. For example, the provisions of the Platt Amendment that left Cuba under American guardianship for the first decade of the century directly stem from the threat of yellow fever and its potential damage for American trade in the Gulf. Fortunately (or unfortunately) for Puerto Rico, yellow fever was not indigenous to the island. Malaria did not yet gain prominence for American scientists, and hookworm disease was not yet discovered in the American South. Such factors in part explain the lack of federal motivation for intervention in the public health situation on the island, and disrupt the traditional narrative identifying Latin America as the recipient of American and European science.

Following the success of the smallpox vaccination campaign and the transition from American military to American civil government, formal federal legislative involvement in issues of health and sanitation in Puerto Rico was sorely lacking. Still, perhaps due to the pre-1898 structures left in place or the work of the Army medical department, the island remained free from epidemic disease outbreaks 'for a longer period than ever before known, and evidences of changes for the better in matters of sanitation and cleanliness show encouraging results.'[79] The passage of the Foraker Act and the transition of power to a civil government did not foment a longitudinal improvement in the health outlook of the people, but this does not mean the island's physicians and scientists passively accepted the status quo. Rather, Puerto Rico and the larger region was

[78] For a discussion of Japanese sanitary imperialism in treaty-port China, see: Ruth Rogaski, *Hygienic Modernity: Meanings of Health and Disease in Treaty-Port China* (Univ Of California Press, 2014).

[79] Allen, 'First Annual Report of Charles H. Allen, Governor of Porto Rico: Covering the Period from May 1, 1900 to May 1, 1901', p. 318.

actually its own hub of scientific undertakings, and more specifically, hookworm research.

Like their European counterparts, the Caribbean and Latin American countries experienced significant population migrations, land privatization, industrial change, and infrastructural development that amounted to a dizzying array of economic transformations. In places like Costa Rica, teams of medical and scientific experts were on the forefront in developing innovative national campaigns to counter hookworm disease.[80] The national hookworm dispensary campaigns designed and executed in Puerto Rico, Brazil, and later the U.S. South, signal a marked departure from the work undertaken by European researchers in their own colonies. These new campaigns sought total elimination of the disease from the population, not just treatment for those infected in select regions or occupations. Most importantly, a broader focus on the general rural population encouraged widespread improvement in the productivity and output of the labouring classes.

As Steven Palmer explains, 'A more compelling commonality across both "major" and "minor" discoveries of hookworm disease is that the research was done by those who were building an edifice of academic and applied medical science on the freshly dug foundations of peripheral nation-states.'[81] From Bailey Ashford's earliest days of work on hookworm in Puerto Rico, he immediately recognized the global impact of the disease, citing infection rates in countries like Egypt and Japan in his writings. In his letter to the Surgeon General in November 1899, he wrote, 'In calling attention to this infection we enter upon a large field,' and the disease 'appears to assume just such

[80] Palmer, 'Migrant Clinics and Hookworm Science: Peripheral Origins of International Health, 1840-1920', p. 702.
[81] Ibid., p. 698.

proportions as a country will allow it to assume.'[82] Left unchecked, the disease had reached epidemic proportions in Puerto Rico by the time of Ashford's arrival in 1899.

Designing a Campaign

Though the specific physiological mechanism by which the parasite caused anaemia was not yet known, Ashford detailed his nineteen special case studies in Ponce in an article for the Surgeon General of the Army that was then republished in the *New York Medical Journal* in April 1900.[83] Eventually noting a distinct difference between Manson's description of *Anklyostomum duodenale* and the Puerto Rican variety, Ashford delivered samples of the parasite to his former teacher and noted parasitologist, Charles Wardell Stiles, in Washington in 1902. Stiles identified the parasites as a new species, which he named *Uncinaria americana*, later renamed as *Necator americanus*. Dr. Stiles demonstrated the presence of North American hookworm as a crippling 'industrial curse' throughout the South, a discovery that would have serious ramifications for American public health.[84] The rivalry and debate that developed between Ashford and Stiles would go on to have major ramifications for hookworm eradication campaigns in both Puerto Rico and the United States.[85]

Although Ashford's first description and successful treatment of uncinariasis in Puerto Rico was only in 1899, evidence later collected by the Puerto Rico Anemia Commission revealed the existence of the disease throughout the nineteenth century as a prominent and 'potent cause of death.' In fact, upon closer investigation, Ashford and his Puerto Rican colleagues estimated that African slave labour from Central and "tropical"

[82] Letter from Dr. Bailey K. Ashford to the Surgeon General of the U.S. Army. 25 November 1899, Scrapbook: Original Manuscripts of the studies, reports and speeches of B.K. Ashford, M.D. 1909-1922. Part 1., Box 5, BKA: GTM 071016, SC, GU.

[83] For a snapshot of similar case studies referenced in the publications of Ashford and his colleagues, see: Amador, *Medicine and Nation Building in the Americas, 1890-1940*, p. 83.

[84] Bailey K. Ashford, *A Soldier in Science: The Autobiography of Bailey K. Ashford* (London: G. Routledge, 1934), pp. 4-5.

[85] This relationship features in "Chapter 5: Navigating Partnerships: Puerto Rico and the Rockefeller Medicine Men, 1910-1920."

Africa introduced the "New World" species of hookworm to Puerto Rico in the sixteenth century. Hookworms, a type of intestinal parasite, latch onto the walls of the small intestine depriving their hosts of blood and nutrients. Their eggs are passed in human faeces and when deposited in warm, moist soil, the maturing larvae can penetrate human skin. Depending on the severity of infection, an individual may experience fatigue, listlessness, and severe malnutrition, while children may be affected both physically and cognitively.

The soil of sugar plantations along the coast first became infected, and the growth of the coffee industry in the late eighteenth century spread the disease to the mountain districts.[86] The complementary harvest seasons encouraged labour migration between the two regions. Not only were coffee plantations heavily shaded, but the coffee harvest coincided with the raining season, moistening the ground through which barefoot jíbaros manoeuvred and contaminated the soil with their excreta, allowing active larvae to multiply: 'The result is that uncinariasis has its great breeding place in the coffee plantations of Porto Rico, and here a barefooted people pollute the soil and are infected and reinfected by it until the life of every man, woman, and child is punctuated by a vast number of reinfections, casual yet common in the nine months of ordinary work, certain and continuous during the coffee harvest when no worker escapes who is without shoes.'[87]

The coffee plantations remained the most heavily infested areas as the home of the "*palido*" or pale man, but the parasites spread throughout the island by itinerant labour and Puerto Rico's naturally favourable conditions: a 'fine climate, proper humidity, water-soaked soil, a perfect culture medium, topography favourable to the spread of larva by heavy rains, dense shade, density of population, agricultural life, bad sanitation, and

[86]Ashford, Gutierrez Igaravidez, and Porto Rico Anemia Commission, *Uncinariasis (Hookworm Disease) in Porto Rico*, p. 26.
[87]Ibid., p. 5.

habits conducive to infection.'[88] Even the early barrack locations for the Army in Ponce put soldiers at risk of contracting hookworm disease. The barracks were essentially located in a riverbed full of mud that was the accumulation of decaying plants and human filth, 'pronounced by sanitary authorities to be the worst situation for living purposes known…'[89] Despite the potentially lifelong consequences of infection, as Ashford ascertained in his earliest cases, treatment is fast, efficient, and inexpensive, making hookworm disease campaigns an ideal way of spreading the principles of public health science.

Before Ashford's departure for the U.S in 1899, the island's chief surgeon ordered him to create an informational pamphlet called "Anaemia, Its Causes, Treatment, and Prevention." The SBOH printed and distributed the pamphlets to physicians and pharmacists throughout the island. Attempting to garner the support of his medical colleagues, Ashford highlighted the severity of the disease: 'It will thus be seen that anaemia is in our Island a much more serious disease than yellow fever, smallpox, or other contagious diseases. It may truly be called the *scourge* of Porto Rico.' In addition, he again identified the negative effect of infection on the efficiency of labour and suggested the periodic examination of plantation hands, providing planters with 'strong and able labourers.' Despite the as yet unknown extent of infection, Ashford remained optimistic regarding the outlook for intervention. With an adaptable and socially conscious implementation of privy and sanitary regulations to improve the state of hygienic living on the island, he believed the disease could be eliminated with substantive support from governmental bodies.

[88] Ibid., p. 11.
[89] Letter from Dr. Bailey K. Ashford to the Adjutant General of the Post of Ponce. 29 September 1899, Scrapbook: Original Manuscripts of the studies, reports and speeches of B.K. Ashford, M.D. 1909-1922. Part 1., Box 5, BKA Papers: GTM 071016, SC, GU.

Quite significantly, Ashford did not assign fault to either the jíbaros or the planters for the clearly high rate of hookworm disease. He acknowledged the heavy role of poverty in transmission of the parasite, e.g. the inability to afford proper foot coverings or latrines, and a lack of understanding of hygienic practices, e.g. ignorance of the ramifications of polluting the soil. Still, a certain level of classism influenced the language of his writings. For example, in an article written with his collaborator, Dr. Walter W. King of the United States Public Health Service, he wrote, 'We have not often found this disease among the better classes, which may be explained by the fact that they have little personal contact with infected soil.'[90] Perhaps this lack of a direct and tangible impact on the "better classes" helps to explain in part the initially lukewarm reception of Ashford's identification of the role of *Uncinaria americana* in anaemia. The disease primarily affected impoverished peons, not their privileged masters who could afford shoes.

Still, even after his reassignment to Washington, 'realizing that this death rate would go on until someone would make a sufficiently strong demonstration of the possibility of its eradication to awaken both Porto Ricans and Americans in the insular government to action, Dr. Ashford expressed his earnest desire to return to the island.'[91]After reviewing the available literature on the disease in the Surgeon General's library, Ashford returned to Puerto Rico in 1902. He partnered with Dr. Walter W. King of the U.S. Public Health Service in order to study a volume of cases that would attract attention and demand action from both the insular government and the medical profession.[92]

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[90] Bailey K. Ashford and Walter W. King, 'A Study of Uncinariasis in Porto Rico', *American Medicine,* 6 (5 September 1903), p. 391.
[91] Farley, *Bilharzia: A History of Imperial Tropical Medicine*, p. 35.
[92] Ashford, Gutierrez Igaravidez, and Porto Rico Anemia Commission, *Uncinariasis (Hookworm Disease) in Porto Rico*, p. 26.

In a matter of months, Drs. Ashford and King examined a series of one hundred cases of hookworm disease at two wards in Ponce's large Tricoche Hospital, publishing write-ups on their findings in *American Medicine* in September 1903. The pair also continued to pressure the SBOH to circulate literature on the subject among the island's health professionals and to take visible steps to combat the epidemic. The disease that Ashford, King, and their new collaborators, Dr. Isaac González Martínez and Dr. Pedro Gutiérrez Igaravidez, faced among the Puerto Rican peasantry was much more severe than hookworm infection in other countries, like Egypt and Italy, for a number of reasons. Most prominently, the San Ciriaco hurricane of 1899 resulted in massive malnutrition throughout a large proportion of Puerto Rican society, correspondingly weakened immune systems, and caused virulent disease manifestations in the ensuing years.[93]

Ashford described the unique nature of the disease in the Island, in that it was not simply a sanitary problem, he insisted, but a matter of life and death. Different in intensity than what would be seen in the American South, 'Hookworm disease in Puerto Rico was pandemic—people were actually dying in large numbers from it.'[94] Despite these harrowing circumstances, as Rigau-Peréz recounts, Ashford succeeded in his objective of tackling hookworm disease in the island as much through his scientific pursuits as through his personal efforts to make sure that the government allocated funding for the investigation and treatment campaign such that the benefits of his discovery reached those most in need.[95] Because hookworm disease posed little direct threat to American troops (in contrast to the tangible threats of smallpox and dysentery after the hurricane) Ashford used economic arguments in his write-ups to explain the threat that uncinariasis to American investment in sugar and coffee plantations and gain support from government

[93] Jose G. Rigau-Perez, 'Bailey K. Ashford, Mas Alla De Sus Memorias', *Puerto Rico health sciences journal,* 19/1 (2000), p. 52.
[94] Ashford, *A Soldier in Science*, p. 76.
[95] Rigau-Perez, 'Bailey K. Ashford, Mas Alla De Sus Memorias', p. 54.

officials.[96] As Nancy Stepan and others have argued in the case of yellow fever research in Cuba, factors and considerations outside of medicine influenced the course and success of Ashford's work on uncinariasis and anaemia.[97]

The physicians encouraged the establishment of an experimental station in an area with a high number of reported rates of anaemia. Ashford and King recommended the employment of capable, modern Puerto Rican physicians in running the station and monitoring and treating the sick. Additionally, in order to make strides toward prevention, Ashford called for the installation of sewers and water closets with flushing apparatus to be built in cities. Towns should require privies in each house, while estates should provide a closed-in shed and each shack needed a latrine. These very specific and straightforward recommendations could only begin to shift the attitudes of local jíbaros if they were accompanied or handed down by 'the recognized superiors of his own race…Let's quit our minds of the silly and narrow ideas that because language and customs are different no civilization is possible but our own.'[98]

Converting His Colleagues

To better convince the medical men of the island to pressure the government to take action, Ashford addressed the Asociación Médica de Puerto Rico (AMPR) in December 1903. From its establishment in 1902, the organization served as the central body representing university-educated physicians on the island. Until Ashford's assertions, many of these physicians continued to attribute anaemia exclusively to poor food and poverty:

In those first five years, in spite of great publicity given the discovery that the

[96] Ashford, Gutierrez Igaravidez, and Porto Rico Anemia Commission, *Uncinariasis (Hookworm Disease) in Porto Rico*, p. 27.
[97] See, for example, Farley, *Bilharzia: A History of Imperial Tropical Medicine*.
[98] "Tropical Anemia as studied in Puerto Rico", by Dr. Bailey K. Ashford, First Lieut. & Asst. Surg. U.S.A., September 18, 1900, Comisión de Anemia. Box 6, Colección Ashford, Biblioteca Conrado Asenjo (BCA), Recinto de Ciencias Médicas (RCM), Universidad de Puerto Rico (UPR).

> cause of the anaemia was 'hookworm,' in spite of a pamphlet descriptive of the disease, issued as a result of that discovery by the Superior Board of Health of the then military government to all physicians, *practicantes*, and municipal governments in December, 1899, no credence was given the announcement; and this was entirely natural.[99]

The initial discovery failed to inspire swift and comprehensive action, in part because Army medical officers researching tropical medicine lacked professional credibility within the military and the wider medical community. As previously discussed in reference to the Spanish-American War, sanitary recommendations, funding applications, and manpower requests made by the Army Medical Corps were largely ignored during this period.[100]

Dissatisfaction with the occupying power's failure to extend full self-government undoubtedly shaped municipal physicians' initial attitudes toward Ashford and his diagnosis of uncinariasis as the cause of the widespread and severe anaemia debilitating thousands of Puerto Ricans. Not only did his diagnosis undercut their interpretation of the clinical symptoms, but also at this early point in Ashford's residency on the island, he served as a reminder of the unfulfilled political goals of the educated classes, many of whom were physicians. Though Ashford and King were warmly welcomed by the physicians in Ponce, they regretted the failure of the majority of municipal physicians to give 'the matter little thought and with few exceptions no trial.'[101] For this reason, Ashford's presentation before the AMPR in December 1903 served as a critical turning point in the island's campaign against hookworm disease.

In one fell swoop, he incorporated Puerto Rican physicians into the cause, stressed the need to combat the disease itself explicitly before tackling larger socioeconomic

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[99] Ashford and King, 'A Study of Uncinariasis in Porto Rico', p. 391.
[100] Ashford and Igaravidez, 'Summary of a Ten Years' Campaign against Hookworm Disease in Porto Rico', p. 1758.
[101] "Uncinariasis – An Economic Question for Porto Rico." Editorial to accompany article "Uncinariasis in Porto Rico" by Dr. Bailey K. Ashford and Dr. Walter W. King, to be published in *American Medicine*, September 1903. Comisión de Anemia, Box 6, Colección Ashford, BCA, RCM, UPR.

factors, and unequivocally spelled out the economic and commercial ramifications of the infection. From the outset of his paper, Ashford called attention to the already pivotal cooperation of Puerto Rican doctors by thanking Dr. José Lugo Viña, Dr. Rafael Gatell, Dr. Luis Aguerrevere at the start. He offered praise for the SBOH and their early issuance of the SBOH pamphlet explaining the transmission, treatment, and prevention of hookworm disease, but ultimately called on the profession itself to form the first line of attack against uncinariasis: '[W]e must convince ourselves before the public will be convinced…Then our friends, the statesmen may wrestle with the question of economics by themselves.' Ashford drove home the point that health was not just a matter to concern medical providers but politicians as well: 'The development of this country to its commercial well being cannot be alone dependent on a stroke of Statesmanship. Political economy must recognize that physical well being will generally bear out the ancient adage "mens sana in corpora sano."'[102] After more than two years of work to change predominating opinion, Ashford recognized the imperative to incorporate what he called the 'whole medical fraternity' in the next phase of work against hookworm.

Arguably both paternalistic and practical, he wanted to give local physicians and practitioners a sense of responsibility for the 'campaign which would present proof, on a scale never before attempted anywhere, that we were in the presence of a *curable* disease.'[103] Cultural or intellectual superiority did not play a role in Ashford's thinking for he considered the medical elites to whom he was addressing this message likeminded individuals, educated in either Europe or the United States because of the lack of higher education available on the island. In a few short years, through his marriage to a leading island physician's daughter, his adoption of Puerto Rico as his permanent home, and the

[102] "First announcement of the cause of anemia in Porto Rico to the Medical Profession of the Island"; (Asoc. Médica de P.R.), December 1903. Comisión de Anemia, Box 6, Colección Ashford, BCA, RCM, UPR.
[103] Ashford, *A Soldier in Science*, p. 82.

active cultivation of key collaborations with other Puerto Rican physicians, Ashford became fully integrated into Puerto Rican culture and society. His conversion of the renowned Puerto Rican physician, Agustín Stahl, to the cause cemented this position.

Following Ashford's presentation in December, the AMPR's General Medical Assembly convened a committee to investigate Ashford's work on uncinariasis in Puerto Rico. Among the three physicians appointed, Agustín Stahl, perhaps more than any other, represented the "old guard" of Puerto Rican medicine. University-educated in Europe, Stahl returned to the island to practice medicine in the 1860s before fighting for Puerto Rican independence as part of the Autonomist Party. Though exiled to Spain in 1898, he returned to the island as a leading figure of the 'Puerto Rican men of science and a revered member of the elite physician's group.'[104] If Ashford could convince Stahl of the value of his findings and the methods he advised to remedy the situation, he could hope to gain the support of the larger medical profession.

Stahl took up this proposition in a series of articles for the *San Juan News* in early 1904. Like many of his countrymen, Stahl proffered a multiplicity of alternative causes of "pernicious anemia" in his first piece: poverty, starvation, malaria, rheumatism.[105] However, in a matter of days, after witnessing first-hand the effect of the dispensary model and purgative method, he urged the Medical Association to take heed of the opinion of King and Ashford as the experts on uncinariasis in Puerto Rico: 'In conclusion I beg leave to inform the Board of Directors that I have been one of the physicians who accepted the statement of Dr. Ashford with some misgivings, but after having attended his investigations at Bayamon, and watching closely the patients treated, I was compelled to fully rectify my judgment and in conclusion say to myself, It is not the same to look

[104] Scarano, 'Doctors and Peasants at the Intersection of Empires: The Hookworm Campaigns in Puerto Rico', p. 13.
[105] "Dr. Stahl on Ashford's Report"; *San Juan News*, May 6, 1904. Comisión de Anemia, Box 6, Colección Ashford, BCA, RCM, UPR.

from afar as to observe close by.'[106] Rather than poverty and hunger being the *causes* of anaemia, Stahl now believed them to be the *result*. Like Ashford, he understood the need to rely on well-regarded figures in barrios to help propagate the knowledge of treatment and prevention, regardless of their own limited education. The Insular Treasury needed to find the funding to extend the treatment across the island.[107]

Ashford and Stahl maintained their communication in the coming years, debating and disagreeing on the best plan to combat the disease. Ultimately, Ashford took Stahl's comments about utilizing respected figures to advance the message of the campaign a step further when he explained: 'The cured jíbaro is converted into propaganda.' Starting with this fundamental proposition, Ashford and his team employed very basic principles: cure the sick, eliminate the parasite where it was present, popularize the knowledge of the disease via leaflets and discussions, prohibit the lack of latrines in homes, and, eventually, institute inspections by rural police. When Bayamon became the next logical location to install an anaemia dispensary station, Ashford asked Stahl to run it and thanked him for all of his work, especially as he served as a model for many in the fight against the spread of uncinariasis.[108]

From 1899 to 1904, the paradigm seemed to fully shift in favour of Ashford, King, and uncinariasis eradication.[109] Roughly four years after Ashford's identification of hookworm disease in Ponce, Governor William H. Hunt called for an active campaign against the disease in his message to the legislative assembly in early 1904. The law appropriated $5,000 to a commission for the study and treatment of anaemia, the Puerto

[106] "Dr. Stahl on Anemia"; *San Juan News*, May 11, 1904. Comisión de Anemia, Box 6, Colección Ashford, BCA, RCM, UPR.
[107] "Dr. Stahl on Ashford's Report"; *San Juan News*, June 1904. Comisión de Anemia, Box 7, Colección Ashford, BCA, RCM, UPR.
[108] Letter from Dr. Bailey K. Ashford to Dr. Agustín Stahl, April 18, 1905. Comisión de Anemia, Box 6, Colección Ashford, BCA, RCM, UPR.
[109] Scarano, 'Doctors and Peasants at the Intersection of Empires: The Hookworm Campaigns in Puerto Rico', p. 8.

Rico Anemia Commission. Francisco Scarano has argued that both American military and civilian leaders linked the potentially significant objective of loosening the grip of the agricultural elites on peasants and labourers to the anti-anaemia campaign.[110] With a campaign devised by Americans, a healthier labour force could be cultivated, increasing the dependency and loyalty of the hacendados on the Americans. In all, Scarano describes the far-reaching nature of the hookworm campaigns that evolved over the next decade as: 'novel state interventions in society with specific public-health goals…that could partially address the contradiction between democracy at home and imperialism abroad…'[111] However, this narrative of American hegemony undercuts the critical collaboration of Ashford with his Puerto Rican collaborators, the essential support of all levels and demographics of the population, and the institutional support of Puerto Rican legislators who—though bogged down in factional disputes over appointments and budgets—appreciated the inherent potential of a healthy population.

The Puerto Rico Anemia Commission

Ashford and King's work during the 1904 campaign gained additional legitimation in a number of ways. The highest American official on the island, Governor Hunt, endorsed the work through his call for legislative funding, and the AMPR's eventual embrace of the anaemia campaign model helped ensure the success of this supposed "hegemonic" process.[112] While at first the organization and its founder, Dr. Manuel Quevado Báez, maintained the call for holistic interventions in society, 'as its members began to see the benefits accruing to them from some of the health policies of the colonial government, and as they began to reap the benefits of a rapidly expanding

[110] Ibid.
[111] Ibid.
[112] Ibid., p. 11.

agricultural economy, especially in the sugar lowlands, their opposition abated and the organization itself underwent what Nicole Trujillo-Pagán dubs a "radical about-face."'[113]

Not only did the AMPR endorse the campaign, but the rural clinic-based pilot project to treat the disease involved significant input by Puerto Rican physicians. Wholly credited to Ashford and King, the American physicians' ideas for an independent campaign apparently had little weight with authorities at first. Scarano holds that the idea for the clinic model actually originated with a Puerto Rican landowner, businessman, and eventual pro-American supporter and politician, Lugo Viñas. Citing a 1903 letter from King to Ashford, Scarano states: 'King's letter suggests that at least one Puerto Rican politician, and perhaps more in the pro-American camp had already begun to prepare the way for the adoption of a clinical approach to the anemia problem.'[114]

After years of facing down scepticism and working to instigate action against uncinariasis, Ashford and the commission began treating patients. Beyond seeking the support of medical professionals in the community, Ashford focused much attention on engaging the larger Puerto Rican population. Following on from his argument with Stahl, he did not attach great priority to legislating sanitary matters such as the pollution of soil, save in the context of a broader programme of education: 'Let example and pamphlet teaching do its best. Let us convince the people and enlist them in their own interests to combat the disease, and the rest will follow naturally.'[115] Successful treatment convinced entire families and neighbourhoods to seek medical attention, and local hospitals were overwhelmed with patients. As Ashford explained, the 'poor man himself' saved the campaign with his willingness to undergo treatment.[116]

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[113]Ibid.
[114]Ibid., p. 12.
[115]Stepan, 'The Interplay between Socio-Economic Factors and Medical Science: Yellow Fever Research, Cuba and the United States'.
[116]Ashford, Gutierrez Igaravidez, and Porto Rico Anemia Commission, *Uncinariasis (Hookworm Disease) in Porto Rico*, p. 27.

The municipal health service simply could not keep up with the demand for treatment. The central Department of Health, Charities, and Correction in San Juan had a tenuous relationship with municipal physicians at best, as town mayors and local taxes supported the physicians and thus dictated their responsibilities. Due to a lack of sufficient funding and staffing, the Department's recommendations and instructions could not be enforced and resulted in a perpetuation of unsatisfactory sanitary conditions, lack of hygiene, and an unnecessarily high death rate.[117] Clearly, Ashford and the Commission could not rely on the local bureaus of health to carry out an effective campaign against uncinariasis, because these bodies operated at the mercy of local political leaders and partisanship. In response to these obstacles, the Puerto Rico Anemia Commission worked to set up independent anaemia dispensary stations in which the gospel of preventive medicine was preached to open-minded jíbaros.

The dispensary stations proved to be a pivotal method of acquiring support from all sectors of society. Though Trujillo-Pagán paints the campaign largely as a public relations exercise to curry public favour, the Anemia Commission's archives include dozens of letters and petitions written by physicians, planters, and local mayors to the Commission, requesting the establishment of dispensaries and the necessary medicines to combat uncinariasis in their localities. In September 1904, the Commission sent hundreds of letters to the island's planters and physicians to determine whether the scientific undertakings of the Commission were actually manifesting real and practical results. In their survey, the Commission asked recipients what the cause of anaemia was, if they believed an intestinal parasite resulted in anaemia, whether any cases of uncinariasis under their observation were treated with thymol and what the result of that treatment was.

[117]Ashford and Igaravidez, 'Summary of a Ten Years' Campaign against Hookworm Disease in Porto Rico', p. 1759.

After such a short period of active work, the Commission and Ashford's findings had made a surprising mark on the island. Most respondents accepted the existence of *Uncinariasis americana* in Puerto Rico. Though some believed the parasite was one of multiple causes of anaemia, treatment protocols were being enforced rather uniformly (four grams of thymol administered per patient).[118] Ashford noted that of the more than two hundred responses received from planters, 'Scientifically, the most interesting information furnished by the composite answer of 201 planters was this: that they estimated the gain in efficiency of their labourers, after the treatment for anaemia, at 61%—a figure which jibes almost exactly with the gain in haemoglobin, or blood colouring-matter, determined by instruments.'[119]

To execute the kind of meaningful social and cultural reform essential to personal hygiene improvement, it was not enough for Puerto Rican physicians to reach a consensus amongst themselves; they also had to create a sense of popular investment in the dispensaries. During each patient interaction the patient 'had to have a clinical summary of his case made out, a specimen of his faeces examined, and a prescription written, an unvarying rule in all the work done here so far. In addition, a prophylactic talk was administered, and blood counts were made in the afternoon in special cases.'[120] Though every patient received this discussion on the causes and means of preventing further hookworm infection, in his memoir, Ashford admitted: 'So for these first two years—in fact, during the whole campaign of seven years—the fights against hookworm was frontline; not sanitary work, nor an attempt to deal directly with the nutritional factor in the problem…'[121] Resources were limited and in a matter of only five months, more than

[118] See, for example, Letter from the Porto Rico Anemia Commission to Dr. Manuel Hernández Comas, September 1904. Comisión de Anemia, Box 4, Colección Ashford, BCA, RCM, UPR.
[119] Ashford, *A Soldier in Science*, pp. 90-91.
[120] Ashford, Gutierrez Igaravidez, and Porto Rico Anemia Commission, *Uncinariasis (Hookworm Disease) in Porto Rico*, p. 19.
[121] Ashford, *A Soldier in Science*, p. 78.

five thousand cases had been treated, the funding had been fully expended, and the commission travelled to the capital, San Juan, to compile a report on their work.

During these early years, Ashford emphasized the need for local participation in the campaign and the need to incorporate local medical professionals, but not local politics. Rather than Ashford representing an expert's straightforward disdain for political machinations, municipal health boards and regulations under the period's Department of Health, Charities, and Corrections were particularly vulnerable to partisan obstruction. At the highest levels, however, the success of the work united in large part the two major political parties in supporting the campaign. Most fundamentally, it involved cross-sector involvement: the peasantry, land owners, and medical professionals. Once again, the legislature approved funding for the campaign, appropriating $50,000 for the fiscal year 1905-1906—a tenfold increase.

At the same time as this surge in institutional support, public support abounded as Ashford accepted the first of many awards in his honour when the citizens of Bayamon presented him a "Thank Memorial" in 1904.[122] Similarly, Dr. Gonzalez Martinez called for the establishment of a league against the disease: 'an organized resistance to the further development of a condition now become unbearable—the invaliding of countless thousands of Porto Rican laborers and their families by a curable and preventable disease.'[123] Gutierrez was charged with the expansion of the stations through local collaboration, and Ashford fully committed to this message, saying: 'I shall always believe that the success of the first campaign against hookworm should be attributed to the conception, formed at the very beginning, of how best to interest the people in their own salvation. I maintained, from the outset, that even though the vast majority of our

[122] Article entitled: "Dr. Ashford is Honored, Presented Thank Memorial By Bayamon Citizens For his Work." *San Juan News*, May 3, 1904. Comisión de Anemia, Box 6, Colección Ashford, BCA, RCM, UPR.

[123] Letter from Dr. Bailey K. Ashford to the Asociación Médico de Puerto Rico, July 24, 1905. Comisión de Anemia, Box 5, Colección Ashford, BCA, RCM, UPR.

patients could not read or write, they and not the phrase-maker would best distribute our ideas.'[124] Nevertheless, newspapers across the island, such as *La Correspondencia* and *La Republica Española*, as well as the Washington daily, *The Evening Star*, and the *New York Tribune*, offered praise for the successful intervention and leadership of Dr. Ashford.[125]

While the visible success of the treatment garnered the support of much of the population, Ashford and King continued to appeal to a concern for the economic future of Puerto Rico to engender further support from governmental elites in Puerto Rico. As the Congressional hearings of 1900 demonstrated, public health funding and legislation purely for the purpose of improving the basic human condition would garner little support. They explained how the disease not only inhibited the present potential of the country's population of men and women and lowered the standard of living, but also diminished future prospects in regards to children, as '[a]rrested or retarded development is a common result of the disease in children.' Uncinariasis endangered pregnant women and increased the frequency of miscarriages and stillbirths. Babies born to sick mothers were markedly weaker.[126] The culminating report from the first campaign irrevocably demonstrated the cause of "Puerto Rican anaemia" to be *Uncinaria americana* and: 'Finally relegated the matter of insufficient and improper food to the secondary place of a mere predisposing factor…and above all, it convinced the people of Porto Rico that they were dying of a curable disease; that their entire labouring class was threatened with at least semi-invalidism…'[127]

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[124]Ashford, *A Soldier in Science*, p. 67.
[125] See, for example, Article entitled: "Stamping Out Anemia. Good Results Obtained by Porto Rican Commission." April 19, 1904. Comisión de Anemia, Box 6, Colección Ashford, BCA, RCM, UPR.
[126]Ashford and Igaravidez, 'Summary of a Ten Years' Campaign against Hookworm Disease in Porto Rico', p. 1759.
[127]Ashford and King, 'A Study of Uncinariasis in Porto Rico', p. 393.

This argument proved successful when on March 8, 1906, the House of Delegates approved "A Bill to Create a Permanent Commission for the Suppression of Uncinariasis in Porto Rico." The bill outlined the formal organizational structure, the duties of employees, the salaries for the director, all essential functions of the organization.[128] The campaign could no longer be considered the overreaching work of an ambitious American in any regard. The Commission was fully the product of years of Puerto Rican investment. With the anaemia work on a solid basis, Ashford was again recalled for active participation in the Army, assigned to Washington, D.C. as the Medical Officer of the Battalion of Engineers in July 1906, a prime assignment for a young Army physician. Ashford received an official letter of thanks, this time from the House of Delegates directly, for his work toward the extinction of anaemia.[129] The AMPR and leading physician, Dr. Manuel Quevedo Baez, likewise offered their sincere thanks, alongside an announcement printed in the newspaper, *La Democracia*, calling Ashford, "nuestro bien estimado amigo…"[130]

In subsequent years, the work against uncinariasis continued with the creation of the Anemia Dispensary Service (ADS) under the Director of Health in 1908. By the end of the first year of work as the ADS, Gutierrez, with Ashford and King as honorary members, realized the task of the organization had shifted: 'Our task was no longer to heap up case records but to erect a permanent institution for ready response to emergencies; and the necessity for its creation was as obvious as was that for the elaborate perfection of our weather bureau in Puerto Rico subsequent to the fearful

[128] A Bill to Create a Permanent Commission for the Suppression of Uncinariasis in Porto Rico. Introduced by Vias and Virella Uribe, February 12, 1906. Comisión de Anemia, Box 4, Colección Ashford, BCA, RCM, UPR.

[129] Letter from the House of Delegates of Puerto Rico to Dr. Bailey K. Ashford, March 8, 1906. Comisión de Anemia, Box 7, Colección Ashford, BCA, RCM, UPR.

[130] See, for example, Article entitled: "El Doctor Ashford", *La Democracia*, 1906. Comisión de Anemia, Box 7, Colección Ashford, BCA, RCM, UPR. "our good dear friend…"

hurricane of San Ciriaco.'[131] In fact, Ashford called for the establishment of lasting public health institutions, separate from politics and partisanship. As a central figure in the continuous manoeuvrings of Washington/San Juan politics, he asserted: 'The building up of a strong sanitary service, based on scientific reasoning and not on party prejudices and vain imaginings, is here the most urgent civic problems.'[132] His counsel that contemporary law needed to support the science of public health resulted in the creation of the Bureau of Tropical and Transmissible diseases. The agency was 'headed by Dr. Gutierrez, and equipped a laboratory centre in every one of the seven Senatorial Districts of the Island. Every centre was presided over by a modern physician, a scientific sanitarian…This representative of Sanitation at each one of these centres was not affiliated with any political party, was not beholden to any of them for his position…the authority of science was everywhere.'[133] Hookworm eradication depended on the separation of science and medicine from the dangers of politicking.

Outcomes and Impact

In less than a decade, Ashford and the Commission's work seemed to set aside the disasters of the economic crisis incited by the Spanish-American War, the drop in the price of coffee, and the ruin of the island's plantations by the hurricane of San Ciriaco, that left the Puerto Rican population without food, clothing, shelter, money, or work, to address the debilitating cycle of hookworm infections.[134] As he optimistically described in his autobiography, 'The story of the reconquest of Puerto Rico for science is one of the most thrilling to be found in the history of the Island.'[135] While the island experienced a great increase in mortality during the first five years of the American occupation, the

[131] Ashford, *A Soldier in Science*, p. 85.
[132] Ibid.
[133] Ibid.
[134] Ibid.
[135] Ashford, Gutierrez Igaravidez, and Porto Rico Anemia Commission, *Uncinariasis (Hookworm Disease) in Porto Rico*, p. 22.

second five-year period showed a drop in the death rate, corresponding with the beginning of the campaign against uncinariasis conducted by the Puerto Rican Anemia Commission. As of June 30, 1910, the Commission reported, 'We are entirely safe in saying that over 300,000, or nearly one-third of the population of Porto Rico, have received specific treatment for uncinariasis.' Considering the limited financial resources available for all public health and medical endeavours on the island at the start of the American occupation, such a feat seems nearly unimaginable.

Limited funding could not stand in the way of popular demand. As Ashford explained, 'This work, always sustained, encouraged and protected by the representatives of the American Government, was paid for cheerfully from the Insular Treasury by the Legislature of Porto Rico on appeal of the seventy or more municipalities into which the island is divided, an example of a progressive spirit and a vigorous interest in her laboring classes which does great honor to her people.'[136] Years of hard work on the part of the Commission's physicians and assistants, the support of land owners, the investment of the legislature, the conversion of the population, and the praise of newspaper editors affirmed the campaign's mission to treat and heal those previously overlooked.

Not only did the campaign directly improve the quality of life of thousands of Puerto Ricans, it also brought an aspect of the revolution in medicine taking place across Europe and the United States to Puerto Rican physicians: the reliance upon microscopes in diagnosis. Ashford is noted as one of the first scientists to formally describe his clinical findings in conjunction with his laboratory findings, a major development in twentieth century scientific practice.[137] The campaign inspired physicians to seek, acquire, and master the use of microscopes: 'Practically there is not a town to-day in Porto Rico that has no microscope, from one source or another.'

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[136] Essay entitled: *Short History of Anclyostomiasis in Porto Rico*, 1911. Comisión de Anemia, Box 7, Colección Ashford, BCA, RCM, UPR.

[137] Rigau-Perez, 'Bailey K. Ashford, Mas Alla De Sus Memorias', p. 53.

Perhaps just as importantly, the establishment of local dispensaries 'caused a revolution in the health service of the municipality, because the physician from that time on fixed a definite place and hour when he might see the anemics, which practically embraced the entire working population of the municipality.' The succession of the ADS by the Service of Tropical and Transmissible Diseases in 1908 solidified these major changes in the delivery of health care, as the bureau worked to reduce the overall mortality and morbidity of Puerto Rico's labouring classes. In reflecting upon the improvement in the death rate, Ashford recognized the link between the progress made in regards to the economic status of the labourer and the medical service, arguing that the two factors could not be separated given the 'medico-socio-economic' nature of anaemia. If the biomedical intervention of thymol to treat uncinariasis could be combined with further improvements in the jíbaros' socioeconomic situation, Puerto Rico 'will enter upon an era of prosperity which to-day our most extravagant dreams can not foreshadow.'[138]

In summarizing the work of the ten-year campaign against uncinariasis, Ashford illustrated the broad implications of their work:

> Now that at last the continent of the United States has awakened to a realization of the baneful presence of hookworm disease within its own borders and a prominent man of means has made possible the beginning of a campaign against this formidable enemy of industrial and agricultural activity, we, the members of the late Porto Rico Anemia Commission, feel it our duty to deliver to the Rockefeller Commission and the medical fraternity at large, a succinct account of the operations of our commission and its successor, "The Anemia Dispensary Service" in the Island of Porto Rico.[139]

The work in Puerto Rico awakened American physicians to the plight of millions of Southerners likewise suffering from hookworm disease. Prior to Ashford's work, American doctors labelled hookworm as a "foreign disease" brought to the U.S. by

[138]Ashford, *A Soldier in Science*, p. 67.
[139]Ashford and Igaravidez, 'Summary of a Ten Years' Campaign against Hookworm Disease in Porto Rico', p. 1758.

'lower-class Europeans.'[140] Tied to notions of American exceptionalism and American nationality, doctors maintained their opinion that hookworm was restricted to or caused by foreigners in spite of Ashford's discovery of hookworm on American soil in 1900. Only two years later, 'Stiles named the new species of human hookworm *Uncinaria Americana*—the uniquely American hookworm—and suggested that "although it is rarely recognized," hookworm probably "is endemic in the southern states."'[141]

As Natalie J. Ring argues, 'The identification of the region as a diseased space in a healthy nation also was part of a larger view of the diseased tropics in the world viewed from the industrialized northern hemisphere.'[142] In conceptualizing the South as part of the tropics, northern philanthropists, southern Progressives, federal officials, and a host of institutions and people, sought to 'draw attention to the region's poverty, backwardness, and distinctiveness.'[143] Just as in Puerto Rico, building the consensus among physicians surrounding the distribution of the disease in the South took time, but the realization eventually took hold and American physicians could focus on improving existing working conditions rather than continuously relying on imported labour. By identifying the problem as medical, physicians could then offer a medical cure, and the economic outlook of the South could no longer be blamed on inferior racial stock given their Anglo-Saxon heritage.[144] Hookworm disease and more broadly, 'tropical pathologies,' had to be contained and remedied both at home and abroad to ensure the continued spread of American ideals of 'progress.'[145] Ashford and the Puerto Rico Anemia Commission fundamentally influenced public health in the U.S. South, especially with the inauguration

[140] Marcus, 'Physicians Open a Can of Worms: American Nationality and Hookworm in the United States, 1893-1909', pp. 104-05.
[141] Ibid., p. 107.
[142] Natalie J. Ring, *The problem South: region, empire, and the new liberal state, 1880-1930* (Athens: University of Georgia Press, 2012), p. 61.
[143] Ibid, pp. 3-4.
[144] Marcus, 'Physicians Open a Can of Worms: American Nationality and Hookworm in the United States, 1893-1909', p. 110.
[145] For further discussion on Progressive attitudes to the South and the imperial dimensions of reform during the period, see: Natalie J. Ring, *The problem South.*

of the Rockefeller Sanitary Commission for the Eradication of Hookworm Disease (RSC) in 1909.[146]

Ultimately, the Puerto Rico Anemia Commission did not possess the resources and manpower to combat the many sanitary problems of the island during the earliest years of the American occupation. While patients were educated in personal hygiene and the spread of uncinariasis, larger questions of public health and nutritional improvement were unfortunately left untouched. By necessity, many of the infrastructural reforms and campaigns implemented during the years of the military government could only address the immediate crises and needs of the population. This state of affairs could not continue indefinitely, with even the driving force behind the Puerto Rico Anemia Commission and the inspiration behind the RSC, Dr. Ashford, admitting that 'often these parasitic enemies will be fought off only by building up a strong and healthy body with unusually good and sufficient food.'[147] Disease eradication depended upon more than just the dispensing of 'little glass balls.'

International Comparison

The anti-hookworm campaign survived the tumultuous first decade of Puerto Rico's civil government under the United States, perhaps because of Ashford's insistence upon keeping the uncinariasis work independent from insular politics for all of this time. The work of these early years allowed the Commission to adjust and adapt policies to best fit the needs of the Puerto Rican people themselves, developing their campaign and techniques organically, as obstacles arose and unparalleled results were achieved. As Ashford explained, 'Similar treatment has never been accomplished anywhere so cheaply; and this record constitutes, with all of its manifold details, one of the most remarkable

[146] The interaction between the Rockefeller Sanitary Commission and Puerto Rico is the subject of Chapter 5.

[147] Ashford, *A Soldier in Science*, p. 35.

campaigns ever undertaken against disease since the beginning of time.'[148] Moreover, though misrepresentation of the discovery of the hookworm parasite by popular media would continue in the coming years:

> [O]ne fact was truly discovered in Puerto Rico, and in Puerto Rico only: hookworm as a scourge of the agricultural laborer in tropical and subtropical countries could be successfully treated and exterminated in a comparatively short period of time. This practical find completely revolutionized the treatment of the problem, and Puerto Rico furnished the first systematic solution in the world through its Puerto Rico Anemia Commission and their seven years' labour.[149]

Historian Steven Palmer likewise recognizes the pivotal nature of Puerto Rico's work in planning the 1914 pilot programs of the Rockefeller International Health Commission (IHC) against hookworm disease in British Guiana, Costa Rica, Panama, Guatemala, Trinidad, and Nicaragua.[150]

Ashford and Gutierrez's insistence on cultivating a popular responsibility and stake in the eradication of hookworm parallels the philosophy used by IHC directors throughout the Caribbean and South America: 'the International Health hookworm program was not about imposing models from outside and coercively treating people, but rather about educating host states, and host populations, to consent to new forms of biomedical regulation, organization, and conduct.'[151] Rockefeller physicians attempted to remain completely impartial and removed from local politics, again in line with Ashford's insistence that the anaemia dispensaries and related authority operate independently of municipal and insular bureaucracies. Mission directors for the IHC relied on building coalitions with 'local power groups: government and health officials, community authorities, private and religious institutions.'[152] The paradigms of "colonizer" and "colonized" hold little analytical value in the Caribbean hookworm campaigns as

[148] Ibid., p. 88.
[149] Ibid., p. 96.
[150] See Steven Paul Palmer, *Launching Global Health: The Caribbean Odyssey of the Rockefeller Foundation* (Ann Arbor: University of Michigan Press, 2010).
[151] Ibid., p. 22.
[152] Ibid., p. 96.

domestic and foreign stakeholders similarly aimed to maximize the results of their interventions.

Difficulties in implementing hookworm eradication campaigns arose most obviously in the West Indian colonies of the British Empire. As Margaret Jones explains, Jamaica not only represented one of the oldest British colonies in the region, but also showed some of the worst features of colonial government. Though epidemic disease threatened the productivity and stability of the colony, colonial elites—including European medical officers and island officials—shifted blame for the poor state of health of the population to the sufferers themselves.[153] Similar to the context of Ashford's intervention in Puerto Rico and the work of the IHC in other parts of the Caribbean, 'Economically depressed, a poor and unhealthy rural population neglected by its imperial masters and in America's backyard, Jamaica presented the ideal ground for the IHD to insert its "entering wedge"—a hookworm campaign.'[154] IHC officials devoted much of the treatment campaign to educational work such as lectures, pamphlets, and leaflets. While Ashford's push for major sanitary reforms achieved limited success, Rockefeller insisted on the government's responsibility in building latrines as part of a sanitation plan that went into effect in 1924. Active hookworm work in Jamaica continued for thirty years.

Hookworm campaigns spread throughout the British Empire, not just in the Caribbean. Britain's "model colony" of Ceylon, with its wealthy, capitalist plantation economy, likewise suffered from hookworm infestation that increased with the rise of migrant labour in the late nineteenth century. Infection spread from Indian immigrant labour to the wider villager population and gained the attention of both the colonial and

[153] Jones, *Public Health in Jamaica*, p. 6.
[154] Ibid., pp. 115-16.

imperial governments by 1909.[155] The increasing mortality rate due to the disease resulted in the passage of legislation that provided for the establishment of estate hospitals and dispensaries to care for the sick. Still, these regulations remained unenforced until the intervention of the Rockefeller IHC in January 1916.[156] The campaign sought to secure the cooperation of the island's medical department, the colonial government, and planters—a cross-sectional foundation as in Puerto Rico. Ultimately, the IHC failed to eradicate the disease, but instead focused on reducing the level of infections as much as possible, treating approximately 100,000 people by the end of 1923. The interventions in Ceylon, Jamaica, and across the Caribbean owed their inspiration to the physicians and population of Puerto Rico who served as pioneers in combatting the global hookworm epidemic.

The Mythification of Ashford

Setting aside the particulars of Ashford and the Puerto Rico Anemia Commission, it is important to consider the "mythification" of Ashford's personality and his work. His leadership in the campaign against hookworm and the improvement of health on the island in general had a significant impact on colleagues and patients, as well as Puerto Rico as a whole. As José Rigau-Peréz argues, much of the historical narrative of Ashford's work on hookworm centres on the quintessential moment of scientific discovery, that is, his microscopic identification of the uncinariasis parasite in the faeces of his patient. Ashford's memorializers ignore the much longer clinical and intellectual journey in his tent hospital and the Tricoche hospital in Ponce.

While his work undoubtedly changed the course of twentieth century public health in Puerto Rico and even in the American South, Ashford was more importantly able to

[155] Jones, *Health Policy in Britain's Model Colony: Ceylon, 1900-1948*, pp. 155-58.
[156] Ibid., pp. 159-60.

think beyond the commonly held medical paradigms of his time.[157] More specifically, Rigau underlines the fact that many of Ashford's contemporaries blamed rural anaemia on racial degeneration, or more simply, hunger and dirtiness, while Ashford rejected such sceptical criticisms.[158] He overcame the heated debate, especially in the medical publications of the day, which polarized physicians and scientists attempting to discern the causes, diagnosis, and treatment of various forms of anaemia.[159] His work endured and shaped the next generation of American and Puerto Rican physicians. Ashford's personal papers include letters from national heroes like William C. Gorgas praising his contributions. As one young doctor recounted, 'Be sure, however, us young upstarts in hookworm have merely builded [sic] upon a foundation some of whose most important stones you yourself laid. I remember through the years since, a remark made by Dr. Stiles in a Johns Hopkins lecture to the effect that "if Porto Ricans do not erect a monument to Bailey K. Ashford they will classify as the most ungrateful of people."'[160] Puerto Rico has certainly offered monuments and street corners to memorialize Ashford.

An overly simplified description of Ashford's introduction to hookworm and Puerto Rico generally reads as if he arrived in the Island with the Army, quickly recognized the major health problem of the masses, conducted his scientific investigations, and shortly thereafter announced his discovery. While Rigau attempts to succinctly debunk this narrative, some contemporary historians transcend mere complication of the Puerto Rican hookworm narrative to overt implication and accusation of Ashford as a conscious tool of empire.

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[157] Rigau-Perez, 'Bailey K. Ashford, Mas Alla De Sus Memorias', p. 52.
[158] Ibid.
[159] Marcus, 'Physicians Open a Can of Worms: American Nationality and Hookworm in the United States, 1893-1909', p. 106.
[160] Letter from Norman R. Stoll to Dr. Bailey K. Ashford, November 14, 1928. Letters Folder 3, BKA Papers: GTM 071016, SC, GU.

Francisco Scarano's recent work on the subject comprehensively defamiliarizes the tale of Ashford and his successes against hookworm, introducing a much more complicated and longitudinal perspective on the campaign's work. He contextualizes Ashford's work on hookworm disease within the framework of establishing American hegemony on the island following the Spanish-American War, a process that, he argues, required the delegitimization of the educated elites in the country such that they could not be trusted to run the government, while at the same time, American capitalists sought to augment the labour exploitation of the rural poor and use this force to work abroad in places such as Hawaii and Panama.[161] Scarano contends that Ashford's work was deeply couched in the language of imperial legitimacy that would benefit all: materially and ideologically. In fact, Ashford was 'acutely aware of the range of ideological and practical values that would accrue to the imperial enterprise if his campaigns were successful…'[162] However, Scarano neglects to account for Ashford's explicit rejection of any ties to political parties and adamant calls for the separation of science from politics. He discounts the position that historians should take historical actors and their stated intentions at face value.

In a more pointed vein, while contextualizing his work in the political and social climate of the day, Nicole Trujillo-Pagán selectively uses Ashford's own words against him in her monograph, *Modern colonization by medical intervention: U.S. medicine in Puerto Rico*. Though his 1934 autobiography, *A Soldier in Science*, undoubtedly presents a nostalgic gloss on the life's work of a dying man she questions the hookworm campaign's impact in terms of patients reached, cures exacted, reduction in island mortality rate, statistics that are duplicated and referenced in countless publications. Trujillo-Pagán casts doubt on the authenticity of his scientific achievements, reducing

[161] Scarano, 'Doctors and Peasants at the Intersection of Empires: The Hookworm Campaigns in Puerto Rico', p. 4.
[162] Ibid., p. 5.

him to a 'useful ally' who capitalized on his father-in-law's influence. However, as this chapter has shown the rich and abundant personal letters of Ashford held at Georgetown University and the University of Puerto Rico offer a different narrative.

Letters exchanged with leaders of the island's political elite, local physicians, and the Army's Surgeon General among others articulate a thoughtful and coherent philosophy for combatting hookworm disease and improving health and sanitary conditions on the island. Ashford did not fight to extend American hegemony, but to raise up the jíbaro from the depths of dependency and ill-health. Though disease campaigns do reveal relationships of power, 'It is as important to explore the intentions and outcomes of these policies *in situ* as it is to explore their relationship with the imperial project.'[163]

Conclusion

Though Ashford and his colleagues struggled to receive recognition for their momentous discovery in 1899, eventually this contribution to American tropical medicine received due attention.[164] Decades later Ashford would admit the short-sightedness of focusing almost exclusively on lowering the intensity of hookworm infection rather than in pushing for more transformative political reforms for sanitation. By the time of the writing of his memoir in 1934, Ashford understood that hookworm infestation could not be eliminated by treatment alone, but the "fundamental thing" that would make the disease disappear from Puerto Rico was the provision of better food and more meat. He explained that the issue was not medical, but social: 'It will be solved only by education, better wages, and the admission of cattle from surrounding islands and countries bordering on the Caribbean, which, because they have plenty of grazing land and a thinner population, can furnish this indispensable element of daily food to the residents of

[163] Jones, *Health Policy in Britain's Model Colony: Ceylon, 1900-1948*, p. 17.
[164] For further discussion on the under appreciation of the role of Puerto Rico in U.S. public health in the early twentieth century, see: Amador, *Medicine and Nation Building in the Americas, 1890-1940*, pp. 69-71.

our tropical American island.'[165] Recent works have criticised Ashford for his belated recognition of the socioeconomic factors involved in hookworm disease, but this is perhaps anachronistic given that the specialist community addressing this disease at the time all emphasized anthelminthics above other interventions.[166] Pharmacological interventions achieved results quickly and cheaply, whereas socioeconomic reform required longer periods of time and significant financial investment.

The promise and momentum behind the Puerto Rican Anemia Commission at the end of the first decade of American civil rule did not long endure. With the passage of Act No. 68 by the Puerto Rican legislature in March 1911, the Bureau of Tropical and Transmissible Diseases merged into the Service of Sanitation.[167] The insular government's history of failed centralization of health services and the as yet unknown head of this new department meant that Ashford did not support this reorganization, and Gutierrez resigned his post as head of the bureau.[168] Without Gutierrez and Ashford's support, preparations for the continuation of the anaemia work were not made. Dr. William F. Lippitt took office in July 1911, and a circular 'establishing the anemia dispensaries in the health offices of all towns which were stations of medical officers' was finally issued in August of the same year. However, by this point supplies of thymol and magnesium sulphate had been allowed to dwindle to such a degree that patients could not be treated until fresh supplies arrived in December. As the next chapter details, the politicking involved with establishing a new Sanitation Service directly inhibited the provision of care for those afflicted with hookworm disease during these months.

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[165]Ashford, *A Soldier in Science*, pp. 79-80.

[166] For criticism of this type, see: Nicole Trujillo-Pagan, 'Worms as a Hook for Colonising Puerto Rico', *Social History of Medicine,* (2013). For more on global hookworm campaigns, see: Palmer, 'Migrant Clinics and Hookworm Science: Peripheral Origins of International Health, 1840-1920'.

[167]George R. Colton, 'Twelth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1912', (Washington, D.C.: Government Printing Office, 1912), p. 74.

[168]Ashford, *A Soldier in Science*, p. 87.

Chapter 3: Legislative Transformations, 1909-1912

Political Stagnation

Satisfaction with the status quo in Puerto Rico typified Congressional attitudes for the period following the passage of the Foraker Act. As Trías Monge describes, 'The Puerto Rican and Philippine question—the possibility of establishing an American empire—which occupied centre stage briefly in 1900, soon ceased being of popular or even party interest.'[1] Still recovering from the depression of the late 1890s and pressures from Progressive era reformers to streamline the government themselves, domestic politics dominated the federal agenda.[2] At the same time, shifting political alliances between the island's major parties often impeded budget negotiations and bureaucratic appointments. Commentators have described Puerto Rican political party affiliation as having been uncommonly important, with party membership more essential to personal identification than religious or class affiliations.[3] With this framework in mind, this chapter traces the legislative developments in public health policy following the passage of the Foraker Act in 1900. Though in the cases of smallpox and hookworm disease, the campaign architects either worked through nonpartisan, military channels in the case of the former, or attempted to work outside of typical civil channels in the case of the latter, Congress and the Puerto Rican legislature possessed immense power to either reform or neglect public health and sanitation.

Parallel developments in Cuba and the Philippines have been described as an inherent component of the American civilizing mission, but this overarching schema did not organize or shape the policies for health and medicine in Puerto Rico. Political experts and medical experts—both federal and insular—devised policy to address

[1] Trías Monge, *Puerto Rico: The Trials of the Oldest Colony in the World*, p. 58.
[2] Robert H. Wiebe, *The Search for Order, 1877-1920* (Westport, Conn.: Greenwood Press, 1980), p. 168.
[3] Fernández Y García, Hoadley, and Astol, *El Libro De Puerto Rico (the Book of Porto Rico)*, pp. 195-211.

concerns conceptually and structurally, but with little imperative for enforcement. Individual success, as in the case of Ashford as he took the lead against hookworm disease and gained prominence as a public figure among the island's people, fell by the wayside in a period of great political inefficiency. As this chapter shows, haphazard American imperialism in Puerto Rico collided with the inability of institutions to address matters of health, stalling legislative progress. Once again, concerns over the well-being of the Puerto Rican population were often trumped by issues of finance and commerce.

Circuitous Congressional Negotiations

Between 1900 and 1909, no major initiatives to amend the Foraker Act emerged in Congress, despite prominent criticism from such channels as the American Federation of Labor and the Executive Branch over its denial of American citizenship to the Puerto Rican population. Presidents Roosevelt and Taft, as well as Governors Winthrop and Colton, each urged Congress to answer the Puerto Rican "citizenship question" throughout their terms in office.[4] However, since the earliest days of American foreign policy in the nineteenth century, the American experience with imperialism remained torn between idealism and realism, an "ambivalent imperialism" according to Jeannette P. Nichols.[5]

Federal political power remained divided along two poles: between Congress and the Administration, and between the House and the Senate. Congress and the Administration struggled over the lack of a clear mandate because of close elections, economic and political instability, and inter- and intra-party strife. The House and the Senate vied for ultimate Congressional authority and struggled through jealousy over the imperial initiative. By the end of the nineteenth century, the Senate Committee on

[4] See, for example, hearings contained in: American Federation Of Labor, *A People without a Country: Appeal for United States Citizenship for the People of Porto Rico* (Washington: Government Printing Office, 1912).

[5] Nichols, 'The United States Congress and Imperialism, 1861-1897', p. 527.

Foreign Relations became the 'prime spot to gain fame and power.' In some cases, Nichols argues, the Committee came only second to the president in terms of national prominence.[6] These dynamics hindered collaboration and progress in acting on issues of national importance, and as A. Hunter Dupree notes, "Indeed, 1865 to 1900 was not a great period for legislation on any subject.'[7] The lack of initiative to reform Puerto Rico's organic act should offer little surprise.

Eventually President Taft, who as both Roosevelt's Secretary of War and McKinley's Governor-General of the Philippines could be said to possess a more international purview than most Congressmen, broached the issue of governance in Puerto Rico. American officials on the island, including Attorney General Henry M. Hoyt II, Puerto Rican party leaders, like Luis Muñoz Rivera, and major architects of American imperialism, like Elihu Root, finally brought the frustrating position of the island's relationship with the U.S. to Congress again after almost a decade of rule under the Foraker Act. It was in this wider context that health and sanitation finally surfaced as areas of peripheral concern in 1909.

In the summer of 1909, the Puerto Rican Legislature failed to pass a budget for the new fiscal year, inciting the first Congressional debate on the island's government since 1900. Leading up to this crisis, the Puerto Rican House of Delegates passed a series of laws surrounding municipal autonomy, elections, and the civil service that would, according to the architects, give greater power to the people, or according to the Governor and Executive Council, 'drastically [cut] the salaries of key officials' and eliminate posts in order to pressure the Executive Council.[8] As a result of this budgetary impasse, Taft

[6] Ibid., pp. 528-32.
[7] Dupree, *Science in the Federal Government*, p. 291.
[8] Cayetano Coll Y Cuchí, *Historias Que Parecen Cuentos* (Río Piedras: Editorial Universitaria, Universidad de Puerto Rico, 1972), pp. 148-49. and Trías Monge, *Puerto Rico: The Trials of the Oldest Colony in the World*, p. 63.

invited Unionist leader Muñoz Rivera and several other House representatives to the White House to discuss matters and resolve the budget issue, but with no success.

At Taft's direction, Congress passed the Olmsted Amendment (named for Chairman of the House Committee on Insular Affairs, Marline E. Olmsted) stating that if the legislature failed to pass a new budget at the end of its session, government appropriations would continue in the same amount as the previous year. To Taft and other Republican leaders, the failure of the Puerto Rican House leadership to provide an annual operating budget for the island represented a failure in self-government. The budget debacle instigated Taft to send a presidential commission—comprised of Secretary of War Stimson, Chief of the Bureau of Insular Affairs, Brigadier General Clarence R. Edwards, and Colonel Jefferson Randolph Kean of the Army Medical Department—to Puerto Rico in order to examine the overall state of the island. [9] Because of his extensive experience as a health officer in tropical countries, Colonel Kean was included in the commission to help develop a plan to address the still unsatisfactory sanitary conditions and the need for a 'general reorganization of the administration of health affairs.'[10]

In the nearly ten years since the passage of the Foraker Act, the deteriorating state of sanitation on the island had not gone unnoticed. While official statistics showed a decrease in mortality rates from 42 per thousand in 1899 to 20.9 per thousand in 1908, this improvement was largely attributed to Ashford's work against hookworm infection.[11] The Anemia Commission's mass treatment of the jíbaro population undoubtedly curtailed the mortality associated with uncinariasis following the San Ciriaco hurricane of 1899.

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[9] Jefferson R. Kean served as the Chief Surgeon for the Department of Havana and then as Superintendent of the Department of Charities from 1898 to 1902. He later returned to the island as an advisor to the Department of Sanitation from 1906 to 1909. For more information, see: 'Jefferson Randolph Kean (1860 - 1950)', *Philip S. Hench Walter Reed Yellow Fever Collection* (updated February 24, 2004) <http://yellowfever.lib.virginia.edu/reed/kean.html>, accessed March 4, 2015

[10] William Howard Taft et al., 'Conditions in Porto Rico. Message from the President of the United States, Transmitting a Report Made by the Secretary of War Upon Conditions Existing in Porto Rico. January 29, 1910. -- Read; Referred to the Committee on Insular Affairs, and Ordered to Be Printed', House Committee on Insular Affairs, (1910), p. 2.

[11] Fernández Y García, Hoadley, and Astol, *El Libro De Puerto Rico (the Book of Porto Rico)*, p. 299.

"Anemia" went from the leading cause of death on the island in 1900 to the seventh leading cause of death in 1910. However, beyond the work against uncinariasis, the health 8officials praised the salubrious climate of the island and the general avoidance of epidemic outbreaks of infectious disease for the decreased mortality rate.[12]

The health situation struggled under limited appropriations from the insular government and a plethora of bureaucratic shortcomings. Following the transition from military to civil government in 1900, the SBOH remained in effect with the power to prepare ordinances and regulations, serving mainly in an advisory capacity. In 1902, a legislative act created the position of a Director of Health to be appointed by the Governor and under the jurisdiction of the Commissioner of the Interior. A further shift in control occurred in 1904 with the creation of the Department of Health, Charities, and Correction, which became known as the "*Consolidado*" or the Consolidated Department.

The Director of Health no longer fell under the jurisdiction of the Commissioner of the Interior. Puerto Rican party leaders used the Consolidado as a bartering tool between the reigning parties—Union and Republican—as the department was placed under the leadership of a Puerto Rican department head. The other department heads remained in the hands of Americans, but the leadership of the Consolidado was the first position in the highest echelons of island governance exclusively held by a native. In contrast, all senior members of the Philippines' Bureau of Health were American, even in 1913.[13] This continuous shifting of control over health and sanitation resulted in a dispersed system of municipal health officers with no central authority or enforcement mechanisms and little sustained improvements.

Matters were brought to the attention of the Bureau of Insular Affairs (BIA), the body within the War Department responsible for the administration of the American

[12] See, for example, George R. Colton, 'Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1910', pp. 211-27.
[13] Anderson, *Colonial Pathologies*, pp. 184-85.

insular territories. In an extract from a letter in the records of the BIA, the Attorney General for Puerto Rico identified the stark failure of the Foraker Act to provide for health and sanitation in the first decade of American-led civil government: 'I have no doubt that the chiefest [sic] of all defects in the Foraker act was its failure to make adequate provision for a health service in Porto Rico.'[14] Similar to the testimony of Tulio Larrinaga before the House Committee on Insular Affairs, he insisted that the island could be made into 'the healthiest of all tropical countries,' if the people were educated in the need for cleanliness of their bodies and their environment, a character trait apparently lacking from most people who lived in tropical climates. Hoyt observed that the U.S. exerted 'strenuous effort to improve even to a tolerable degree' the health conditions in each locale it has occupied, such that 'it is amazing that in constructing an Act for the government of Porto Rico this matter of such prime importance should have been completely overlooked.'

Hoyt and his colleagues should have expected nothing less, given the near exclusive focus of the Congressional hearings on the island's economic future without thought to the populations' well-being, except as a labour force. Urgent matters of health and sanitation governance had been designed and implemented under the military authorities in Puerto Rico, Cuba, and the Philippines, not the civil government. The Army Medical Department took charge of epidemic disease response upon their arrival and simply left those structures in place upon their departure. No central federal health bureau operated in the United States; rather, state and municipal health boards were only relatively recently springing up across the country in an era of "new public health."[15] Washington operated with a hands-off approach in domestic health matters, and when it

[14] Extract from letter of Henry M. Hoyt 2d, Attorney General of Porto Rico, December 7, 1909; File 848, Board of Health: Reports (File 848); General Records; Records of the Bureau of Insular Affairs, Record Group 350 (RG 350); National Archives at College Park, MD (NARACP).

[15] See, for example, John Duffy, *The Sanitarians: A History of American Public Health* (Urbana: University of Illinois Press, 1990).

came to their new territories, Congress seemed oblivious at best, and outright negligent at worst, to the deleterious health conditions pervading much of the island.

Overall, the Puerto Rican Consolidado had proved ineffective in providing for the improvement of the Island's health to this point. In a report to the head of the BIA, the Auditor General for the island explained that health was subject to the whim of local politics.[16] Under the strong prevailing drive for home rule in municipalities, medical inspectors were popularly elected rather than appointed. Election of municipal judges left the enforcement of local health regulations susceptible to local party leaders. Even the head of the Department was subject to party leaders and local party politics. Judges 'discriminate in favor of the non-enforcement of health regulations when campaign contributors and members of the party are brought before the court for violation of health ordinances.' Attempts to give central authority more power was rebuffed by cries for home rule and resistance by parties benefiting from the existing system. The task of taking back power from local authorities and investing them in a central, independent administration proved elusive.

The Attorney General urged a thorough clean-up of the island under direct federal authority, followed by the establishment of a permanent, centralized health service as one of the departments of the Puerto Rican government. Conditions in large cities were the most dangerous, especially with the constant threat of serious epidemic diseases. Much of the urban population was not even served by water or sewage supply pipes. Hoyt countered criticism of his centralization plan, which called for the situation to be dealt with by American officials, arguing, 'I do not believe that the people of Porto Rico, or any other tropical race of people, have ever succeeded or ever will succeed in devising a solution which could be adequate to the situation here found.' Just as they did in the

[16] Letter from George C. Ward to General Edwards, August 24, 1909; File 848; General Records; RG 350; NARACP.

Philippines and Cuba, Hoyt continued, the federal government needed to undertake such work in Puerto Rico before an epidemic of yellow fever or bubonic plague erupted.[17]

While Hoyt certainly represented a particularly paternal, colonial mindset, even Ashford, a fully integrated member of Puerto Rican society, called for the creation of a central department to control all sanitary matters. In discussing the triumphs of yellow fever eradication in Cuba, the halting of cholera and plague epidemics in the Philippine Islands, and the success of constructing the Panama Canal, he asserted: 'In every instance this has been done by a more or less centralization of public health authority. In any other way it would fail as it had repeatedly failed before.'[18] Likewise, the local governments in New Orleans and San Francisco had been unable to stop the recent yellow fever and bubonic plague outbreaks. It was the federal authorities that had halted the spread of disease in each instance, similarly indicating the need for a 'National Department of Public Health.'[19]

Calls for the expansion of centralized control of sanitation and health in Puerto Rico cannot be purely regarded in an "imperial" frame; rather, they must be put into a larger context of expanding government powers in the early twentieth century United States. More than that, they should be seen as part of the larger developments in public health and sanitation science in the American sphere. Conditions on the island were not uniquely colonial—especially given its geographic proximity to the United States—any more than New Orleans sanitation missteps were uniquely Southern.

Following a survey of the general conditions of the island, Secretary Dickinson

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[17] Yellow fever, in particular, has garnered significant research attention in recent years due to its impact on American foreign policy and the entrance of the U.S. into Cuban politics with the Spanish-American War. As Mariola Espinosa argues, "Faced with repeated invasions of epidemic yellow fever from Havana in its southern states, the U.S. government confronted Cubans with the prospect of an epidemic of invasions of their island by U.S. troops." For further information, see: Espinosa, *Epidemic Invasions*, p. 3.

[18] Letter from Dr. Bailey K. Ashford to Governor Regis H. Post, c. 1909; Box 4, BKA Papers: GTM 071016, SC, GU.

[19] For more on the failure of the National Board of Health, see: Dupree, *Science in the Federal Government*, pp. 259-63.

transmitted the report of President Taft's commission to Congress on January 29, 1910. The commission proposed a bill to replace the Foraker Act, which Olmsted then presented before his committee.[20] The report draws on a recurring theme that appears in the commentary of the previously mentioned hearings and letters, that is, that Puerto Rico was not an inherently unhealthy tropical environment. Rather, 'It is, under proper sanitation, an ideal place for health, and can be made to show a result that can not be surpassed.'[21] Most basically, the island required adequate resources to call on: effective laws, administration, and funding. Using the campaign against hookworm disease as an example, with enough funds for treatment, the report suggests, the efficiency of the labour force could be increased one hundred per cent.

After consultation with leaders in the medical and scientific community in San Juan, Colonel Kean recommended the creation of a Department of Health led by a Commissioner of Health, based on the desire for a central health authority with jurisdiction through local health representatives over all health and sanitation, a model similar to that adopted in Cuba. The proposed bill extensively detailed the organization of the new department with separate bureaus and boards for charities and sanitation. Kean's recommendations can be seen as fundamentally rooted in the emergence of a "new middle class" in the late nineteenth century, whereby professionals, including physicians, experienced a 'consciousness of unique skills and functions.'[22] With the rising profile of the germ theory of disease, and advances in parasitology, immunizations, and antiseptic surgery, physicians and eventually public health professionals organized and pushed for recognition of their unique role as experts in these arenas.

In a bold and controversial statement, Kean argued that the need for improvements in health and sanitation were more pressing than the current emphasis on

[20] Taft et al., 'Conditions in Porto Rico', p. 2.
[21] Ibid., p. 7.
[22] Wiebe, *The Search for Order*, pp. 112-15.

the extension of education, saying: 'Education is an auxiliary and ornament,' while health 'is the foundation of life.' Kean placed the value of the health of a population over their education in much the same way as Ashford did with immediate treatment of hookworm infection. Immediately ridding the body of a parasite whose symptoms included permanent physical and cognitive impairment took precedence over implementing longitudinal sanitation reforms, like the installation of privies in every household. With such high stakes, medical professionals pushed their agenda above others.

In spite of the support of President Taft and critical heads of federal agencies, like Edwards and Dickinson, Kean's proposed measures within the bill faced obsolescence as legislative stagnation in Congress ensued. In the Senate and House hearings considering the bill put forth by Olmsted (H.R. 23000), once again, both substantive and semantic contentions arose. Internal partisanship flavoured the testimony of the Puerto Rican political leader, Coll y Cuchi, who alongside Muñoz Rivera, represented the island's Union Party. The Unionists, the majority party in the Puerto Rican House, opposed the entirety of the act, most especially the provisions assigning all powers of appointment for the heads of departments to the U.S. President. A provision included in the bill allowing for one or more heads of departments to be officers in the U.S. Army caused particular alarm, as Coll y Cuchí pointed out the potential danger of having officers of the armed services as the six department heads.[23] The provision allowing Army officers to be placed as heads of departments projected the threat of military domination over the island's government. In reality, the provision was placed in the bill to allow Ashford to take up the position of Director of Health, as current statutes prohibited military personnel from holding civil positions.

[23] 'Hearings Upon the Bill Proposing to Amend the Present Organic Law of Porto Rico January 31, 1910 to February 24, 1910', p. 164.

In a letter more broadly addressing the work of the Puerto Rico Anemia Commission, as well as the above hearings, Governor Colton dismissed Coll y Cuchi as a 'political shyster without any standing whatever among substantial people in Porto Rico…' Colton went on to include a message from the President of the Territorial Committee, José de Guzman Benitez, dismissing the perception of Coll y Cuchi as representing the views of the population regarding the Olmsted Bill.[24] Coll y Cuchí did in fact hold standing among the educated professionals who dominated the leadership of the island's political parties. He was a close friend of the Union Party leader, Luis Muñoz Rivera, who also represented the interests of the party in Washington during the debates surrounding the bill.

Colton's frustration's at having to negotiate with the Republican and Unionist leaders clearly coloured this outburst as in the coming years he would work collaboratively with party leaders to improve island conditions.[25] A delegation of the Unionist representatives, the labour leader, Santiago Iglesias, and Republican delegates met with Governor Colton, General Edwards, Secretary of War Dickinson, and President Taft to discuss the provisions of the bill.[26] Muñoz Rivera argued for self-government and denounced the bill as revoking rights previously granted under the Foraker Act. Once again, the Consolidado arose as a matter of contention, 'as it was the only branch where the natives were given an opportunity to run their own affairs and that they should not be divested of these powers.'

The animosity and antagonism within and between the major political parties on the island was further acknowledged by the Washington-based head of the BIA, Brig.

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[24] Governor George R. Colton to Brigadier General Clarence R. Edwards (Colton to Edwards), c.1910; File 848; General Records; RG 350; NARACP.
[25] Coll Y Cuchí, *Historias Que Parecen Cuentos*, p. 137.
[26] Article: "Delegation in Conference with Secretary Dickinson: Unionist, Labor and Republican Leaders Held Conference at War Department;" April 28, 1910, Box 4, BKA Papers: GTM 071016, SC, GU.

Gen. Edwards, who lamented that the great progress made by Ashford toward eliminating uncinariasis under military control had been adversely affected by the political partisanship of the early civil government.[27] The Union Party gained complete control of the House of Delegates on a platform of higher wages and an eight-hour workday for labourers. At the same time, the Republican Party clung to some vestige of power as an unwavering ally of the Governor and Executive Council, just as they had since the transition to civil power in 1900. While a strong current of the workers' movement remained active through a coalition with the American Federation of Labor, the Socialist Party did not elect a Senator until 1917.[28] With constant debates and the division of power between the insular and municipal governments, it is little wonder then that the Puerto Rican legislature had made such minimal progress its various attempts at organization of sanitary regulations.

Regardless of Colton's criticism of the Union Party, other members of Congress voiced similarly vociferous objections to the bill. Truman R. Clark explains that Congressman William A. Jones and others rejected it for above all placing further arenas of Puerto Rican civil government under the control of a federal agency, in this case, the Bureau of Insular Affairs. They essentially opposed the bill for the same reasons as the Puerto Rican politicians. As Congressman James R. Mann summarized, 'the bill left little reason to bother pretending to have a Puerto Rican legislature, for everything would be run by Americans.' In debate, Resident Commissioner Larrinaga flatly stated that he would rather have the Foraker Act remain in place than the Olmsted Bill replace it.[29] At the same time, American sugar interests opposed the provision for stricter enforcement of

[27] For specific details on the party politics in Puerto Rico, see, for example: A. G. Quintero Rivera, *Conflictos De Clase Y Politica En Puerto Rico* (Río Piedras, P.R.: Ediciones Huracán, 1978).
[28] Fernández Y García, Hoadley, and Astol, *El Libro De Puerto Rico (the Book of Porto Rico)*, pp. 195, 213.
[29] Truman R. Clark, *Puerto Rico and the United States, 1917-1933* (Pitt Latin American Series; Pittsburgh, Pa: University of Pittsburgh Press, 1975), p. 20.

land restrictions for agricultural corporations.[30] In all, despite positive intentions of extending American citizenship and improving the health infrastructure of the island, the Olmsted Bill faced steep opposition from too many fronts.

The Olmsted Bill passed the House of Representatives with some amendments and was even placed on the Senate calendar. However, Elihu Root, by then a leader in the Senate, persisted in his belief that the Puerto Rican population remained unfit for American citizenship, a central provision in the Olmsted Bill. Citizenship remained a dividing issue throughout the period. Supporters pushed the extension of American citizenship to Puerto Rico as the natural progression of Americanization and an unequivocal obstacle to independence. Foraker, Roosevelt, and Taft all fell into this camp. However, with the anti-immigration movement growing and the call for a 'course of tuition under a strong and guiding hand' still in place, the motions introduced in Congress to extend citizenship failed each time it was introduced between 1905 and 1910. With the opposition of the chief architect of early American imperial policy among other factors, the Olmstead bill died on the calendar in February 1911.[31]

Between 1909 and 1911, the fight to fundamentally restructure the Puerto Rican civil government reignited the debate over the future of the island. With an increasingly dysfunctional insular legislature and complaints from American colonial officials on the ground, Taft's presidential commission finally proposed a federal legislative solution to the shortcomings of the Foraker Act after almost a decade of inaction. Still, the Olmsted Bill proved too sweeping for many factions, including the emerging voices of Puerto Rican party leaders represented in Washington, members of the U.S. House, sugar interests, and perhaps most significantly, Elihu Root. On the domestic front, American

[30] U.S. Senate Committee On Territories, 'Hearing before the Committee on Pacific Islands and Porto Rico, United States Senate, on the Bill (H.R. 23000) to Provide a Civil Government for Porto Rico, and for Other Purposes', (Washington: Government Printing Office, 1911).
[31] Clark, *Puerto Rico and the United States, 1917-1933*, p. 20.

Progressives were emphasizing adequate housing, education, and healthcare provision for the masses, and had recorded important victories. Campaigns for public health developed throughout urban centres, and as Wiebe notes, Progressive reformers 'spread the gospel of personal hygiene and public sanitation, proper diet, and prompt inoculation.'[32] Such tenets did not extend to the federal legislation concerning America's new colonies.

Insular Legislative Endeavours

The demise of the Olmsted Bill did not signal an end to the push for federal intervention in matters of health and sanitation in Puerto Rico. In fact, the need to reorganize and revamp the sanitary apparatus remained a priority within the U.S. Department of War and its various agencies, though they now had to work within insular rather than federal channels. As the Office of the Surgeon-General succinctly laid out, three major deficiencies plagued the sanitary administration on the island. First, there persisted 'a failure on the part of the municipalities to properly administer and to properly support by adequate appropriations their local sanitary services.' Second, the Surgeon General's office criticized 'a lack of authority on the part of the central sanitary authorities to enforce the requirements of the sanitary code in the municipalities because the local health authorities were practically independent of the central authority.' Finally, sanitary work was hindered by 'the vesting of the administrative authority in a board instead of an administrative official.'[33] Such problem areas undoubtedly shaped the two major laws that the Puerto Rican legislature passed on health and sanitation in 1911 and 1912.

With the stalemate in Congress over the status of Puerto Rican citizens, the political forces on the island came together to pass a serious legislative attempt to remedy

[32] Wiebe, *The Search for Order*, pp. 169-71.
[33] Memorandum for General Edwards from the Office of the Surgeon-General, War Department, December 18, 1909; File 848; General Records; RG 350; NARACP.

the quagmire of health and sanitation in Puerto Rico. Throughout the Olmsted debates in 1910, the Congressmen holding up the bill due to its further expansion of American sovereignty in Puerto Rico pushed for the island to draft their own legislation for public health. Governor Colton requested Dr. Ashford's guidance and consultation throughout the process. What emerged were three bills: one bill drafted by the Medical Association of Puerto Rico, which Ashford deemed feasible if slightly defective; a second bill drafted by politicians who wished to limit the power of the Director of Health, which Ashford strongly opposed; and a third bill that emerged from conference. The conference bill severely limited the powers of the Director of Health, did not make the health service an autonomous body, and allowed the Board of Health to be led by a political-nominee of the Director of Health, Charities, and Corrections. Ashford explained: 'The political parties of Porto Rico are determined to run that department and if they seem to give way in reality they are simply preparing to strengthen themselves…I believe that the position of Director of Sanitation will be a series of mishaps ending in failure, no matter who he may be.'[34]

The conference bill, Act No. 68, "An act to provide Porto Rico with a law on sanitation," created a sanitation service consisting of a director of sanitation, an insular board of health, and all necessary personnel to execute the authorized offices of the act. Passed by the Legislative Assembly on March 9, 1911, Governor Colton and his colleagues had four short months to recruit a Director of Sanitation who would also act as the executive officer of the Board of Health. This position held great import as it was vested with the power to supervise all health related problems on the island, prescribing sanitary measures to prevent the spread of transmissible diseases, and publishing notices

[34] Letter from Dr. Bailey K. Ashford to Surgeon-General Torney, March 17, 1911; Box 4, BKA Papers: GTM 071016, SC, GU.

on major diseases and epidemics.[35] The responsibility for proposing all sanitary regulations and ordinances again rested with the Board of Health, but such a division of powers proved difficult to navigate.

The Puerto Rican political battles over control of the Consolidado held up the Congressional hearings on the Olmsted Bill and likewise impeded the process of enacting what could have potentially been a major stepping-stone on the path to creating a sustainable public health and medical infrastructure on the island. In the months leading up to the crucial July deadline, Governor Colton deftly tried to appease all factions. He also meant to put the most capable men in positions of leadership, specifically nominating Resident Commissioner Tulio Larrinaga as the next Director of Health, Charities, and Correction, and Dr. Bailey K. Ashford as the first Director of Sanitation. Larrinaga served in Congress as the island's representative since his appointment in 1904. As a staunch Union party affiliate, he attempted to improve the Olmsted bill with liberal amendments, though ultimately unsuccessfully. Colton rightfully believed Ashford was the ideal nominee for the already fraught position of Director of Health, because he would similarly appease all factions. Not only had Ashford attained hero-like status through his work against uncinariasis, but he also skilfully managed to overcome any perception as an American interloper.

In one conversation between Governor Colton and the President of the Unionist Party, Don Eduardo Giorgetti, Giorgetti adamantly explained to Colton that the party would not allow an American to take over the new position of Director of Sanitation. His succinct clarity is worth quoting: 'El país esta muy resentida por el hecho de que todos los

[35] William Howard Taft, 'Laws of Porto Rico. Message from the President of the United States, Transmitting Copies of Session Laws and Resolutions Passed by the First Session of the Sixth Legislative Assembly of Porto Rico, January 9 to March 9, 1911. April 17, 1911. -- Read, Referred to the Committee on Pacific Islands and Porto Rico, and Ordered to Be Printed.', Senate Committee on Pacific Islands and Porto Rico, (Washington, D.C.: Government Printing Office, 1911), p. 134.

jefes de departamento y los principales cargos del gobierno continúen en manos de americanos, que llegan a nuestra Isla sin ninguna clase de conocimientos sobre nuestros problemas y que no tienen interés alguno en la Isla.'[36] He asked Colton to promise to name a Puerto Rican doctor to the position. Colton refused to make such a promise. Instead, Colton indicated he would name Dr. Ashford, and Giorgetti responded: 'Hemos llegado a la mitad del camino, porque Ashford lo consideramos nosotros como un puertorriqueño y ustedes como un americano.'[37] With the assurance of a nomination of Ashford, Giorgetti in turn assured Colton that the Legislative Assembly would approve the law to create the new department.

Selling Ashford as nominee for the directorship was no difficulty, but Colton had to compromise on other issues. In a cablegram to Secretary of War Dickinson, Colton explained the necessity of making certain concessions to the controlling Union Party in the Legislature to secure the enactment of the sanitary law: 'They were that the director of sanitary measures and insular board of health shall be appointed by the Director of Health, Charities and Correction, with the approval of the governor. The agreement is however that the naming of these officials shall be left entirely to me.'[38] As the Consolidado was the only department head in Puerto Rican hands, the Unionists wanted no dissolution of its power, especially in terms of naming new appointments. Such a convoluted and fragile position typified Colton's negotiations with the Puerto Rican Legislature.

Publicly, the appointment of a Director of Sanitation had to rest with the Director

[36] Coll Y Cuchí, *Historias Que Parecen Cuentos*, p. 138. 'The country is resentful for the fact that all of the heads of the departments and the principal posts of the government continue in the hand of Americans, who arrive on our Island without any kind of knowledge of our problems and who have no interest in the Island.'

[37] 'We have arrived at a middle road, because we consider Ashford a Puerto Rican and you consider him an American.'

[38] Cablegram from Governor George R. Colton to Secretary of War Jacob M. Dickinson (Colton to Dickinson), March 22, 1911; File 848; General Records; RG 350; NARACP.

of Health, Charities, and Correction, but privately, as evidenced in the conversation with Giorgetti, Colton sought maximal jurisdiction as the success of the sanitary service depended upon the director of sanitation's 'complete control and the service's personnel.' The confirmation of Ashford as Director of Sanitation was supposedly an assured feat, with Colton suggesting that Ashford begin 'formulat[ing] regulations and a plan of organization in order to be ready for operation July 1st.'[39] A number of issues would emerge in the following months, with political inefficiency once again completely derailing Colton's plans.

By June, the appointment of Larrinaga and even Colton's subsequent choice of Pedro Gutiérrez Igaravídez fell through. According to a telegram between Colton and newly instated Secretary of War Henry L. Stimson, Vias Ochotecto would only resign if his 'successor [was] satisfactory to same political elements represented by him.' The Unionist party—Vias Ochoteco's backers and the dominant party in the Executive Council—agreed to support the insular government in making the health service successful if the Governor appointed a representative to the council who would represent their party platform. Subsequently, the Director of Health, Charities, and Correction would appoint the Director of Sanitation and members of the Board of Health selected by the Governor. Surprisingly, Colton viewed this as a 'fair arrangement' supported by all factions, a move that would remove the health service from politics and the patronage of the Unionist party. He recognized that the establishment of the health service would be difficult enough with the support of the rest of the administration, and thus, it became necessary to appease the potentially supportive political parties.[40] Intraparty dynamics still held up the nomination process.

Not only was the appointment of a satisfactory Director of Health, Charities, and

[39] Ibid.
[40] Cablegram from Governor George R. Colton to Secretary of War Henry L. Stimson (Colton to Stimson), June 17, 1911; File 848; General Records; RG 350; NARACP.

Correction in jeopardy, but also the appointment of Ashford as the first Director of Sanitation. The language allowing an army officer to serve in a civilian post in the Puerto Rican government remained a critical aspect of first, the discussions on the Olmsted Bill of 1910 and its amendments, and later, the implementation of Act No. 68. As previously discussed, leaders in Washington and San Juan balked at the idea of extending military control to civilian positions. However, the debate over this seemingly obscure provision stemmed from the near universal desire for the appointment of Ashford—a commissioned officer in the U.S. army—as head of the new department of health, in whatever form it would take.

To better explain this conundrum, Secretary of Puerto Rico, M. Drew Carrel, clarified in a press release: under Section 1222 of the Revised Statutes of the U.S., no Army officer could hold a civil office and if they accepted such a position, they would cease to be an officer of the Army and lose their commission. Therefore, it was necessary to add the provision for an Army officer into the language of the bill 'in order that advantage may be taken of the services and experiences of a medical officer of the United States Army in the new department…'[41] More explicitly, 'it [would] be to the best interest of all to take advantage of Major Ashford's experience here in the reorganization of the new department…' given his 'intimate association with health and sanitary work in Porto Rico.' Only with the passage of this special provision by Congress and the permission of the Secretary of War could a designated medical officer of the U.S. Army act as Director of Sanitation, with as much freedom of action as any civilian official.

This seemingly esoteric piece of legislative minutiae could upset the first attempt by the insular civil government to comprehensively address sanitary measures on the island under qualified leadership. From Ashford's perspective, after more than a decade

[41] Letter from Secretary of Puerto Rico M. Drew Carrel to Brigadier General Clarence R. Edwards, May 11, 1910; File 848; General Records; RG 350; NARACP.

of service in the Army, he would have to walk away from all salary and pension from the military to take up the post of Director of Sanitation, a position he viewed as doomed to fail as it was currently written. In contrast, 'England requires of her medical officers acceptance of civil positions of trust in its Indian Medical Service...'[42] The Army Medical Department had finally overcome its nineteenth century disrepute by working toward a revolution in tropical medicine with victories by men like Gorgas and Reed over beriberi and yellow fever. Ashford was unwilling to simply abandon such a fraternity.

Months passed with a succession of letters and cablegrams between Governor Colton, BIA Chief Edwards, Congressional members, and other major political leaders. In an April 1911 letter between Edwards and Senator Francis Warren—then Chairman of the Senate Committee on Military Affairs—Edwards again sought Congressional support for modification of the statute prohibiting active duty Army officers from fulfilling civil functions, specifically those expert sanitary officers of the Army. He similarly used the cases of men like Reed and Kean in Cuba, Gorgas in Panama, and Ashford in Puerto Rico as reasons why 'the Services of such men should not be denied the civil governments of the various islands just because they are in the Army…'[43]

In addition, Congressman James Hay introduced a separate bill (H.R. 6316) in the House: "A Bill authorizing the designation and employment of a medical officer of the Army as director of sanitation of the Government of Porto Rico, and prescribing compensation therefore." Puerto Rico stood at the precipice of finally implementing massive sanitation reform under the leadership of a world-renowned and well-regarded expert in twentieth century public health advancements. Still, unlike the many triumphs of American Progressives in implementing institutional reform, the island's institutions

[42] Letter from Dr. Bailey K. Ashford to Wickliffe Rose, May 6, 1913; Box 2, BKA Papers: GTM 071016, SC, GU.
[43] Letter from Brigadier General Clarence R. Edwards to Senator Francis Warren, April 17, 1911; File 848; General Records; RG 350; NARACP.

failed to meet the challenge.[44]

According to Ashford's memoir, *A Soldier in Science*, the measure eventually passed both houses of Congress. While he does not cite identifying information for the act, the records of the BIA include an undated transcript of one such measure: 'Be it enacted by the Senate and House of Representatives of the United States of America in Congress Assembled, That the prohibition of section 1222 of the Revised Statutes shall not apply to the employment of officers in charge of health and sanitation in the non-contiguous territory of the United States.' Ashford presented his perspective on the melodrama surrounding his appointment:

> Both from the Island and from the Army came the demand that I be made the first Commissioner. However, I could not accept this position under the civil government without losing my position in the Army, which I did not wish to do; and so Congress was asked to pass an enabling act. But there were other conditions of a more private nature which I was obliged to secure from the Governor. And the chief of these was that, if I became Commissioner of Health, I would be permitted to select my own personnel—particularly my Board of Health, which was to be my legislative and advisory body.[45]

Colton apparently accepted Ashford's conditions, though formally the power of appointment remained the governor's. The enabling act passed Congress, and Ashford was ordered by the Secretary of War to take up his position at the head of the sanitation service.

While Colton achieved his goal of appointing Ashford, the political drama did not cease, but culminated in an unforeseen standoff between the two men. Following the amendment of the statute, Governor Colton reneged on his agreement to allow Ashford to appoint his personnel, saying: 'I have had to bow to ["the people's"] demand that Dr. — be made President of the Board of Health. I hope you will take this right, as it is in me to help you all I can. I am afraid that I shall have to ask you to allow me to appoint this

[44] For a nuanced study of moral reform efforts of American progressives, see: Tyrrell, *Reforming the World*.
[45] Ashford, *A Soldier in Science*, p. 126.

man.' Ashford does not name this mysterious doctor with whom he refused to work, but outright rejected his appointment. Colton in turn did not back down from the stand-off himself, refusing to lose face before the Unionist leadership. Ashford cabled Edwards, telling him to notify the Secretary of War that he could not serve as the Director of Sanitation.[46] As Ashford explains, 'There was devil to pay over that cable," but, "The order was countermanded, and I was relieved—after having served exactly eight hours as the first Commissioner of Health of Puerto Rico.'[47] The morass of political negotiations and power grabbing once again ruled the day, invalidating the months spent on negotiating the details of the appointment of Ashford, perhaps the most competent and qualified American to address the public health situation on the island.

Correcting the Course

With a proclamation issued on June 30, 1911 putting the provisions of Act No. 68 into effect, Governor Colton ushered in what was hoped to be a new era in health and sanitation on the island. Colonel William F. Lippitt, Chief Surgeon of the United States Army in Puerto Rico, took the place of Ashford as the appointee to lead the Sanitation Service. In his proclamation, Colton asked for the cooperation of all branches of the insular and municipal governments on the island, of all officers and employees of the service, and most importantly, of all the island's inhabitants. The work of the Sanitation Service was 'of greater importance to the mass of the people in this territory than any other, for its purpose [was] to conserve and improve the public health; to stamp out and prevent, by scientific methods, contagious, infectious and epidemic diseases to which human beings and domestic animals in this latitude are especially subject.'[48] Modern, scientific public health needed to be made distinct from politics and placed in the hands

[46] The position would later be called Commissioner of Health, which is the term Ashford uses in his autobiography.
[47] Ashford, *A Soldier in Science*, p. 127.
[48] Administrative Bulletin No. 32, June 30, 1911; File 848; General Records; RG 350; NARACP.

of experts, a characteristic Progressive era attitude. Colton made clear in the Bulletin that he would not tolerate inefficiency or wrong-doing, that the Service's work was too important to be interfered with by anyone, especially any political influence or party activity.

While Colton proclaimed the work of the Service as of the 'highest order of patriotism and courage,' backlash quickly appeared in at least one island newspaper, *La Correspondencia de Puerto Rico*. The records of the BIA include the translation of one article that was particularly critical of the new Service, calling the transition to the Sanitary Service 'illegal' and 'arbitrary.'[49] Apparently angered over the failure to appoint Ashford as Director of Sanitation, the paper strongly claimed: 'The island is aware that the person selected by the government, with the concurrence and consent of the Porto Ricans is not the official that was appointed.' Most harshly, the article rejects the American handling of the situation, positing: '*the country is witnessing the attempt to pursue a policy of taking the helm in everything in the every effort of a dictatorship impossible to any nation with a consciousness of what it is*.'[50] As has been shown, Colton did not want to appoint this particular American to the post, but he was unable to secure the exemption that would have enabled Ashford to fill the position. The Americans were not gaining control of a further department, and matters of health and sanitation still fell largely under the purview of the Puerto Rican-led Consolidado.

Almost immediately, the holes in the new law likewise became apparent to both Governor Colton and newly appointed Director of Sanitation, Dr. Lippitt. As Colton summarized: 'The sanitation law passed by the Legislature of Porto Rico in 1911 in practical application proved to be defective in many respects, especially in conferring the necessary authority on health officers, and in defining the administrative powers and

[49] Translation of article, "The Spider" from *La Correspondencia de Puerto Rico*, August 17, 1911; File 848; General Records; RG 350; NARACP.
[50] Emphasis added

functions of the executive head of the service, so that the comparatively few results accomplished under its provisions were attained in the face of great disadvantages.'[51] Lippitt himself complained that his hands 'were tied in practically all his functions…'[52] Confusion reigned in delimiting the responsibilities of the insular sanitation service and the municipalities.

At the start of Lippitt's term, no Board of Health had yet been appointed, the division of the island into inspection districts had not been completed, and the Ashford appointment fiasco had left no plans in place for the organization of the service. Health officers sent to towns lacked adequate funding to complete their duties, and bureaucratic backlog held up the implementation of plans for the installation of sewage and water supply systems in many towns.[53] Act No. 68 suffered at the hand of party politics that inhibited the drafting of a cogent bill sufficient to begin the vital process of building the island's sanitary infrastructure. Puerto Rican political leaders pushed for home rule, even if only in municipalities. Ultimately, however, similar to conditions during the last years of Spanish rule, the use of local boards of health and local ordinances in addition to island-wide bodies and regulations limited the cohesion and effectiveness of public health work.

Though the *La Correspondencia* article may not have been representative of the population's reaction to the new legislation, Washington leaders echoed the dissatisfaction with Act No. 68 already expressed by Governor Colton and Director Lippitt. Leaders in Congress, most especially Chairman of the House Committee on Insular Affairs, William A. Jones, continued to resist Congressional intervention in the form of federal sanitary legislation for Puerto Rico. The Committee still preferred action

[51] Colton, 'Twelth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1912', p. 23.
[52] Ibid., p. 71.
[53] Ibid., p. 72.

by the Puerto Rican legislature, perhaps to provide credibility for the bill on the island and to prevent further opposition from the public. However, Jones threatened Congressional intervention unless the insular legislation acted immediately. Edwards submitted a copy of the Jones Bill (whose sanitary measures had been drafted again by Colonel Kean) to Colton in the hopes that the Attorney General, in consultation with Ashford and Lippitt, could quickly draft a reform bill to be enacted by the Legislative Assembly.[54]

The sanitary measures included in both the Jones Bill, and the earlier Olmsted Bill, faced considerable opposition among members of the Puerto Rican Executive Council and the House of Delegates in early 1912, for the same reasons as previous attempts to amend legislation: power and party dynamics. The goal of passing amendments to the 1911 sanitary law in order to give the Director of Sanitation 'the power he require[d] to establish and maintain an efficient service' would be impossible in the current session of legislature, according to Colton.[55]

In order to give the Director of Sanitation further powers, corresponding authority had to be stripped from the Department of Health, Charities, and Correction (the Consolidado), a move that the Delegates were loath to make. Though most civil service positions were in the hands of Puerto Ricans, the department heads were still American, except for the Consolidado, and as such: 'It was on account of the impossibility to get this department broken up by the local Legislature and re-distribute its functions in the establishment of a comprehensive Health Department, that we were compelled to ask Congress to enact a health law in substantially all of its details.'[56] Once again, the Governor would have to machinate his way to a better health law for the people of Puerto

[54] Letter from Edwards to Colton, January 12, 1912; File 848; General Records; RG 350; NARACP.
[55] Confidential letter from Governor Colton to General Edwards, January 24, 1912; File 848; General Records; RG 350; NARACP.
[56] Confidential letter from Colton to Edwards, January 31, 1912; File 848; General Records; RG 350; NARACP.

Rico.

With continuous mainland-island exchanges between Colton and Edwards, Colton developed a plan to incite action on the part of the Puerto Rican legislature. Given the 1909 budget debacle and the resulting increased federal attention to the state of the island, Puerto Rican politicians were hesitant to relinquish any further control to American officials. Still, the Governor believed that if Jones started his bill moving in the House, regardless of the potential for actual passage, Muñoz Rivera would immediately cable news to the Speaker of the House of Delegates in Puerto Rico, perhaps setting things in motion there. The topic of the future political status of the Island remained perched at the forefront of public and private discussion among Puerto Ricans, thus, further intervention by the federal government of any kind could certainly not be tolerated.[57] Just as the Cubans were forced to maintain sanitary measures or risk further U.S. intervention under the Platt Amendment, the Union Party had to reach some degree of consensus around legislative reform for the island's public health or risk further American executive control.

The threat of external epidemic disease outbreaks and their potential impact on geopolitical and commercial networks loomed large in the American consciousness, and so some U.S. officials appeared to be more concerned over these public health questions than the political leadership in Puerto Rico who were debating the limits of self-government. The recently appointed American Director of Sanitation, William F. Lippitt, submitted a letter to Jones calling on him to push his bill for sanitation in Congress. He expressed the core tenets upon which he and Colton agreed regarding a reorganization of the Sanitary Service: that all executive powers must lie with the Director of Sanitation, and the Board of Health must be restricted to matters of legislation, preparing regulations

[57] Ibid.

for the Sanitary Service and serving as a consulting body for the Director on matters he chose.

He also recommended the selection of an Assistant Director of the Sanitation Service, a position that Unionist politicians would attempt to gain control of through the power of appointment. Lippitt recognized the basic fact that while members of the House harboured no personal antipathy toward him, any restrictive measure would be seen as a 'surrender of powers held by Porto Ricans to me, an American.' As such, the crucial need for some form of American cajolement persisted. To appeal to American self-interest, Lippitt concluded:

> The sanitary condition of Porto Rico is of vital importance to the United States because of the constant intercourse which is increasing every day between the two points; and the occurrence of any epidemic here would necessarily endanger the seaports in the States. As a matter of personal protection the United States Government should insure proper sanitary conditions in the island, and I do not believe that anything permanent can be secured except by means of national legislation.[58]

Legislative stalemate again held sanitary conditions, and ultimately the well-being of the Puerto Rican population, hostage in these intermediary months. Finally, in March 1912, a new sanitary bill was sent to conference in the Puerto Rican legislature with the support of Muñoz Rivera. After three days, three committees failed to reach a deal. However, the committees reached satisfactory agreement on the powers of the Director of Sanitation and agreed on all but one point, eventually reaching a compromise and passing Act No. 81, "An Act to Reorganize the Sanitation Service," on March 15, 1912.

With its enactment in two short weeks, on April 1, the law redefined the powers and duties of the Director of Sanitation and the Board of Health, 'avoiding the constant

[58] Letter from Dr. William F. Lippitt to Congressman William A. Jones, Enclosed in January 31, 1912 Letter from Colton to Edwards; File 848; General Records; RG 350; NARACP.

sources of friction which had previously existed.'[59] The law firmly established the Director of Sanitation as the executive leader and the insular Board of Health as the legislative body for matters of health and sanitation. In addition to Lippitt gaining an Assistant Director of Sanitation, the power of appointment shifted from the Director of Health, Charities, and Correction to the Governor.[60] Moreover, the Director of Sanitation gained the power to take emergency action to suppress an epidemic disease outbreak that threatened the health of the island—after consultation with the Board of Health and the governor—as well as the right to inspect homes, businesses, and other buildings in line with the provisions enumerated in the Olmsted Bill.

Lippitt's first annual report following the reorganization of the service revealed his hard won satisfaction: 'The experience of the year has been sufficient to prove the efficiency of the law and to justify the existence of this special insular service.'[61] Good relations reigned between the Insular Board of Health and the Director, especially in the wake of the outbreak of bubonic plague and typhoid fever at the start of June 1912.[62] Bearing in mind the lack of regulations on the books from the new Board of Health, the Sanitation Service acted under the emergency powers given to the Director in times of epidemic. The Board of Health, in nearly constant session, urgently helped prepare the needed sanitary rules and regulations. With this renewed hope and vigour, Lippitt affirmed: '[T]here is being prepared for the island a sanitary code which is excelled by none in the world and which is being copied by other countries in like conditions.' Puerto

[59] Colton, 'Twelth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1912', p. 75.

[60] Legislative Assembly of Porto Rico and Office of the Secretary of Porto Rico, 'Laws of Porto Rico: Message from the President of the United States Transmitting Pursuant to Law, Copies of the Acts and Resolutions Enacted by the Legislative Assembly of Porto Rico During the Sessions Beginning January 8 and Ending March 14, 1912', Senate Committee on Pacific Islands and Porto Rico, (Washington: Government Printing Office, 1912), p. 35.

[61] George R. Colton, 'Thirteenth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1913', War Department, (Washington, D.C.: Government Printing Office, 1913), p. 90.

[62] The bubonic plague outbreak of June 1912 is the subject of the following chapter.

Rico's health would not fall in the same besmirched category as other "tropical" colonies, but under Lippitt's direction, would compete with the departments of health found in the metropole.

Governor Colton acknowledged the increased efficiency of the non-partisanship of the new Board of Health, which was comprised of four physicians, one lawyer, one sanitary engineer, and one chemist. In its first year of practice, the Board drafted sanitary regulations in more than twenty different areas, and 'its harmonious and helpful cooperation with the executive branch of the sanitation service has contributed much toward accomplishing the results that have been attained by that organization.'[63] By removing the Board of Health and the Sanitation Service from the direct jurisdiction of the Consolidado, medical inspectors and health professionals became less vulnerable to the whims of local authorities. The members of the Board travelled throughout the island, offering advice on general sanitation and hygiene, as well as instructing the people on prevention of the spread of plague, and authorized the establishment of seven district hospitals, a duty predisposed to outside pressure and influence. Board members focused on the needs of the district in determining the appropriate locations for the hospitals, as Colton attested: 'The work of this board throughout its existence has been characterized by painstaking diligence and good judgment, unaffected by political or other influences except the interests of health and sanitation.'[64]

Unfortunately, not all conflicts over Puerto Rican health and sanitation were instantaneously resolved with the enactment of the new legislation. The ambiguity surrounding the division of responsibilities and powers that had previously beleaguered the Insular Board of Health and the Sanitation Service became manifest in the tensions that persisted between the municipal authorities and the insular authorities over issues

[63] Colton, 'Thirteenth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1913', p. 28.
[64] Ibid., p. 29.

such as the cost of installation of water and sewage works in towns. Additionally, Lippitt lamented the horrible state of hospitals and jails that fell under the purview of municipalities. The conditions were not due to the lack of funding which hampered many operations in the island, but rather, once again, the issue of island party politics. At one time, the central authorities in the island tried to ensure that every town maintained a health officer who was able 'to collect salaries from both the service of sanitation and the municipality, but it was found that the municipal authorities required political services from the health officer in consideration for the salary paid him by the municipality and when he declined to furnish such services disaffection became so frequent between them as to interfere in the performance of his duty.'[65] Without this financial enticement for health officers who could not maintain a private practice in many of the small and poor towns, many municipalities lost adequate medical attendance. Lippitt suggested adding this responsibility to the insular government to both ensure proper medical care for the sick poor and eliminate partisanship in healthcare.

With this rapid transformation in the organization of health and sanitation services on the island, Lippitt's undertakings further expanded as he outlined major undertakings that the newly empowered Sanitation Service hoped to address in the coming year, diverse projects like a study of water supply and water sheds in all towns on the island, a study of the conditions contributing to such 'an enormous death rate from tuberculosis,' and a study of the adulteration of the milk supply to uncover the reasons for high mortality among children.[66] Act No. 81 remained the defining piece of sanitary legislation for several years as further Congressional intervention in the health and sanitation of the island did not materialize. However, from 1914, an elite coalition including newly appointed Governor Yager, Resident Commissioner Muñoz Rivera,

[65] Ibid., p. 93.
[66] Colton, 'Twelth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1912', p. 128.

Congressman William A. Jones, and Senator John Shafroth, concertedly worked to draft a bill to replace the Foraker Act, finally passing the Jones-Shafroth Act in March 1917.[67]

Conclusion

Following the passage of the Foraker Act of 1900, no substantive Congressional discussion on improving the public's health in Puerto Rico took place for nearly a decade. While political leaders like BIA Chief Edwards and Puerto Rico's Attorney General called for American legislative intervention, Congressional leaders like Jones and Root rejected efforts to control sanitation policy, preferring to give the island's government some level of autonomy in these matters. Still, members of the Puerto Rican executive branch, most especially Governor Colton, and military medical men with first-hand experience, such as Azel Ames and Bailey K. Ashford, recognized the need to systematically remedy the health system as it stood if for no other reason than American economic self-interest. Finally, in 1912, Act No. 81 passed the Legislature, providing a basic framework for the development of public health infrastructure.

Unfortunately, the years of bargaining over appointments and appropriations reveal a near constant struggle for power between the Unionists and the Governor, holding the health of the island's people captive. In the face of long-term neglect from a Congress preoccupied with domestic considerations, Puerto Rican political leaders like Coll y Cuchí and Muñoz Rivera strove to maintain native control of the Consolidado in their larger quest for increased self-government. Compared to their insular counterparts in Cuba and the Philippines, Puerto Rican control over their health department was quite significant. Cuba faced occupation once again between 1906 and 1909 in the face of yellow fever outbreak. At the same time, Filipinos occupied the lowest levels of a Bureau of Health that was led exclusively by Americans. These antagonisms did not manifest in

[67] Clark, *Puerto Rico and the United States, 1917-1933*, p. 21.

the same way with Puerto Rican and American physicians who operated within the same archetype of Western medicine.

With the establishment of the Sanitation Service, Ashford and his Puerto Rican colleagues shifted their attention to the new Institute of Tropical Medicine, still assisting Lippitt and his team in identifying further favourable locations for the establishment of anaemia stations. Because of one such survey trip by Gutierrez, Malaret (a medical inspector), and Ashford to the interior, the accompanying request for further appropriations from the legislature resulted in a further $15,000 to continue work.[68] Ashford had succeeded (to a degree) in keeping his work outside of the island power structure.

In the end, the eventual framework through which Lippitt and the Sanitation Service operated weathered the tides of epidemic bubonic plague, the continued campaign against hookworm disease, and a falsely purported yellow fever outbreak. The frustrating partisan politics and legislative logjam that Colton and Union party leaders skilfully navigated between 1910 and 1912 ultimately helped usher Puerto Rican sanitation into the new paradigm of twentieth century public health.

[68]Colton, 'Thirteenth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1913', p. 90.

Chapter 4: Plague Reaches Puerto Rico

Outbreak: An Eruption of Buboes

While the campaign against hookworm disease became embroiled within the insular political system, afflicted hundreds of thousands of Puerto Ricans, and called attention to the limitations of the island's health system again and again, Puerto Rico remained relatively free of major epidemics of both yellow fever and malaria—two scourges that ravaged much of the Caribbean and Latin America throughout the eighteenth and nineteenth centuries. However, as the third pandemic of bubonic plague spread east and west from its epicentres in Asia at the turn-of-the-twentieth century, Puerto Rico would not remain untouched.

After confirmed outbreaks in Bombay in 1896, Honolulu in 1899, San Francisco in 1900 and on and on, rumours of suspected cases of plague intensified in San Juan in June 1912. Upon hearing such rumours abounding in the Puerta de Tierra neighbourhood of San Juan, the Assistant Director of Sanitation, W.R. Watson, notified both the local official for the Sanitation Service and the Chief of the Bureau of Transmissible Diseases on 17 June.[1] In conjunction with the attending physicians and the Chief Quarantine Officer for Puerto Rico, S. R. Grubbs, Watson assured the Acting Governor of Puerto Rico, M. Drew Carrel, that bubonic plague could be ruled out based on the observed clinical and bacteriological data. Just to be sure, disinfection of the sites of suspicious cases would proceed, but the denials continued in response to queries from concerned foreign consuls stationed in San Juan. As Watson put it, 'The conclusion is that the rumour that these were cases of Bubonic Plague is most absurd.' For the U.S. Public Health Service representative on the island, Chief Quarantine Officer S.R. Grubbs, only the port of La Guaira in Venezuela posed a threat of hosting plague, but the 'most

[1] W.R. Watson to M. Drew Carrel. 17 June 1912, Folder June 1912, Box 559, Correspondencia General (Corr. Gen.), Oficina del gobernador (Fortaleza) (ODG), Archivo General de Puerto Rico (AGPR).

stringent measures are taken with vessels from both that Port and Porto Cabello.' Not only did the USPHS maintain a medical officer at the port to fumigate vessels and ensure that no transportation of suspicious persons, articles, or rats ensued; additionally, all passengers were detained for six days following removal from Venezuela. Grubbs commented, 'With the precautions as now being exercised, which have been in force over two years, the possibility of plague entering Porto Rico is very remote.'[2]

Though the original treating physician diagnosed the suspicious cases in Puerta de Tierra as alternatively pernicious malaria and a form of meningitis, the second physician called in to attend to a number of patients in adjoining apartments on 14 June, Dr. Frias, immediately diagnosed young Pedro Colón and Miguel Llano with symptoms consistent with bubonic plague. Colón was a "robust" and "healthy" twenty-year old who complained of fever, headache, and delirium on the morning of 12 June, while only forty-eight hours later, he fell into a coma with painful swellings of his lymph nodes.[3] Among other symptoms, the buboes in Colon's groins immediately confirmed Frias' diagnosis. He was the first physician to diagnose this group of patients with bubonic plague and ordered them to the quarantine hospital for observation and treatment. As explained to the Acting Governor, 'Dr. Frias is a Venezuelan who claims to have had some experiences with 'Bubonic Plague'; having been director of Sanitation in Caracas while that disease was prevalent there.' Frias did not hesitate to tell anyone who inquired that he believed these patients to be afflicted with plague and accompanying rumours immediately began circulating, raising the alarm in San Juan and inciting discussions of exodus.[4]

Newly appointed Director of Sanitation, William F. Lippitt, provided a detailed analysis of this turbulent and rapidly evolving plague outbreak in the island's 1913 annual

[2] S.R. Grubbs to M. Drew Carrel. 17 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.
[3] Dr. José S. Belaval to William F. Lippitt. 18 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.
[4] Walter M. S. Elvis to M. Drew Carrel. 18 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.

report, a campaign that recalled the speed, efficiency, and efficacy of the smallpox vaccination campaign conducted by the military government more than ten years before. As Lippitt explained, Dr. Frias' identification using clinical symptoms of the infection on 14 June was confirmed through the inoculation of a guinea pig with bacteria from a bubo of similar morphological characteristics of plague bacillus, the only recognized means of making a positive identification at the time.

Upon receiving confirmation of the diagnosis on 18 June 1912, the Insular Board of Health immediately declared the presence of the disease and issued a proclamation the following day addressed "To the People of Porto Rico".[5] Governor Colton—who was recovering from illness on the mainland at the time of the outbreak—noted the swiftness of this process, saying: it 'is the shortest period on record elapsing from discovery of the first case and the declaration of the epidemic, and the health authorities of Porto Rico are deserving of great credit for having unhesitatingly and without fear given to the public the facts at that time, and ever since.'[6] The response was impressive, not just for its speed, but for its candour. The public notice called for the cooperation of the people, outlined recommendations put forth by the Insular Board of Sanitation, and even went so far as discussing the method of transmission of the disease (flea bites). Above all, the officials directing the anti-plague work in Puerto Rico intuitively and almost instantaneously understood the lessons learned from other port cities' experiences with plague: limit fear, protect commerce, and maintain communication (and cooperation) with the public.[7]

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[5] M. Drew Carrel to the People of Porto Rico, San Juan. 19 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.

[6] Colton, 'Twelth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1912', p. 75.

[7] The plague experiences in other port cities' serve as a pivotal point of comparison throughout this chapter and will be discussed in further detail below. For a rich and detailed analysis of the progress of the third pandemic, see: Myron J. Echenberg, *Plague Ports: The Global Urban Impact of Bubonic Plague,1894-1901* (New York: New York University Press, 2007). For a discussion of the codification of international sanitary regulations during the period, see: Mark Harrison, 'Disease, Diplomacy and International Commerce: The Origins of International Sanitary Regulation in the Nineteenth Century', *Journal of Global History,* 1/02 (2006).

Lippitt took control of the anti-plague campaign upon his arrival on June 20, at which time: 'Active steps were immediately taken for the eradication of the disease, so that within a period of less than three weeks it was under control, and its spread to the island in general prevented.' As the newly appointed Director of Sanitation, the epidemic offered the opportunity to overcome the suspicions and negativity associated with his appointment. At the same time, the stakes were exceptionally high given the potential for disaster.

Overall, by late July, the number of new cases dramatically decreased to the point that several days passed between diagnosed cases, with the last case of human plague reported on 12 September 1912. Providing a larger perspective on the epidemic, Lippitt compared the outbreak in San Juan with that of San Francisco: 'As an index to the so-called mildness of this particular epidemic, however, it may be stated that in all there were 55 cases, 36 of whom died, making a death rate of 65 per cent, which compared with the mortality rate in San Francisco in 1907-8 of 50 per cent, demonstrates a rather severe type of this disease.' However, statistics alone do not impart the significance of Puerto Rico's encounter with bubonic plague.

Considering the turmoil and uncertainty over the reorganization of sanitary services on the island and the necessary personnel appointments in 1911 and 1912, the 1912 outbreak of bubonic plague in Puerto Rico could have been devastating if left to the whims of island party politics. Akin to the strategic importance of Honolulu and San Francisco a decade before, San Juan had become a port of international passenger and cargo trade. The tiny island linked key ports in North America and South America, alongside Europe to a number of her Caribbean colonies. As a regional magnet for capital and labour, Puerto Rico was also highly vulnerable to the progress of the third pandemic given its continuous contact with ships docking at other plague ports, especially those less

likely to adhere to international sanitary standards for reporting and containing infectious diseases.[8] The geopolitical and the commercial import of the outbreak of plague in San Juan are only two aspects of this epidemic case study that must be considered.

To better position Puerto Rico's experience with bubonic plague alongside the experiences of smallpox eradication and hookworm disease, this chapter seeks to understand the broader international context of medicine and public health science during the third pandemic, as well as the control measures implemented by authorities on the ground. Additionally, by considering letters and newspaper articles written to the Governor by members of the public, business leaders, and other interest groups, a fuller picture of the reactions and responses to the anti-plague campaign may be ascertained. As Myron Echenberg recounts in his work, *Plague Ports: The Global Urban Impact of Bubonic Plague, 1894-1901*, in places like Oporto, Portugal matters of wealth dominated concerns for the health of the population, while in Hong Kong, political expediency triumphed over medical necessity in the face of angry popular responses to interventions.[9] How did San Juan interest group pressures shape policy responses? Did humanitarian concerns trump commercial interests? In this comparative framework, where does the Puerto Rico experience with plague fall?

Medicine and Public Health Science in 1912

Cities which were struck by plague around the start of the century—Hong Kong, Bombay, Oporto, San Francisco—largely did not benefit from the rapid expansion of medical knowledge and public health science of the day. Uncertainty and debate over developments in germ theory and the medical sciences typified much of the period. Traditional sanitarians feared the rising profile of germ theory, believing it would destroy

[8] Echenberg, *Plague Ports*, p. 183.
[9] Ibid., p. 45.

the impulse for sustained sanitary reform. Contagionists trumpeting the role of human carriers in disease transmission gained increasing credence as the work of Pasteur and Koch rose to fame in the 1870s and 1880s. These disputes still found echoes during the plague outbreaks of the 1890s as uncertainty around how the disease was spread continued even for those who embraced the germ theory and measures such as inoculation. When plague reached India in 1896 and Egypt in 1899, ambiguity reigned over the means of transmission of the bacillus and whether it could survive outside of human or animal bodies for long.[10] Not until nearly 1910 was the rat-flea theory of transmission almost universally accepted.

The imperial dimensions of the third pandemic became increasingly apparent as the disease spread from the Himalayan borderlands between China and India around 1855. Reaching Hong Kong in 1894 and Bombay in 1896, *Yersinia pestis* spread throughout the British Empire aboard British steamships travelling across the globe. While estimates for the death toll of the Second Pandemic—i.e. the Black Death of the fourteenth and fifteen centuries—range from one quarter to one half of the entire population of Europe and the Middle East, the third pandemic resulted in highly variable mortality rates. Between 1896 and 1921, an estimated 12 million Indians lost their lives due to plague, while roughly 3 million people died across the rest of the globe, a striking distinction between East and West.[11]

Even before the United States confronted plague in Honolulu and San Francisco, epidemic yellow fever swept the American South in 1878, inspiring a fragile consensus around public health reform if only for a short window. In May 1878, yellow fever spread from Havana to New Orleans and throughout Louisiana, Tennessee, and Mississippi, killing more than 20,000 people, the highest death toll from an epidemic outbreak in the

[10] Mark Harrison, *Contagion: How Commerce Has Spread Disease* (New Haven: Yale University Press, 2012), pp. 186-7.
[11] Echenberg, *Plague Ports*, p. 51.

nation's history.[12] The American encounter with epidemic yellow fever may not have resulted in lasting public health reform, but it did reveal both the growing involvement of the business community in public health matters and the absence of an effective national quarantine system.[13] As Emily Rosenberg explains, the late nineteenth century bore witness to the increasing construction of 'circuits of expert knowledge' that helped to 'coproduce and accelerate' transformations.[14] These two facets of the larger international public health system, as it stood in the early twentieth century, fell domestically under the purview of the United States Public Health Service, an organization first chartered in 1798.[15] The piecemeal application of quarantine measures persisted through the yellow fever epidemic until 1893 when the USPHS gained full authority over quarantine in the United States.

With the expansion of both formal and informal American empire following the Spanish-American War, Surgeon-General Walter Wyman pushed for the American federal government to take a more interventionist approach in the sanitary affairs of neighbouring states. The Pan American Sanitary Conference in 1902 led to the establishment of the world's first permanent international sanitary organization, the Pan American Bureau of Health. The Conference can be seen as part of the culmination of the nineteenth century '…faith that the transnational and neutral character of science and expertise would foster universal frameworks and propel the progressive convergence of "civilization."'[16] Such international congresses promoted the regularization of sanitary reform and procedures but did not erase tensions between nation-states. The constituent members of the Pan American Sanitary Conference, especially Latin American countries,

[12] Harrison, *Contagion*, p. 120.
[13] Ibid., p. 122.
[14] Emily Rosenberg (ed.), *A World Connecting: 1870-1945*, eds. Jürgen Osterhammel Akira Iriye (A History of the World, New York: Belknap Press, 2012), pp. 815, 919.
[15] For a detailed overview of the development of the USPHS, see: Ralph C. Williams, *The United States Public Health Service, 1798-1950* (Ann Arbor, Mich.: University Microfilms, 1979).
[16] Rosenberg, *A World Connecting: 1870*-1945, p. 957

struggled with the United States' domination of the organization. In addition to the encroachment of the Roosevelt Corollary on sanitary matters in their countries, members were similarly concerned with the influence of large (American) commercial interests on sanitary policy. For example, Cuba's sovereignty remained tied to the appeasement of the Platt Amendment. As Mark Harrison posits, 'The USA had championed a move from quarantine to surveillance since the early 1880s and had exerted pressure on Latin American countries bilaterally and internationally to achieve these aims, marking an extension of the Monroe Doctrine into the realm of public health.'[17] The established control over imperial outposts like Hawaii, the Philippines, and Puerto Rico encouraged the United States to also bring quarantine arrangements in Panama under the control of the Treasury Department following the completion of the Panama Canal in 1914.[18]

Quarantine protocols, among other things, became central features of the broader international conferences on sanitation and hygiene that emerged in the mid-19th century. At the time of the tenth International Sanitary Conference in Venice in 1897, twenty sovereign powers attended with all but Denmark, Sweden, and the United States signing the resultant convention designating bubonic plague as an internationally notifiable disease. The Venice conference was the first of its kind to deal exclusively with the "Asiatic" plague, seeking to 'bring sanitary regulation of commerce into line with scientific knowledge.'[19] Ultimately, though, the conference only paid "lip service" to new discoveries surrounding plague, and it did not fundamentally alter standard international protocols against infectious disease outbreaks.[20]

[17] Harrison, *Contagion*, p. 138.
[18] Ibid., pp. 132-33.
[19] Ibid., p. 184.
[20] Echenberg, *Plague Ports*, p. 138.

Evolution of Medical Knowledge and Plague

The third pandemic offered a unique opportunity for scientists confronting plague in this new age of bacteriology. Ideas for dealing with plague evolved at lightning-speed starting with the identification of the causal agent of plague during the 1894 Hong Kong outbreak. Rival scientists, Kitasato Shibasaburo and Alexandre Yersin, pushed to make the discovery first, using their training in Koch and Pasteur's pioneering labs. While they both claimed primacy, ultimately Yersin's identification won out. Ambitious researchers flocked to sites of new outbreaks with audiences in the diplomatic and economic sphere 'politiciz[ing] bacteriology virtually from its inception.'[21]

The laboratory-based diagnosis of plague 'marked a great watershed' and incited fierce resistance from multiple fronts. Such a technological advancement relegated symptoms-based diagnosis to second place with many physicians still refusing to abandon their anti-contagionist, miasmatic explanations of disease causation. Similarly, public health specialists resisted this rapid evolution of models of disease control and believed plague to be transmitted by human contact. They granted clean bills of health to ships, persons, and goods presenting no visible plague-like symptoms despite potential infection of fleas and rats. Still, quarantines and cordons sanitaires were perceived as problematic by most sanitary reformers who also characteristically held a strong class bias that shifted the application of sanitary rules to the "lesser" classes.

By 1898, Paul-Louis Simond proposed the theory that plague spread by fleas feeding on rats and humans. He faced immediate scepticism, as his experiments could not be replicated in several labs in Europe and Australia. The Indian Medical Service in British India rejected fleas as vectors of disease transmission, emphasizing human agency over rats in spreading the disease according to the first Indian Plague Commission in

[21] Ibid., pp. 32-33.

1901.[22] As observations of mass die-offs of rats preceding human plague deaths became apparent, shifts in sanitary measures against rodents slowly began.

The plague outbreak in Rio de Janeiro, Brazil in 1900 marks the first instance of practicing medical clinicians employing rat-killing as a means of controlling the spread of the disease. Officials set up a corps of rat-catchers who worked on a paid quota system.[23] Though the rat-flea theory of transmission was not accepted as fact until around 1906, the International Sanitary Conference held at Paris in 1903 endorsed the shift from focusing on humans to rats in anti-plague campaigns.[24] Laboratory science in the early twentieth century furthered the tensions between older sanitarians and younger bacteriologists, while it also enhanced the arsenal of anti-plague weapons.[25]

The Americans Tackle Plague

By the time plague reached San Juan in 1912, the recent memories of the Honolulu and San Francisco epidemics informed the conceptual frameworks used by American public health scientists. In December 1899, confirmed cases of plague appeared in the Chinatown district of Honolulu. The Hawaiian Board of Health (BOH) immediately turned to the older, traditional infectious disease control methods: they surrounded the district with a sanitary cordon, divided the district into sections, and performed house-to-house inspections. Officials allowed no communication between the district and the rest of the city, erecting a separate plague hospital, crematorium, morgue, and detention camp. Where cases of plague occurred, the BOH condemned buildings and the fire department conducted controlled burns.[26] As Echenberg describes, 'Cleansing by disinfection but especially purging by fire became the signature plague control measure

[22] Ibid., pp. 69-70.
[23] Ibid., p. 165.
[24] Harrison, *Contagion*, p. 196.
[25] Echenberg, *Plague Ports*, pp. 11-12.
[26] Vernon B. Link, 'A History of Plague in the United States of America', United States Public Health Service, (Washington: Government Printing Office, 1955).

that for generations to come would give Honolulu reason to remember bubonic plague.'[27] Between December 31, 1899 and August 13, 1900, the systematic burning campaign included forty-one controlled fires.

Racial discrimination shaped the determination of which buildings were burned, just like the application of other control measures. Asian passengers, baggage, and freight were banned from shipping for several months. Officials posted guards to prevent anyone from leaving Honolulu, but tensions quickly forced the quarantine to be lifted after a matter of days. The stringent and racialized implementation of quarantine, isolation, and disinfection did not halt the spread of the disease. The turn to destruction of infected premises by fire was symptomatic of more radical measures pursued by the BOH. Still, "controlled" burns were anything but. On the morning of 20 January 1900, fire from a burning house grew out of control spreading to neighbouring structures. More than 5,000 Asians and Hawaiians were left homeless and forced to move into detention camps. The alienation of the populace, application of economically damaging control measures, and ignorance of novel, circulating theories of plague control overwhelmingly characterized the Honolulu plague experience and would carry over to the plague's next American port of call: San Francisco.

At the time of the 1900 outbreak of plague in San Francisco, American public health was not on the forefront of medical discoveries or the implementation of cutting-edge public health reform. As was the case for health officials in Honolulu, experts like USPHS officer Joseph Kinyoun and Surgeon-General Walter Wyman 'did not regard the disease as a major threat to the progressive civilization of the West. Typical of the times, moreover, both men shared racial assumptions regarding Asians and allowed them to

[27] Echenberg, *Plague Ports*, p. 198.

influence their thinking.'[28] While Wyman and Kinyoun anticipated the arrival of bubonic plague on the West Coast given its spread from Hong Kong and Bombay, the two did not remain abreast of the latest scientific literature on the subject. The writings of American public health leaders in 1900 reflected no mention of the flea when discussing bubonic plague. Few Californian physicians were comfortable or trained in bacteriology. Still, public health professionals offered confident assurances to the American reading public at the time of the outbreak.

The 1909 Report of the Citizens' Health Committee on "Eradicating Plague From San Francisco" succinctly describes the necessary and vast transformation of the city's medical knowledge in order to combat the disease: 'Before San Francisco could get rid of plague it had to go to school and study zoology, bacteriology, and fleas. The whole community had to learn about plague as a disease and an epidemic.'[29] As in Honolulu, the first San Francisco epidemic raised the spectre of xenophobic rejection of Asian immigrants, as well as broader American ideological sentiments. American public health officers garnered little respect in the hierarchy of governing authority, without adequate funding and often without political support. In keeping with either the American notion of the supremacy of individual rights or the capitalist prerogative of continuous acquisitions, the U.S. government did not sign the Venice protocol of 1897 on plague notifications and quarantine laws. Despite racialized public health policies, the judicial system did not uphold the rights of the collective over individuals in the cases brought before the San Francisco courts regarding unfair isolation of Chinese residents.

[28] Ibid., p. 215.
[29] Frank Morton Todd, 'Eradicating Plague from San Francisco: Report of the Citizens' Health Committee', (San Francisco: The Citizens' Health Committee of San Francisco, 1909), p. 12.

No substantive anti-rat activities commenced in San Francisco until November 1902 under the leadership of Dr. Rupert Blue of the USPHS.[30] This first encounter with plague could be called a 'stinging defeat for the USPHS…Only during the second epidemic in 1907/8 did federal intervention measure up to the best international standard in both plague science and its application. This second try at plague control revealed that public health could not be imposed from above and that only a strong coalition of private and public interests working together could succeed.'[31]

Returning to the Puerto Rican context, following the 1899 emergence of plague on U.S. soil and several further episodes of bubonic plague on the west coast of the United States, fear of continued outbreaks heightened awareness of the disease's menace among public health officials across the country. As early as May 1908, the Acting-Governor of Puerto Rico, William F. Willoughby, requested detailed information concerning the potential spread of bubonic plague from Venezuela to Puerto Rico due to fears among members of the Superior Board of Health.[32] Given the federal intervention in the recent outbreak of plague in San Francisco, Willoughby likewise called on another federal agency, the Interior Department, to recommend actions to be taken by insular authorities,[33] especially regarding rat destruction and quarantine. Puerto Rican officials almost immediately received information on the causes and means of plague prevention. Secretary of the Interior James R. Garfield forwarded various rat proofing techniques published in *Public Health Reports*, alongside the general recommendation to put all cities and towns in the best sanitary conditions possible. Former Governor of Puerto Rico and a current Assistant Secretary of Treasury, Beekman Winthrop, encouraged the

[30] Link, 'A History of Plague in the United States of America', p. 11.; Further detailed discussion of plague control measures used in San Francisco can be found later in the chapter.
[31] Echenberg, *Plague Ports*, p. 239.
[32] Telegram from Acting Governor of Puerto Rico, Willoughby, to Secretary of the Interior, May 1908, RG 126, NARACP.
[33] Territorial oversight transferred from the Secretary of State to the Secretary of the Interior in 1873.

removal of all garbage from houses to prevent rat infestation and arrange for the destruction of all garbage immediately rather than storing waste in dumps. Finally, he recommended obtaining viruses and other means of destroying rats from companies in the U.S., offering to arrange for the purchase of the desired product following the recommendation of the U.S. Public Health and Marine-Hospital Service.[34] The island remained officially plague free for several more years.[35]

Control Measures: Rat-proofing an Island

These intervening years turned out to be crucial for the broad development of public health science in the United States, the evolving authority of the USPHS, the institutional development of public health in Puerto Rico, and most generally, the circulation of medical knowledge with the third pandemic. As bubonic plague circumnavigated the globe, traveling along the routes of the modern global economy and facilitated by faster transportation, governments instituted public health measures as a compromise between halting the spread of infection and preventing commercial losses. In considering the various control measures put in place, it is especially important to consider the diplomatic, social, and economic dimensions of public health and quarantine, as we will see in the case of the 1912 San Juan outbreak.

From the outset of the epidemic, the dynamic interplay between federal and local agencies undoubtedly shaped the battle against *Yersinia pestis*. As soon as Acting Governor Carrel notified Washington of the first suspected cases of infection, Frank McIntyre, Chief of the BIA, questioned whether Ashford and USPHS Chief Quarantine

[34] Letter from Assistant Secretary of Treasury Beekman Winthrop to Secretary of the Interior James R. Garfield, May 9, 1908, RG 126, NARACP

[35] A significant proportion of the island remained unattended by health professionals such that the rates of transmissible disease were unreliable, and epidemics in the interior ran their course uninhibitedly. See, Colton, 'Thirteenth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1913', p. 91.

Officer S.R. Grubbs had been 'taken into your confidence and what is their opinion?'[36] It was as if the politicized San Juan BOH and Insular Sanitation Service could not be left to deal with such a vital matter on their own. To assure McIntyre and other Washington bureaucrats, Carrel responded: 'Insular Health officials and I have taken Ashford and Grubbs into full confidence, and all conclusions reached as reported by my cablegrams, and action taken, have been preceded by and in accordance with views of these and other competent medical authorities.'[37]

On the day of the public notice of the outbreak, Ashford himself wrote to the Army's Adjutant General from San Juan reporting twenty cases of bubonic plague in the city. Acknowledging that there was some confusion over the veracity of the suspected cases, Ashford went to the Director of Health to confirm the plague diagnosis, as Chief Quarantine Officer Grubbs would still not concede that the disease was plague. Though 'the disease seemed to be confined to Puerta de Tierra, a dirty collection of old wooden huts and houses near San Juan and inhabited by wharf laborers,' Ashford immediately requested serum or vaccine from the Surgeon-General to treat the soldiers, officers, families, and civilians of the San Juan military post.[38]

Ashford rapidly emerged as the public face of the insular government's fight against plague and the island's educator-in-chief. Notifying the Acting Governor, Lippitt explained: 'Knowing that the people of Porto Rico have very great confidence in Dr. Bailey K. Ashford, I requested him to prepare a short statement with reference to the bubonic plague for publication in the papers, in order to let the people of the island know

[36] Frank L. McIntyre, Chief of the Bureau of Insular Affairs (BIA) to Acting Governor M. Drew Carrel. 19 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.
[37] Acting Governor M. Drew Carrel to Frank L. McIntyre, Chief of the BIA. 20 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.
[38] Letter from Dr. Bailey K. Ashford to the Adjutant General of the U.S. Army. 19 June 1912, Scrapbook: Original Manuscripts of the studies, reports and speeches of B.K. Ashford, M.D. 1909-1922. Part 1., Box 5, BKA Papers: GTM 071016, SC, GU.

the latest opinions of the scientific men of the world…'[39] In his first article, "A Forecast of the Anti-Plague Campaign," Ashford issued a call to arms. Recalling the rapid advances in bacteriology and public health science of the previous decade, he notes: 'it is not very difficult to formulate a plan of defence that will be at once simple, practical, efficacious, economical, immediate and permanent.'[40]

"Scientific medicine" had made great progress, but to make San Juan plague-proof required not just the efforts of public workers, but also the cooperation of the public at large. Combatting plague was a much different situation from Ashford's decade-long fight against hookworm. On the one hand, plague incited a visceral fear and panic with the potential to immediately halt all economic activity. On the other hand, hookworm disease caused a gradual decline in an individual and likewise impaired the economy over a long period of time through decreased productivity. The reforms required to stop the spread of plague were rapid and tangible, a public health challenge that could be quickly tackled.

As Ashford so eloquently put it, 'It means that all of the impetus and fire of the Latin race must be united against the common enemy of their commercial life, of their life as a people.'[41] From this very first article, even before explaining and summarizing the latest international protocols and plague science discoveries to the people, Ashford identified rat-proofing of buildings as the lynchpin for success. Though many countries, 'still lacked confidence in the ability of governments—particularly colonial administrations—to take adequate measures and report reliably on outbreaks of disease,' Ashford called on the Puerto Rican people to show their ability to 'meet even an enemy

[39] Director of Sanitation William F. Lippitt to Acting Governor Carrel. 25 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.
[40] Essay by Dr. Bailey K. Ashford, "A Forecast of the Anti-Plague Campaign." 25 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.
[41] Ibid. Ashford's reference to the "Latin race" is not a reference to a biologized, pejorative classification of persons, rather a reference to a shared cultural heritage. For ideas of race and culture during the period, see: Findlay, *Imposing Decency.*

as fearsome as plague as intelligently and as scientifically as any other people, perhaps more, who knows?'[42]

Throughout the series of articles, Ashford discusses the establishment of the Office of International Hygiene in Paris by agreement in 1907 and the Congress of 1911 where international agreements against plague were developed. In an article entitled, "How Plague is Carried According to the English in India," Ashford summarized the findings of the Advisory Committee for the Investigation of Plague, perhaps most importantly, the direct demonstration of the transmission of plague through the rat-flea.[43] Ashford's publications and the broader 1912 plague outbreak typified a growing internationalism in the interactions between imperial powers. Knowledge borrowed and shared between the United States, the United Kingdom, Japan, and other nations signify a level of collaboration that expressly benefitted the fight against infectious disease and developments in sanitary reform. Traditional nation-state borders could not stem the circulation of disease, nor did it stem the circulation of knowledge. Perhaps even more directly than economic and political negotiations, sanitary reform represented a form of imperial internationalism that was a hallmark of the twentieth century geopolitical reality.

Such knowledge guided the work of the Sanitation Service who ordered the removal of all garbage from the city of San Juan to eliminate dwelling places for rats. To decrease the rat population, health officers instituted a campaign for the catching and killing of rats as they were 'authorized to buy all rat traps in the market together with as much poison as could be obtained.' Lippitt notes, however, that such activities were not well organized until the insular entomologist, Mr. W.V. Tower, was put in charge. Tower quickly managed to arrange an effective campaign against rats, spreading rat poison

[42] Harrison, *Contagion*, p. 198.; Essay by Dr. Bailey K. Ashford, "A Forecast of the Anti-Plague Campaign." 25 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.
[43] Essay by Dr. Bailey K. Ashford, "How Plague is Carried According to the English in India," 28 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.

throughout the city and in the surrounding areas, while awaiting an order of 3,000 more rat traps from the United States. Lippitt argues, 'It is thought that this early and vigorous movement toward the eradication of rats, especially in the district wherein most of the infected rats were found, was of inestimable benefit in preventing the spread of the epidemic.'[44]

All available resources were called in with an increased number of employees made ready for labour with the Sanitation Service, and all accessible automobile trucks in San Juan to be used to clean the streets. The fear inspired by the appearance of plague caused a flood of requests to the central office requesting disinfectants and rat poison. Only one day after the epidemic was declared, the insular government ordered 1,000 doses of Yersin antipest serum and 5,000 doses of Haffkine lymph from the United States.

The "new" science of bacteriology had first provided these new tools to fight plague outbreaks between 1896 and 1901. Serotherapy, pioneered by the Pasteur Institute in 1895, involved providing plague patients with blood serum to boost their immune system. Alternatively, Haffkine developed artificial immunization against plague while working in Bombay. He easily produced inexpensive vaccine that nevertheless resulted in major side effects and often left recipients incapacitated for at least a day with only mixed improvement: 'At best, Haffkine's vaccine reduced the risk of contracting plague by one-half and gave protection for a maximum of six months but required annual repetition.'[45] An effective human vaccine was not developed until the 1930s, and even then only offered short-term protection and no herd immunity. Puerto Rican officials recognized these limitations. Lippitt called yersine serum 'worthless if not injurious unless it is administered to a person actually infected with Plague.' Similarly, though Lippitt

[44]Colton, 'Thirteenth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1913', p. 100.
[45] Echenberg, *Plague Ports*, p. 12.

recognized Haffkine's six-month prophylactic effect, he determined that 'from now on those will be vaccinated who live in the infected district or members of families in which Plague develops.'[46]

While Lippitt and Acting Governor Carrel tirelessly worked on implementing a thorough and effective anti-plague campaign, Governor Colton requested the Surgeon-General of the USPHS to send an officer experienced with plague work to Puerto Rico. On 22 June 1912, McIntyre notified Carrel of the assignment of Colonel Jefferson R. Kean as well as Major F.F. Russell and Lieutenant F.H. Foucar of the Army Medical Corps to the island to investigate the situation.[47] Passed Assistant Surgeon R. H. Creel and Assistant Surgeon C.L. Williams arrived on 27 June. Though insular politics and power struggles often sidelined the work against hookworm disease, the federal intervention in the plague epidemic was characterized by the same efficiency and effectiveness of the smallpox eradication campaign of the military government in 1899. Given their positions within the military (Army Medical Corps) and a non-partisan federal agency (the USPHS), these medical men did not fall subject to insular politics, a political system that often held up funding allocations and appointments due to battles between the various political parties.[48]

Rats remained the focus of the official work, and plague was believed to be contained to San Juan and Puerta de Tierra.[49] Just as Ashford articulated for the public, Kean emphasized rat-proofing as the 'most important and base feature of the problem.' In an update sent to McIntyre on 29 June, Kean reiterated this fact, saying: 'The situation is

[46] Director of Sanitation William F. Lippitt to Acting Governor M. Drew Carrel. 5 July 1912, Folder June 1912, Box 557, Corr. Gen., ODG, AGPR.
[47] BIA Chief Frank L. McIntyre to Acting Governor M. Drew Carrel. 22 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.
[48] Colton, 'Thirteenth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1913', p. 102.
[49] Old San Juan consisted of an islet with such barrios as Puerta de Tierra and Santurce. Only in the twentieth century did the population surge force the municipality to expand onto the main island.

in my opinion serious and will require for its control an extensive campaign of rat extermination and rat proofing of houses with improved methods of disposal of garbage.' He further commented on the epicentre of the outbreak, Puerta de Tierra: 'The sanitary conditions in Puerta de Tierra are the worst I ever saw…Much good work has been done…but this district will require radical treatment.'

Surprisingly, after only a short two-week survey of the situation, Kean and his Army Medical Corps colleagues recommended the campaign to be continued in conjunction with the island's department of health and chaired by R.H. Creel as: 'His experience in San Francisco eminently fits him for this important work.' With the support of the people, the hard work of the insular sanitary service, and the leadership of Creel and the Acting Governor, Kean envisioned the disease to be no more threatening than an outbreak of typhoid fever or smallpox.[50]

Beyond rat-proofing buildings, an increasing number of rats required laboratory analysis, such that a laboratory for the special study of plague was established with Russell at the head, and Foucar and Dr. Francisco Hernandez as his assistants, on 30 June. Army officials returned to the U.S. on 10 July, 'when it was seen that the combined forces of the service of sanitation and the United States Public Health Service could handle the situation.' Because of the hyperawareness and cautiousness of the officials, beds at the quarantine hospital remained in short supply. The U.S. Army secured an observation camp of ten tents and a larger camp was set up two miles along the beach from San Juan containing thirty tents: 'This camp provided for the purpose of taking care of such poor people as had been rendered homeless by the destruction of houses

[50] Letter from J.R. Kean (Lt. Col. Medical Corps), F. F. Russell (Major Medical Corps), F. H. Foucar (Lt. Medical Corps) to Acting Governor Carrel; 1 July 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.

impossible to make rat proof or too unhygienic to tolerate.'[51]

Rat proofing measures spread from San Juan proper and Puerta de Tierra to Santurce[52] as officials confirmed a further death in that district. The insular government authorized and urged health officers in other municipalities to take precautions, especially in cleaning up towns and exterminating rats. To contain the infection to San Juan Island, inspection of all merchandise leaving San Juan commenced on 20 June. The Sanitation Service set up disinfection stations along the bridges leaving San Juan Island, simply to calm laypeople, not because the Service believed this would actually prevent the spread of infection in any way. Still, a state of panic spread across the island during these early days of the campaign. Business was practically suspended throughout the island and municipal leaders in Ponce threatened a "shotgun" quarantine if travel from San Juan did not cease.[53]

The work became increasingly expensive for the insular government alone to handle. In an exchange with Governor Colton (who remained on the mainland), Carrel noted that the entire budget amount for regular sanitation work on the island needed to be transferred to the emergency fund for plague work. The scale of the epidemic might not be as sweeping as that in Bombay, but Carrel, Kean, Creel, and Lippit all concluded that plague work was a 'problem of two or three years duration' with significant extra expense and requiring special organization exclusively focused on plague work so regular sanitation work can proceed through regular service. Only two weeks into the outbreak, Carrel suggested that Colton confer with the Secretary of War and Surgeon-General of the USPHS on the possibility of transferring the plague extermination campaign to the authority of that organization. This would enable the campaign to be organized as in the

[51] Colton, 'Thirteenth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1913', p. 101.
[52] All districts in the Borough of San Juan, on the island of San Juan.
[53] Colton, 'Thirteenth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1913', p. 101.

California epidemic, with the federal government bearing the expense, and operating in conjunction with the insular sanitation service.[54]

Following his appeal to Colton, Carrel then laid out the situation for BIA Chief McIntyre in a letter on 26 July, emphasizing that the reorganization of the Sanitation Service had only taken place in April of the same year. The organization had only just begun remedying years of sanitary neglect on the island, when the need to completely clean up and overhaul sanitation and hygiene reached a critical peak so as to curb the spread of plague. The costs of such a campaign become increasingly complex when the need to destroy hundreds of derelict homes of the poor was factored in: this will '…create a charity problem.' The consequences of the sanitary neglect that typified much of the first decade of civil rule under the Americans were readily apparent. Partisan disagreement within Washington and San Juan obstructed effective governance during the period, and now the importance of the work against plague garnered even greater significance.

Such work and its consequences were of paramount interest not just to the health of the population of Puerto Rico, but also to mainland U.S. ports. Bubonic plague and similar epidemic diseases had to be eliminated and controlled in Puerto Rico so as not to spread to the U.S. Dr. Creel determined that the situation in San Juan was much more serious than that previously witnessed in San Francisco. To protect other U.S. cities, Puerto Rico must be made proof against bubonic plague. Like most problems of health and welfare in Puerto Rico during these years, Carrel pointed out that the need to address health conditions in Puerto Rico through federal legislation was previously raised by Colonel Jefferson R. Kean two years prior to the outbreak. As Lippitt articulated in his annual report and contemporary newspaper articles demonstrate, positive regard toward

[54] Acting Governor M. Drew Carrel to Governor George R. Colton. 30 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.

these measures would not last long, and, 'The necessity of favorable attitude of public and judiciary towards sanitary work in any country is recognized, but it is of far more importance here.'[55] In the absence of federal legislation, the potential threat of the spread of plague to the mainland warranted financial assistance from Congress to aid in the general cleaning up of the island.[56]

Ultimately, at the request of Secretary of War Stimson, the Surgeon-General of the USPHS, Rupert Blue, was directed to take charge of the bubonic plague eradication work in Puerto Rico alongside the Sanitation Service. Blue offered any possible assistance, 'to the full extent of authority and appropriation,' when the organization took over in August 1912. Because the USPHS received a general appropriation of $500,000 until the next session of Congress in December, most of the expense of the campaign could be borne by that agency, including the costliest expenditures like rat service at sea ports, furnishing of anti-plague vaccine transportation, and isolation camps.

In a telegram from Frank McIntyre to M. Drew Carrel, McIntyre explained that these alterations in funding and the chain of command should be sufficient to control plague in the Island, as Blue 'can do everything in Porto Rico that the United States Marine Hospital has ever done in San Francisco.' Similarly recalling the Service's efforts (or failures) in Honolulu, McIntyre reiterated: 'The United States Marine Hospital Service do not believe in the destruction of houses because of plague where such destruction is not for other reasons desirable.' Perhaps most intriguing about the exchange between McIntyre and Carrel was the former's comment that considering all of these factors and assistance from the USPHS, 'It would be impossible to obtain appropriation for the

[55] Telegram from Acting Governor Carrel to BIA Chief McIntyre, 26 July 1912, Folder Board of Health, RG 350, NARACP

[56] Acting Governor Carrel to BIA Chief McIntyre. 26 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.

sanitary service of Porto Rico.'[57] Despite the similarities in disease ecology, be it uncinariasis in the agricultural regions of Puerto Rico and the American South or the outbreak of major infectious disease in urban centres like San Francisco and San Juan, Congressional funds would not be specifically diverted to the island. Agencies like the USPHS could appropriate portions of their own budget for work in Puerto Rico, but legislators did not feel the imperative to directly address ailing infrastructure and public health institutions on the island.

Dr. Creel was put in charge of the work in early July, and Passed Assistant Surgeon S.B. Grubbs continued as Chief Quarantine Officer of Puerto Rico.[58] These men were made 'special medical inspectors of the insular service of sanitation' with the proper authority to carry out work. A vigorous rat-proofing campaign continued in San Juan and its suburbs, even rat-proofing coconut trees: 'It will thus be seen that the service of sanitation was fighting the epidemic foot by foot and considering the fact that daily reports from the laboratory gave negative results as to the examination of rats forwarded from other towns of the island, this seemed the proper course…'[59] Unlike plague outbreaks in other regions, such as the 1901 outbreak in Cape Town where officials never published formal plague statistics, Lippitt and the Puerto Rican health authorities placed a strong emphasis on constructing a careful and complete record of the outbreak. After being endorsed by the Governor, the Attorney General notified all Civil Registers across the island that death certificates could not be signed unless the cause of death was reported to the Office of Sanitation.[60]

The Cape Town epidemic transpired at the same time as the South African, or

[57] Telegram from McIntyre to Carrel, 27 July 1912, RG 350, Folder C386 on MHS Quarantine, NARACP.
[58] Letter from Secretary of the Treasury Franklin McVeagh to Secretary of War Stimson, July 12, 1912, RG 350, Folder C386 MHS Quarantine, NARACP.
[59] Colton, 'Thirteenth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1913', p. 103.
[60] Director of Sanitation Lippitt to Acting Governor Carrel. 24 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR. 559.

Boer War. This led to great tensions between civilian and military medical officers.[61] In contrast, American army medical officers assisted in the formative days of the San Juan plague response and federal officers of the USPHS likewise remained critical to the disease-fighting efforts. Americans and Puerto Ricans were able to overcome any potential barriers and cooperate with one another in creating an effective anti-plague campaign. The Puerto Rican experience would follow a standard of implementation equal to or surpassing those campaigns executed by the best scientists and administrators in other parts of the world.

Lessons Learned, Applied Locally

Surpassing Honolulu, Bombay, Cape Town, and Rio de Janeiro as the point of reference for health authorities in Puerto Rico was the San Francisco plague experiences between 1900 and 1908. Quite literally, San Francisco served as the training ground for the experts brought in to lead the 1912 campaign against plague in Puerto Rico: R.H. Creel and Rupert Blue. At the outset of the first San Francisco epidemic in 1900, widespread denial of the plague's presence hindered the work. As Todd explained, 'In San Francisco plague met politics. Instead of being confronted by a united authority with intelligent plans for defense…[t]here was open popular hostility to the work of the sanitarians, and war among the City, State, and Federal health authorities.'[62]

Both the Governor and State BOH openly resisted the determination by an expert panel that confirmed the cases of plague in San Francisco, and the Governor refused to cooperate or assist city authorities. This resistance typified the struggle for power between federal and local authorities, as well as the concern over the impact of epidemics on business and the larger economy. A U.S. Circuit Court judge issued an injunction, saying that proper procedure for declaring plague had not been followed, and Dr.

[61] Echenberg, *Plague Ports*, p. 272.
[62] Todd, 'Eradicating Plague from San Francisco: Report of the Citizens' Health Committee', p. 30.

Kinyoun, USPHS quarantine officer for San Francisco, suffered great vilification for his plague eradication methods. Only with the new election of a practicing physician as Governor of California in 1903 and the assignment of Rupert Blue as head of anti-plague efforts in the city did the anti-plague efforts gain traction.[63]

Upon the first reported death due to plague in May 1907, the San Francisco mayor immediately wrote to President Roosevelt requesting the federal government take charge of plague control work, setting a precedent that would be used with plague outbreaks across the United States. Given Blue's previous success, Surgeon-General Wyman gave Passed Assistant Surgeon Rupert Blue charge over the anti-plague measures in San Francisco and the surrounding areas. He encountered widespread infection, not confined cases in the Chinatown district as in the previous epidemic, and a city in ruin following an earthquake and fire in 1906. Blue relied on his awareness of the most recent developments in scientific investigation, including the guidelines set down from the U.S. experience with plague in Manila and the universal acceptance of the rat-flea theory following the 1905-1906 India Plague Commission.

Other stark differences characterized the second San Francisco epidemic, especially the lack of attempts at subterfuge in the diagnosis of the disease and the absence of racialized public health policies against the Asian population. The Citizens' Health Committee (CHC) headed the mass of civic organizations that became critically involved, and business groups rapidly signed on to the work to prevent the widespread quarantine of the State of California.[64] The second epidemic proffered fruitful lessons for the USPHS in years to come. In particular, the collective support of the public, elites, and governmental bodies could rapidly triumph over the spread of infectious disease. Officials in Puerto Rico would capitalize on these insights.

[63] Link, 'A History of Plague in the United States of America', pp. 4-5.
[64] Ibid., p. 22.

The immediate transfer and sharing of medical knowledge was also distinct in San Francisco's second plague encounter. In addition to the CHC report published in 1909, Blue, Creel, Grubbs, and others at the USPHS published on "The Rat and Its Relation to Public Health," following their work in San Francisco. As they explained in their introduction, 'During the enforcement of antiplague measures in California, Hawaii, the Philippine Islands and elsewhere, observations of great value have been made and their practical application has resulted in better directed efforts for the elimination of the disease.'[65] In discussing the origins of the present pandemic of plague in China, the officers wrote on a range of topics, including: "Natural History of the Rat," "Plague Infection in Rats," and "The Rat as an Economic Factor," among others. In Rupert Blue's contribution, "Rodents in Relation to the Transmission of Bubonic Plague," he provided a brief overview of the association of the rat with bubonic plague 'since the dawn of history.' He outlined the aims of the Indian Plague Commission and the principles used to exterminate rats ('the first principle upon which to base a campaign').

Most importantly for the broader development of anti-plague campaigns in the United States, Blue argued that considering the very real likelihood of plague establishing a permanent reservoir in the rodent population of the Pacific U.S., plague was a national problem that 'can best be solved by the Federal Government.' Richard H. Creel expanded upon these themes in his contribution, "Rat Proofing as an Antiplague Measure." Creel referenced the work of the Indian Medical Service, the British Plague Commission, and Japanese authorities on rat-proofing. Harkening back to the yellow fever epidemic of the 1870s, he compared bubonic plague rat-proofing with the mosquito-proofing undertaken to prevent the spread of yellow fever, affirming: 'Rat proofing in plague is just as rational and necessary, but the financial expenditure contemplated thereby has been of such

[65] Essays written by the Officers of the U.S. Public Health & Marine Hospital Service, and the Department of Agriculture on "The Rat and Its Relation to Public Health". Abridged by Dr. S.B. Grubbs. 1909, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.

proportion as to cause the majority of sanitary authorities in different parts of the world to dismiss the idea as impossible.'[66]

Taken as a whole, these essays display the rapid advancement of American public health knowledge since the more insulated attempts to deal with plague at the start of the century. American scientists and government administrators greatly benefited from this sharing of information and the comparison of interventions. Public health researchers and administrators around the globe catalogued their scientific achievements not for the sake of pure knowledge, but in order to gain the support of a broader coalition, raising the economic imperative inherent in modern sanitation reform.

The international dimensions of sanitary policy, especially quarantine, caused intense debate and manoeuvrings during the 1912 outbreak in San Juan. From the first suspicious cases in June, the Office of the Governor received dozens of inquires from commercially invested parties, such as shipping and transport agencies like J.T. Silva & Co. and the Agents of Hamberg American Line. Additionally, dozens of foreign consuls wrote to Carrel inquiring as to the state of affairs. Though he denied the existence of plague in his 17 June replies, Carrel was then forced to reply to the representatives of Spain, Germany, Venezuela, and Panama among others, confirming the bacteriological diagnosis of plague. Carrel also attempted to mitigate panic or reactive policies, as he explained to the Consul for the Netherlands when he wrote, 'All due precautions have been taken, and you may be assured that no means will be spared for checking its spread and wiping it out.'[67]

Intriguingly, the Doyen of the Consular Corps of the City replied rather reasonably, requesting the Governor 'to communicate to each Consular Officer every twenty four hours, the number of cases of plague reported in each ward of this City, to the

[66] Ibid.
[67] M. Drew Carrel to Albert E. Lee, Consul for the Netherlands in Porto Rico. 19 June 1912, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.

Department of Sanitation, stating number of cases under treatment, deaths and cases discharged. Also any information which may be of interest in this connection.'[68] The Doyen emphasized that such communication would ensure that uniform information reached respective governments. While this sort of inquiry might have appeared as an encroachment or threat during the early years of the pandemic, by 1912, surveillance and maintenance of consistent and accurate communication regarding infectious disease trumped the more traditional methods of quarantine and cordon sanitaire. This preserved both open communication channels and prevented undue damage to economic interests.

Still, a number of governments did impose restrictions to varying degrees. For example, the ports of Cuba and Santo Domingo remained closed to passengers and freight from Puerto Rico in July 1912, regardless of quarantine policies in place on the island. This situation entangled the State Department in Washington, as well as American diplomats on the ground in the respective locales. To address the Cuban situation, Carrel directly cabled the American Minister in Havana, explaining that all cargo and passengers from Puerto Rico were forbidden to board ships heading to Cuba. Carrel's argument hinged on the fact that only San Juan reported infection, while the ban impacted all ports, "especially in coffee districts where there is no infection." He argued that the health authorities had the situation well under control, and even the United States' ports did not interfere with passengers or cargo from any Puerto Rican port, even San Juan.[69] Refusing to let the matter rest with the diplomat in Cuba, Carrel likewise cabled the State Department asking whether anything could be done 'to relieve situation as it is interfering with business, especially coffee shipments. Shippers must know whether or not embargo

[68] Waymouth, Doyen of the Consular Corps to Acting Governor Carrel. 22 June 1912, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.
[69] Acting Governor Carrel to the American Minister in Havana. 6 July 1912, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.

is going to continue in order to arrange accordingly for disposing of crops.'[70]

Despite praising American leniency at their ports as leverage, Carrel failed to grasp the larger picture when it came to U.S.-Latin American relations at the time. As Harrison has succinctly explained, from the 1660s, 'Quarantines and sanitary embargoes came to be used consciously as instruments of statecraft and have figured prominently in international relations ever since.'[71] In the case of the Puerto Rico-Cuba quarantine discussion, Secretary of Treasury MacVeagh explained the dilemma to the Secretary of State: 'It might be stated, in all fairness to Cuba, that on account of the presence of the infection of plague at the State Health Officer of Florida, that all passengers from Havana destined to ports in Florida shall be held seven days at the Trixcornia Quarantine Station…'[72]

Cuba was itself forced to carry out rat-proofing measures despite not presenting any cases of plague until the end of July 1912, for which the United States, i.e. Surgeon-General Rupert Blue, instituted its own rigid quarantine against the island, through the State Health Officer of Florida. As McIntyre rationalized, 'therefore it is not to be wondered at that Cuba is being especially rigid as to its requirements with respect to an actually infected port, if for no other reason, on account of the example which we have set.'[73] Blue had very little leverage in urging 'Havana to be less restrictive against San Juan.'[74]

As Cuba only presented with three cases of bubonic plague in the entirety of July 1912, the Secretary of Treasury removed all traffic restrictions due to plague by August

[70] Acting Governor Carrel to the Secretary of State. 8 July 1912, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.
[71] Harrison, *Contagion*, p. 24.
[72] Sec. of Treasury Franklin MacVeagh to the Secretary of State. 11 July 1912, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.
[73] Surgeon-General Rupert Blue to Frank McIntyre, Acting Chief of BIA. 11 July 1912, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.
[74] Frank E. McIntyre, Acting Chief of BIA to Acting Governor Carrel. 18 July 1912, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.

1912. However, at the time of Governor Colton writing to the Secretary of War in October 1912, Cuban restrictions on traffic from Puerto Rico remained in place. Colton requested reciprocal treatment by the Cuban authorities as per treaty provisions.[75] As late as 26 December 1912, the debate continued with the Secretary of Public Health and Charities of Cuba affirming in a letter to the Secretary of State of Cuba that Cuba could not completely remove quarantine restrictions as the disease could lie dormant for a long period. Even more serious, 'For much less cause, and taking into consideration that the last death occurred in Cuba on the 27th of July, the United States still maintains restrictive measures against Cuba.'[76] While hygiene assuredly remained dependent on preventive measures, especially as plague travelled the globe, the question arose as to whether American health policy in the 1910s remained above the political fray.

Big Picture Questions and Dynamics

Regardless of international pressures concerning quarantine, the daily fight against plague and unrelenting rat-proofing efforts continued in San Juan. The San Francisco experience remained an ever-present model and point of reference, especially as the number of new infections declined and the longer-term question of maintaining an interested public rose to the forefront. In a September 1912 letter to R.H. Creel and William Lippitt, Governor Colton enclosed extracts from and comments on the 1909 Report of the Health Committee of San Francisco. He questioned whether, 'the situation in San Juan is sufficiently serious to warrant our following more closely the work done in San Francisco.'[77] In particular, Colton contemplated the extensive work and fundraising of the CHC, the body that reached across all sectors of civil society and genuinely

[75] Governor Colton to Secretary of War. 4 October 1912, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.
[76] Secretary of Public Health and Charities of Cuba to the Secretary of State of Cuba. 26 December 1912, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.
[77] Governor Colton to R. H. Creel and William F. Lippitt. 24 September 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.

engaged the populace of San Francisco. The CHC collected more than $177,000 through a subscription program, in addition to cultivating a broader spirit of collective action against plague. Colton explained, 'It would of course, be more difficult here to get the assistance of the public than it was in San Francisco. On the other hand, it is possible that if the public were taking a greater part in the fight the resistance might be less.' Colton's tone in his personal correspondence is flavoured by his dissatisfaction with the politicking and obstacles thrown up during the recent legislative battles to reform sanitary policy. He does not, however, stand in fundamental opposition to local party leaders as a representative of the colonial establishment. In fact, following his appointment as Governor, he worked to build strong relationships with Puerto Rican officials.

While infection rates decreased, the threat of a permanent reservoir of plague in the rat population required very real consideration of creative solutions to the greater problem of rodent infestation across the island. Most importantly, health authorities worried about the spread of plague to the countryside, especially among the rat population in sugar cane fields. By July, lab results showed the general infection of rats in Carolina, the only focus of infection outside of San Juan. Lippitt ordered an active rat extermination and rat-proofing campaign to begin, ordering the rat-proofing of every house. Families were provided with tents during this extensive and invasive process, and the leading experts were sent to assist, including Creel, Russell, and others.[78]

The Sanitation Service operated disinfection stations along the bridges and issued "certified tickets of health". As Lippitt rationalized, 'The service in consequence in trying to alleviate the great tension was perfectly willing, and did do certain things, which in a sanitary sense were absurd, but which had the effect nevertheless in achieving its object

[78] Director of Sanitation William F. Lippitt to Acting Governor Carrel. 4 July 1912, Folder June 1912, Box 557, Corr. Gen., ODG, AGPR.

of allaying the panic.'[79] In spite of these measures, towns reported suspicious cases from all over the island that proved to be false. Still, Dr. Francisco del Valle, head of the insular board of health, and other members of the board travelled through nearly every municipality from June 25, explaining the precautions being taken in San Juan and assuring them that no cause for alarm existed. By 27 June, officials believed the infection to be under control, although one man died from plague in the municipality of Carolina and immediately caused "deratization" measures to be instituted. That same week, a bureau specifically tasked with overseeing plague matters was created with the Assistant Director of the Sanitation Service in charge.

With this proliferation of bureaucratic personnel and apparatus to address the plague situation, government authority on the island overlapped at all levels of leadership. As previously mentioned, Acting Governor Carrel met with Lippitt, Ashford and other invested parties regularly to discuss ongoing work and plans yet to be carried out. Even as the plague outbreak appeared to be winding down, J.R. Kean explained to Governor Colton that Lippitt understood the need to cooperate with Creel and the USPHS, 'because the plan of campaign worked out makes necessary perfect cooperation between the regular sanitary organization and the plague service.' Given the struggles during the formation of the Sanitation Service and persistent tensions between himself and Lippitt regarding the hookworm campaigns, Ashford was likewise keenly aware of the power dynamics at risk, even during the plague work. In passing along his third article to educate the public on plague, Ashford asked the Governor to hold publication until Lippitt directly approved the content: 'I would not care to have anything published like

[79]Colton, 'Thirteenth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1913', p. 101.

this until he were perfectly satisfied and I am not in the least sensitive so don't fail to return it to me if it doesn't fit the bill.'[80]

While the strong personalities at the helm of the anti-plague campaign treated each other with caution, there did not appear to be the struggle between military and civilian authorities that swamped the Cape Town outbreak of 1901.[81] Military leaders worked to protect soldiers and their families at the military post in San Juan, thinking to preserve the post for the defence of the city in the future. The post remained linked to the city at large through the sewage systems, and thus, needed to stay vigilant on all matters of sanitation. The commanding officer of the Puerto Rico regiment abided by Ashford's advice and cooperated with sanitary authorities in every way possible. The only apparent source of danger that seemed to go unfixed for a period of time was the Quartermaster's corral in Puerta de Tierra, across the street from the focus of the infection in that district.[82]

Even the U.S. Customs Service allowed buildings under its control to fall into a state of disrepair and pose a threat to the public's health. Both the Director of Sanitation and Chief Quarantine Officer wrote to the Governor regarding the state of a building in use by the U.S. Customs Service on the marina. Both officials called for the destruction of the edifice based on its existence as a breeding for a place for rats. Grubbs took the argument a step further in highlighting the aesthetic benefits of such an action: 'This would not only add much to the beauty of this part of the city, but would do away with a rat focus that is a constant danger.'[83] In a similar vein, Grubbs recommended that the area

[80] Dr. Bailey K. Ashford to Acting Governor Carrel. 28 July 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.
[81] Echenberg, *Plague Ports*, p. 283.
[82] Acting Governor Carrel to Secretary of War. 10 July 1912. Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.
[83] Dr. S.B. Grubbs to Acting Governor Carrel. 10 July 1912. Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.; Director of Sanitation Lippitt to Governor Colton. 9 July 1912. Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.

should be kept free of all buildings given that construction so close to the water posed a danger for further infestation.

Though federal agencies and military personnel operated with little controversy or power struggles, a number of insular bodies engaged in moments of distrust and lack of cooperation. In several instances, insular police misunderstood, contradicted, or just ignored orders by the Sanitation Service. For instance, on 21 June, in one of Director Lippitt's first official statements to the public, he attempted to stem panic by asserting that no quarantine would be put in place around San Juan, avoiding any disturbance to business, nor would there be any problem securing merchandise or food from other places.[84] In contrast, the Chief of Insular Police, Colonel George Shanton, ordered the District Chief of San Juan to impose a rigid quarantine between the city of San Juan and all outlying districts with a sufficient number of guardsmen to be placed at specific points. He claimed to receive these instructions directly from the Director of Sanitation, contrary to Lippitt's express avowal not to impose quarantine on the city.

In a further example of this disconnect between Shanton and the health authorities, a minor controversy over the use of public lands, squatters, and edifices transpired in July 1912. Governor Carrel received a number of complaints regarding the orders for destruction of various homes in Salsipuedes and other parts of Puerta de Tierra, the major source of plague in San Juan. These homes were reported to be built and maintained by members of Insular Police.[85] Such buildings were erected on public lands without authorization by the Interior Department and many of the squatters occupying such houses were ignored because of their indigent nature. Acting Governor Carrel brought in both the Attorney General as well as the Commissioner of the Interior to

[84] Director of Sanitation Lippit: "Official Statement." 21 June 1912. 10 July 1912. Folder June 1912, Box 557, Corr. Gen., ODG, AGPR.
[85] Acting Governor Carrel to Col. Shanton, Chief of Insular Police. 23 July 1912. Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.

investigate the matter and seek out some resolution. Commissioner of the Interior, John A. Wilson, noted that he regularly wrote to the Chief of Police but had no results: 'I beg to advise that I have done everything in my power, except request the Attorney General to dispossess the users of public property…In some cases, the police themselves have erected buildings on public property when they were supposed to keep people from doing so.'[86] The police rebuffed criticism, citing the failure to secure prosecution when cases were brought before the municipal court. The municipal courts and the judicial system in general served as an important forum for the larger population to respond to much of the newly imposed health policies, alternatively upholding the Sanitation Service's policies or preserving the rights of the public.

Although the courts did not always uphold the measures passed by the BOH and Sanitation Service, Governor Colton remained willing to put pressure wherever necessary. The knowledge and imperatives of the experts in charge of the anti-plague campaign trumped any consideration of politics. Colton actively sought updates on the health status of the island, updating Lippitt as he travelled in Caguas, Mayaguez, and Afiasco meeting with the alcaldes,[87] health officers, and judges. After a trip in October 1912, weeks after the last reported case of human plague of the outbreak on 12 September, Colton pushed on, saying: 'If you or Doctor Creel want any municipal official stirred up anywhere let me know and it will be done at once. There is no reason to let up on any of them on account of the approaching elections. Since plague infection has got away from San Juan I think it of the utmost importance that every precaution should be taken to prevent its further spread.'[88] By 11 February 1913, with no human plague cases reported since the previous September and no infected rodent found after 19 December

[86] Commissioner Wilson to Acting Governor Carrel. 25 July 1912. Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.
[87] Mayors
[88] Governor Colton to Director of Sanitation Lippitt. 3 October 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.

1912, Colton requested the cessation of the anti-plague work of Creel and the USPHS. Surgeon-General Blue accepted the request in part, in light of 'the quarantine restrictions against the island which are still being maintained by Cuba and Jamaica…' Blue asked that the plague laboratory be maintained as well as a small number of rat catchers, which would enable the presence of rodent plague to be detected before spreading to humans.[89] Ultimately, Blue formally ended all anti-plague work by the USPHS after 31 October 1913.

Overall, the 1912 outbreak of plague in Puerto Rico cost thirty-six lives and roughly $225,000 (USD, 1912). Lippitt attributed these small expenditures to the rapid organization of the Sanitation Service and 'its radical methods.' Not only had they curtailed this epidemic, but they also provided the island with 'the assurance that bubonic plague will never enter its doors again, or it if does occur an epidemic will not follow.'[90] Appropriations and authority were not tied to appeasing the dominant political parties or making key appointments as they were in regards to the reorganization of the Sanitation Service and securing continued funding for work against hookworm disease. Such control over plague measures largely belonged with the USPHS. Ultimately, the success of the eradication campaign rested on the critical involvement of that agency, the cooperation of the people of Puerto Rico, and Dr. Creel in particular, as Lippitt states: 'The people of Porto Rico owe to [Creel] and to the other officers of the United States Public Health Service who were associated with him in this work a debt of gratitude which can never be repaid.' An exclusive reliance on the official reports submitted by Colton and Lippitt, however, does not reveal the more complicated progression of events and the tensions that emerged between various constituencies during these months. A

[89] Surgeon-General Blue to BIA Chief McIntyre. 14 February 1913, Folder 1230/39, Corr. Gen., ODG, AGPR.
[90] Colton, 'Thirteenth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1913', p. 105.

closer look at the archival materials offers further insight into shifting public opinion during this time of heightened anxiety.

Responses: Navigating Extreme Expectations

In contrast to the widespread protests that transpired in the British colonies of Hong Kong and Bombay, the response to plague outbreak in San Juan was largely cooperative in nature, with offers of support across sectors. The 1899 Alexandria epidemic showed similar tendencies of cooperation between municipal authorities and the press. Rather than harsh top-down policies, 'Alexandria's oligarchy used persuasion rather than force.'[91] Puerto Rican officials likewise maintained constant and open communication with the island's population, publishing daily official reports from the Director of Sanitation on the number of new cases, confirmed cases, and the state of rat eradication. The common responses of mass exodus, violent protest, and popular resistance that characterized early experiences during the third pandemic had largely faded by the time of the 1912 San Juan epidemic. This is not to say that there was universal compliance and a positive reaction to all policies put in place by health authorities. Rather, mixed reactions did occur from the general population, from elites and business interests, and from media outlets.

Popular Responses

Most importantly, however, Puerto Rican authorities apparently learned from earlier epidemics: the key to success in eradicating plague rested with 'keeping the public temper sweet.' Like in San Francisco, the governor 'had to act as a sort of umpire, and doctor of wounded feelings, to reconcile differences and disputes between officials and private citizens with grievances, and to get the community to accept and assist in the

[91] Echenberg, *Plague Ports*, p. 105.

measures that were being taken to protect it.'[92] From the beginning, Acting Governor Carrel worked to reassure all parties, both on the mainland and the island, in whatever way possible.

Though racial tensions did not afflict the plague work in San Juan as it did during the first San Francisco epidemic, as conscientious a mediator as Governor Carrel was, he could not escape the class dimensions of public health science of the day and used these classist ideologies as a tool in his favour. He fielded a number of inquires from Bureau of Insular Affairs Chief, Frank McIntyre, at the start of the epidemic concerning the anxiety of Puerto Ricans and others in the United States with friends and family members on the island. Seemingly to prevent widespread panic and exodus, Carrel asserts that, 'all infection is confined to Puerta de Tierra and similar districts occupied by the lowest class of poor people who have not observed all the rules of cleanliness and sanitation.'[93] In another instance, he notes, 'There has been but two cases of plague thus far among the better class of people…'[94]

The classism of Carrel's assurances calls to mind the Brazilian experience in which the urban poor were the main targets of sanitary reform and renovation. Because requests for improvements in Rio's housing in the past were ignored, residents did not believe plague measures that were 'invasive and destructive were sincere.'[95] They resented the discrimination involved with the isolation of poorer patients and those suspected cases of infection, while the rich could be treated at home or sent to rural retreats. Intriguingly, these resentments that were so widespread in Brazil did not seem to characterize popular responses to measures imposed by the Puerto Rican Sanitation

[92] Todd, 'Eradicating Plague from San Francisco: Report of the Citizens' Health Committee', p. 165.
[93] Acting Governor Carrel to BIA Chief McIntyre. 21 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.
[94] Acting Governor Carrel to BIA Chief McIntyre. 26 July 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.
[95] Echenberg, *Plague Ports*, p. 169.

Service and the USPHS on the whole. Unlike the Filipino experience, American sanitary imperial ideologies at work in Puerto Rico refer to socioeconomic hurdles in achieving reform, not to race.

Officials legitimately took the differential impact of plague into consideration when implementing policy and addressing its ramifications. For instance, Governor Colton described a judge in Caguas, who 'told [him] that while he did not like to impose fines upon the poor people he would be as severe upon the well-to-do class as seemed necessary to set an example to violators of the sanitary law.'[96] As previously mentioned, municipal courts were reluctant to prosecute poor squatters living on public land and any orders for eviction and destruction of homes had to follow strict protocol.

Similarly, the relevant bureaucrats on the island seriously investigated complaints regarding the destruction of property. As Lippitt explained, 'In order to enable me to properly attend to the complaints published in the Papers, I have assigned an employee of this office to the duty of investigating such matters…so that proper attention may be given to all matters of this kind.'[97] Acting Governor Carrel's office did not hesitate to involve the Director of Sanitation, the Attorney General, or the Commissioner of the Interior, among others, in following up on letters requesting aid due to damages to property by the Sanitation Service.

In the investigation of the case of Juana Torres of Carolina whose house was destroyed by the Sanitation Service during the plague outbreak, the Acting Attorney General confirmed that at the time of destruction, the building was 'beyond a reasonable doubt,' infected with rats. After consideration, the only way to completely destroy the potential for further infection was to tear down the walls. Such a "radical" decision was

[96] Governor Colton to Director of Sanitation Lippitt. 13 October 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.
[97] Director of Sanitation Lippitt to Acting Governor Carrel. 23 July 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.

not taken lightly, but in consultation with the Insular Board of Health and the Acting Governor, who visited in person. Even the courts declined to intervene on the behalf of the homeowner.[98] Walton would not uphold the claimant's request for damages, arguing, that the law did not deem the damages done to her property illegal or unjust, giving the Director of Sanitation no authority to recommend payment.[99] Archival records show that this type of review of cases was not the exception but the rule in evaluating complaints submitted by citizens to the Governor and Director of Sanitation. Rather than blindly siding with the insular authorities, the judicial system in Puerto Rico genuinely supported the rights and interests of the island's population throughout the crisis.

Still, in some instances, this level of efficiency and the rapid success of the campaign turned the tides of public opinion against the Sanitation Service. As the number of cases decreased and became increasingly further apart after about a month of work, some members of the public reacted against the sanitation measures in place to rat-proof houses: 'There were even rumors to the effect that the sickness existing in Porto Rico was not plague but something milder in form, and in consequence they thought the necessity of rat proofing was absurd.'[100] "Laymen" apparently compared the number of cases in Puerto Rico to other plague-infected countries and found them unimpressive. As Director Lippitt reported to Carrel, reports circulated that San Juan did not suffer from a plague epidemic given the small number of cases, and the popular understanding that 'where bubonic plague exists many are infected and many die.'[101]

While sceptics remained active during those first phases of the response, wider

[98] Daniel Walton, Acting Attorney General to Director of Sanitation Lippitt. 5 October 1913, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.
[99] Daniel Walton, Acting Attorney General to Director of Sanitation Lippitt. 6 October 1913, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.
[100] Colton, 'Thirteenth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1913', p. 103.
[101] Director of Sanitation Lippitt to Acting Governor Carrel. 8 July 1912, Folder June 1912, Box 557, Corr. Gen., ODG, AGPR.

support for the government resulted in the formation of local committees to assist municipal health boards in anti-plague work. In Caguas, the Committee of Public Health worked to eliminate contagion and halt the propagation of bubonic plague in San Juan. The members submitted for consideration documents on methods and precautions to the Chamber of Commerce, the San Juan Stock Exchange, the Board and Director of Health, as well as to the Director of the San Juan Light & Transit Company.[102] In Cayey, the Sanitary League raised funds that the Governor suggested be used to pay for expenses other than those that would be covered by the Insular Sanitation Service. Referring again to the greater impact of sanitation reform on the poor, he commented: 'I have in mind that the sanitary work will result in hardship to a number of poor people, and it may be necessary to afford them some financial relief.'[103] While no overarching group organized these committees as the Citizens' Health Committee did in San Francisco, persons in power did recognize their contribution to the fight against plague.

In addition to the committees providing support, the records of the Governor's office holds dozens of letters from concerned citizens' of all walks of life, offering their help in any way possible. Though the Speaker of the Cámara de Delegados de Puerto Rico, José de Diego, accompanied his family out of the city for fear of the epidemic, he offered Carrel his congratulations on the calm, prudence, and energy of the response to the plague, while also offering his support in whatever capacity in the work of extinguishing the infection.[104] Ordinary citizens likewise showed their faith in the government's work. For example, Augustine Navarette offered his services in the fight against bubonic plague as a gentleman of the old Spanish Section of the International

[102] Committee of Public Health, Caguas to Governor of PR. 9 July 1912. Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.
[103] Acting Governor Carrel to the Sanitary League of Cayey. 25 July 1912. Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.
[104] José de Diego, Speaker de la Cámara de Delegados de Puerto Rico to Acting Governor Carrel. 22 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.

order of the Red Cross in Puerto Rico.[105] Even the prisoners of Aguadilla offered their gratitude and support in whatever way possible, saying: 'Honorable M. Drew Carrel; Puerto Rico agradecido, jamás olvidará.'[106] Civic leaders and unelected persons alike extended aid to the best of their ability. The early declaration of the epidemic, the continuous communication, and the calling forth of all sectors of society to cooperate resulted in this comparatively harmonious environment.

Elite Responses

Besides the overall fluctuations in popular opinion, major interest groups worked to ensure the continued interest of the administration in their own causes throughout the plague epidemic. This, however, did not mean that commercial groups relegated plague work to second place behind their personal economic imperatives. Rather, on the whole, business attempted to coordinate with the health authorities, not subvert them. The daily paper of the "Union Mercantil" published a full, front page article entitled, "La Situación Presente: Cuestion Ecónomic." The article called for all the merchants of San Juan to come together to demonstrate unity with the authorities, and to show the larger international community that public health in San Juan was excellent, as good as others in normal times. They praised the calm, sensible reactions of the majority of the populace, but criticized the press and the paper's own constituents—i.e. merchants—in their reactions. As to the press, the *Union* stressed that the alarmist press was one hundred times worse than the plague itself, and instead, the press needed to explain the big picture, that is, the fact that absolute abandonment and negligence with respect to sanitation on land and at sea created the present epidemic. While, 'El gobernador interino Mr. Carrel se

[105] Augustine Navarette to Acting Governor Carrel. 20 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.

[106] Maximus Gonzalez & Filomino Brigroni to Acting Governor Carrel. 3 July 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR. "Honorable M. Drew Carrel; Grateful Puerto Rico, never forgotten."

ha portado como un héroe…'[107] the hostile and aggressive attitudes of some Puerto Rican merchants was unexplainable. The paper called for the elevation of "Sanitation" from a mere legislative statute to a real, tangible part of the soul of the people.[108] Clearly, the editors of this trade publication appreciated and acknowledged the staunch support of the administration in preserving the commercial sector of the island.

As previously mentioned, the Director of Sanitation staunchly rejected the imposition of quarantine around the port of San Juan and did not want the anti-plague work to impact commerce. When neighbouring ports boycotted the cargoes of ships that called at San Juan, the Governor and Director of Sanitation ardently worked to address the situation. Immediately upon receiving letters from businesses like the New York & Porto Rico Steamship Company and the Insular Dock Company in which they detailed the inability of ships to dock for cargo, the administration cabled both the War Department and the State Department to request explanations from the offending governments.[109] When the Sucesores de Roses & Company was once again able to ship coffee from San Juan to Cuba, they expressed their gratitude to the Governor directly: 'We have no doubt that your efforts have brought this result and beg to thank you again for the interest you have taken in this matter.'[110] Similarly, the Board of Directors of the San Juan Stock & Produce Exchange formally voted to thank the commission that circulated among the various authorities on the island, and to offer gratitude for the

[107] 'The interim governor, Mr. Carrel, has acted like a hero…'
[108] Editorial in the "Union Mercantil: Defensor de los Intereses del Comercio" to Acting Governor Carrel. 28 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.
[109] See, for example, Governor Colton to State Department. 26 October 1912, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR. and Edward Ferrer, Superintendent, The New York & Porto Rico Steamship Company to Acting Governor Carrel. 26 June 1912, Folder June 1912, Box 557, Corr. Gen., ODG, AGPR.
[110] Sucesores de Roses & Co. to Acting Governor Carrel. 25 July 1912, Folder June 1912, Box 557, Corr. Gen., ODG, AGPR.

attention of Carrell and Lippitt to matters relating the Exchange and commerce in general.[111]

The Governor continually affirmed his commitment to ensuring that commercial traffic did not suffer and sought to address all complaints made by commercial interests, just as he had done for the populace at large. Taking his considerations even further, Carrel investigated claims of price gauging for products in high demand during the epidemic, especially cement and kerosene oil, both used extensively in rat-proofing and disinfection. Firms such as the West India Oil Company and the Texas Company assured the governor that they were not taking advantage of the situation, but were trying to help the best they could. In the instance of kerosene oil, the firms emphasized that the New York Exchange governed prices, not local conditions, and the firms were selling thousand of gallons at or below cost.[112] Undoubtedly, credit for the success of the anti-plague work can be assigned to both popular and business efforts at furthering health policy.

In spite of the widespread support from business and outpourings of encouragement from the populace, the most contentious arena of plague work, housing, incited strong responses from two interests groups in particular, the Federation of Workingmen of Porto Rico (FWM) and the Liga de Propiertarios de Fincas Urbanas de San Juan (POL).[113] These groups issued their own public announcements regarding the plague work on the island and adamantly lobbied the island's administration. The FWM, a group affiliated with the American Federation of Labor, issued one such an announcement on 27 June. They urged the insular government to put all available funds at the disposal of sanitary officers and for the federal government to assist financially if

[111] S. Ramirez, Secretary of the Board of Directors of the San Juan Stock & Produce Exchange to Acting Governor Carrel. 20 July 1912, Folder June 1912, Box 557, Corr. Gen., ODG, AGPR.

[112] Acting Governor Carrel to Messrs. Fritze Lundt & Co. 16 July 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.; C. H. Wanzer, Special Agent, West India Oil Company to Acting Governor Carrel. 17 July 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR. Texas Company to Acting Governor Carrel. 17 July 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.

[113] Liga de Propiertarios de Fincas Urbanas de San Juan, a.k.a. Property Owners' League of San Juan

necessary. Their announcement called for mass meetings across San Juan 'to adopt resolutions in view to the eradication of the plague which is threatening the country,' and conservatively estimated that the eradication of the disease could 'last for years,' hence the needed collaboration between all members of the community.[114] In all, the announcement paints a melodramatic picture of the scene in Puerto Rico, a histrionic call to arms. For example, in urging the citizens of Puerto de Tierra to action, they state: 'There are some moments in the history of the country when the people must do something, if the rulers hesitate or keep themselves within the provisions of the law, in order to be free from the danger that threatens their political life, their glory and future.'

The Union offered a radical solution evocative of the days of the great Honolulu fire in 1900: use fire as the purifying element. They proposed condemning all private property in the region and preparing plans for a new and modern ward in accordance with the 'desires set forth by the workingmen'—housing with proper ventilation, water-closets, and cooking facilities. These demands must be contextualized against the perennial animosity between the labour unions, who represented the working classes, and the Property Owners' League, who owned the vast majority of the housing in Puerto de Tierra. Just as in the major cities in the northeastern U.S., property owners had been allowed to subdivide and sublease houses into tenement housing, 'a powerful and privileged business.' As many of the American progressive reformers complained about tenement housing in New York, such structures quickly became 'dens of plague and death' on the island.

The labour union recognized the need to create houses for no more than two families 'in accordance with the medical science' of the day, 'in conformity with hygiene and health, decency and morality.' They contrasted the situation in San Juan with that in

[114] Public announcement of The Federation of the Workingman of Porto Rico, 27 June 1912, Folder Board of Health, RG 350, NARACP.

U.S. mainland in which many philanthropic associations were typically the first to offer money to help the poor: 'The wealthy people here have done nothing to show their philanthropic, charitable and religious feelings and no money at all has come from them in the way of a contribution for this work.'

At root, the rhetoric of the announcement reduces to a Marxist dichotomy between the haves and the have-nots, the property-owners and the workingmen: the rich will return 'to go on their infamous work of abusing this people who have not learned yet to set in self-defence.' In the aforementioned editorial in *Union Mercantil*, the contrast between the limited impact of sanitary reform on the rich and the disproportionate burden placed on the poor and working class was likewise acknowledged. This disenfranchised demographic needed the total cooperation of the administration in solving the housing problem. They highlighted the federal administration's destruction of the Chinese ward in San Francisco following the invasion of bubonic plague and the $18 million spent on rebuilding, whereas Puerta de Tierra theoretically would only cost $4 million. The writers concluded by flatly blaming the POL's greed and disregard for the health and hygiene of the population for creating the situation on the Island whereby bubonic plague and other epidemic diseases like cholera easily spread. With an impassioned rallying cry—'The fight between life and death has started, and it is our sacred duty to combat soon [sic] and earnestly to kill, to stamp our enemy, the bubonic plague'—the announcement was signed off by the Central Labor Union of San Juan, including Santiago Iglesias, General Organizer of the AFL.

Secretary Carrel addressed the radical proposals put forward by Iglesias and his organization in a letter to BIA Chief McIntyre. Carrel explained more explicitly the bitter sentiment between the POL and the labour organization in San Juan. The POL owned more than $5 million worth of property in San Juan and wielded powerful influence over

the Legislature. With this influence, the POL 'has been one of the obstacles confronted by the Municipal Government in enforcing building and sanitary regulations in these districts.'[115] Iglesias feared that the League would use their influence to hinder the work of the health authorities against plague.

However, at the first signs of opposition from the POL, Carrel called in the President and Executive Committee of the POL, and 'told them that it was my intention to see that the health authorities, the police and the courts insisted on the strict compliance with orders regarding work that is required. I told them that I realized that property owners would be subjected to considerable expense but they could be assured that they would be subjected to no unnecessary expense.' While the Governor attempted to satisfy the needs and desires of all of his various constituencies, ultimately, securing the health of the people and preserving the viability of Puerto Rico's economy remained the paramount motivation behind his actions.

Subsequent injunctions submitted by the POL to stop the work of the sanitary authorities were summarily dismissed by the municipal courts. Such dismissals bear the mark of the larger Progressive movement, emphasizing the message that sanitary work of this kind would be carried out without interference from any source, be it political party or interest group.[116] Still, Carrel did not endorse Iglesias' total destruction and rebuilding campaign. Instead, in keeping with larger USPHS policy, he described a plan that would allow work to be done in piecemeal fashion to inconvenience the minimum number of people at any given time. Only in homes unfit for human habitation would the families be evicted. He summarized: 'I think the present plans will result in far less hardship than the proposition of Iglesias and his people as to the complete destruction of Puerta de Tierra and similar districts by fire.' Iglesias and his cohort seemingly agreed by submitting a list

[115] Letter from M. Drew Carrel to Frank McIntyre, August 1, 1912, Folder Board of Health, RG 350, NARACP.
[116] Wiebe, *The Search for Order*, p. 165.

of all workingmen 'who belong to the Free Federation of Labor of Porto Rico, and offer[ing] their services to the Government.'[117]

The POL did not so easily acquiesce to the policies of the insular government. In fact, Arturo Guerra, president of the POL during the plague outbreak, engaged in a protracted and heated exchange with the Governor and Lippitt over the actions of the Sanitation Service, especially those related to rat-proofing of buildings. Guerra accused Lippitt and the Sanitation Service of instituting illegal orders. Lippitt countered by explaining that not only had the legality of the orders been determined 'by the Courts of the Country,' but the orders were devised based on previous study by competent persons. He specifically cited Article IX of the International Sanitary Convention, which dictated that a country could not be determined free from plague infection until all buildings were made rat-proof.[118]

Several months later, in January 1912, because of the 'great blunders' being committed by the Department of Sanitation in rat-proofing of buildings, Guerra called for the ousting of Dr. Lippitt 'as the only way of restoring tranquillity and peace to the homes of urban property owners all over the Island of Puerto Rico.' In his belligerent letter to the Governor, Guerra quite candidly laid out the cause of the POL's bitter enmity: the unjustifiable actions of the Sanitation Service—i.e. rat-proofing—caused pecuniary damage to city property owners. While 'pusillanimous persons' submitted to the arbitrary power of Dr. Lippitt, the POL would not stand by as Lippitt 'has demonstrated that he does not possess sufficient brains to perform the duties of his position without causing

[117] Rafael Alonso, Secretario General de la Federación Libre to R. Siaca Pacheco, Acting Secretary of PR. 24 July 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.
[118] Director of Sanitation Lippitt to Arturo Guerra, President, Liga de Propietarios de Fincas Urbanas de San Juan. 30 November 1912, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.

enormous damages to the much-enduring tax-payers of the country…'[119] Guerra and the POL continued in their protests, even after the Governor responded in February 1913.

Governor Colton sought the opinion of the USPHS's head of anti-plague work in Puerto Rico, R.H. Creel, in addressing the matter. Creel explained that in the majority of cases, tenants paid for the sanitary repairs, not property owners. Owners may have paid for the repairs up front, but almost immediately they increased rents such that the costs were recouped within a short period, 'aside from having enhanced the value of his property.'[120] Creel offered a list of property owners, tenants, and rent increases as evidence of this trend. Creel admitted that the poor of San Juan were the majority of those burdened with the expenditures, and yet, were 'the ones who most willingly have complied with requirements.' Essentially, the POL protested as a result of their sense of entitlement, not because of real harm or injustice to their financial state.

The Governor likewise rejected Guerra's attacks on Lippitt on a number of fronts. The properties Guerra referenced throughout his letters were known to be notorious menaces to public health, and the letters as a whole 'merely contain a demand for the removal of a public official for alleged lack of brains, -- which represents only a personal and offensive expression contradicted by the facts and applied as well to a federal medical official whose intelligence and experience are beyond question.'[121] The public good would not be sacrificed to the whims of any interest group.

Media Responses

Interestingly, the press on the island actually worked to dispel most rumours and complaints, showing that the relatively small number of cases of plague was in fact owing

[119] Arturo Guerra, President of the Property Owners' League of San Juan to Governor Colton. 4 January 1913, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.
[120] R.H. Creel to Governor Colton. 8 January 13, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.
[121] R. Siaca Pacheco, Secretary to the Governor of Porto Rico to Arturo Guerra, President of the Property Owners' League of San Juan. 3 February 1913, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.

to the effective rat extermination measures put in place by the Sanitation Service and the USPHS. Lippitt praised these efforts, saying: 'the service of sanitation was very materially assisted in the abatement of the panic by the combined press of San Juan, who, to their credit be it said, with one exception did everything in their power to uphold the service in this time of trial.'[122] Various press outlets actively assisted the Governor when he requested the dissemination of facts and methods of eliminating bubonic plague from the island. In his request, Carrel noted that Dr. Ashford—the hometown hero—was in the process of preparing materials for the consumption of the general public and asked that each mayor across the island receive a copy of anything published. He sent these requests to the leading papers across the island, including: *El Aguila de Puerto Rico, El Tiempo, La Correspondencia*, and *La Democracia*.[123] The editors expressed their hearty willingness to publish any such materials, with one particularly prominent editor and current Resident Commissioner, Luis Muñoz Rivera, offering up the columns of his paper for the service of the government, willing to publish reports, orders, scientific works, anything. The paper happily printed, 'los trabajos del competentísimo Dr. Ashford a que usted se refiere en su carta de ayer, los que han de ser altamente beneficiosos para la salud pública en estas circunstancias.'[124]

Not all publications favourably reflected on the developments in the anti-plague campaign. One particularly humorous editor published the satirical magazine, "La Peste: Periodico Antipestoso" beginning in July 1912. He used hypothetical conversations, poems, advertisements, and letters to criticize the government's handling of the plague

[122]Colton, 'Thirteenth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1913', p. 104.

[123] See, for example, R. Siaca Pacheco, Secretary of the Governor of Porto Rico to Sr. Director de "El Aguila de Puerto Rico." 1 July 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.

[124] Luis Muñoz Rivera to Sr. don E. J. Saldaña Secretary of the Governor of Porto Rico. 3 July 1912, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR. "…the works of the most competent, Dr. Ashford, who you referred to in yesterday's letter, these works will be of the highest benefit for public health in these circumstances."

outbreak. In one instance, Garcia posited that since the federal government spent $4 million during the California epidemic, perhaps Uncle Sam could open his purse in Puerto Rico as it was best for his commercial interests to prevent epidemics in his territories.

Scathing criticism abounded in two other San Juan publications, *Pica-Pica* and *El Día*. In one *Pica-Pica* editorial, the author viciously condemned the USPHS for its conduct during the plague epidemic, saying: 'The Marine Service…is really the one responsible for our present invasion by the bubonic plague…'[125] According to the article's author, the USPHS not only acted as dictators and tyrants in times of epidemics, but their negligence regarding the most pressing needs of the population went unpunished. In a further demonstration of the continued conflict between expertise and partisanship, the *Pica-Pica* article blamed the epidemic on the Service and suggested that their misconduct was both praised and rewarded.[126]

Clearly, the rat-proofing measures and strict compliance guidelines could be viewed as an infringement of individual rights, but to place blame for the plague on an American agency seems more than a bit extreme. However, the author continues on this theme, positing that the people of the Island might tolerate the course of events if the expense of the sanitation campaign was borne by the federal treasury: 'Let the men who did it pay for it.' As he viewed it, 'The damage was done at our expense and the campaign of sanitation is also conducted at our expense.' Such a claim flew completely in the face of the fact that the USPHS actually covered the majority of the most expensive measures and costs required for the campaign, as seen in the abovementioned telegram with Surgeon-General Blue. *Pica-Pica* described their publication as 'independent in politics and Puerto Rican to the core.' Little else is known as to the paper's readership, but an unabashed anti-American agenda dominated any efforts at accurate reporting.

[125] Transcript of article, "Tras de Cuernos," from *Pica-Pica*, San Juan, July 20, 1912, Submitted by Colonel Kean to BIA Chief McIntyre, RG 350/File C386/Marine-Hospital Service Quarantine, NARACP.
[126] Ibid.

Governor Colton similarly incited indignation in the Ponce newspaper, *El Dia*, to the extent that a staff member of the Bureau of Insular Affairs noted the article as 'the first time that I have observed a direct attack on the Governor and an impugnation of his motives in this paper.' The article highlights that fact that Colton actually was in the U.S. when plague struck the Island and only returned after the outbreak was suppressed. Rather than Colton's absence signifying the abandonment of his duties, Colton was ordered by his physician to the mainland to recover from a bout of illness. When he expressed his wishes to quickly return to the island at the news of the plague outbreak, Carrel assured him that the situation was under control and the two remained in daily contact throughout the epidemic. Colton's time on the mainland actually gave him the opportunity to directly address a number of significant matters with various federal agencies and to lobby for the citizenship bill in Congressional committee.[127]

Rather than incriminating the Puerto Rican legislature for its role in the bureaucratic fiasco that delayed the reorganization of the Sanitation Service or even noting the efforts Lippitt and Colton made in the preceding months to quickly and efficiently restructure the island's health apparatus, the article only melodramatically blames Colton for the state of affairs on the island: 'That ideal which constitutes the greatness of a people and strengthened its ties to the Executive, has been lost…Hope has been lost!'[128] Again, the bitter vehemence of the article is worth quoting:

> Let us state that we are in the midst of a period of decomposition. It is for this reason that the electorate is absolytely [sic] cold and even hostile to everything that signifies political work. All faith has been lost, because the example set us is a bad one. Profound disdain invades our country which redounds to the prejudice of the government itself, which will some day find that it cannot count on the support of the people in any work of progress and enthusiasm.

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[127] See, for example, Director of Sanitation Lippitt to Acting Governor Carrel. 26 June 1912, Folder June 1912, Box 557, Corr. Gen., ODG, AGPR. or Acting Governor Carrel to BIA Chief Frank McIntyre. 19 June 1912, Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.

[128] Translation of "The Executive in His Office," in *El Dia.* 23 September 1912. Folder June 1912, Box 559, Corr. Gen., ODG, AGPR.

Like the controversy with the Property Owners' League, such melodrama strongly reflects the unstable and untenable position of those standing in opposition to successful plague control measures. These measures quickly halted the spread of bubonic plague, and do not reflect any actual grand scheme by island administrators to keep the people of Puerto Rico oppressed.

Whether founded or unfounded, accusations against the sanitary efforts to control plague illuminate the larger issue of the boundary between public and private spheres that public health measures fundamentally cross. In the conclusion of his 1912-1913 report as Director of the Service of Sanitation, Lippitt explained: 'The work of this service comes in more immediate contact with the public than that of any other department of the government.' Because health officers and sanitary authorities enter into the private lives of citizens, their work required both tact and knowledge of a people's characteristics. Unfortunately, such consideration is not always acknowledged, and 'It becomes the duty of the service to enforce considerable expenditures for purposes which the average person does not consider necessary and this arouses opposition which becomes at times very bitter.' The long-term benefits of major sanitary reforms do not always appease the short-term inconvenience of such changes.

Aftermath: Towards a Healthier Future

While plague control efforts undoubtedly proved successful, even without destroying entire city districts, criticism regarding various agencies emerged within the administration. For example, the legislative logjam that eventually authorized the reorganization of the Sanitation Service drew the ire of Acting-Governor Carrel in a telegram he sent to BIA Chief McIntyre in July 1912. He noted that the sanitation service did not commence effective work until 1 April when the new law went into effect. Therefore, when the plague outbreak developed, the sanitation organization was still new

and only beginning to correct years of neglect and cleaning required in all towns. In order to make the plague service effective, the insular government spent almost $2,000 per day, in addition to the regular expenses of the Service and the work being done by the USPHS. As plague dominated the focus of public health officials, typhoid fever spread throughout a number of towns, leading McIntyre to ardently urge a complete sanitary overhaul as soon as possible to both ensure the efficacy of the plague work and take advantage of the current favourable attitude of the public toward sanitary measures.

The very real and ominous potential of further outbreaks around the island led the Service to continue precautionary endeavours. The Service sent physicians to Mayaguez and Ponce in August to organize rat eradication techniques in those municipalities. Even after all emergency plague work ceased, to prevent the further "menace" of plague, the FY1913-1914 budget increased to carry on inspection of buildings in the Island and rat proofing until 'Puerto Rico is plague proof.'[129] Colton advised the Acting Chief of the Bureau of Insular Affairs in November 1912, that despite the apparent disappearance of plague, rat-proofing should 'continue indefinitely.' This undoubtedly served to modernize municipal spaces in dire need of reform, but the most immediate focus remained preserving the economy and preventing further outbreak.

These precautionary steps were crucial in light of the years of subpar sanitation work on the island, as well as the situation in neighbouring countries: 'We are surrounded by so many countries in which sanitary regulations are not observed that the only safe procedure for us is to be fortified against and prepared to efficiently combat the infections and contagious diseases with which we are frequently threatened by the condition of our neighbours.'[130] These fears were a legacy from the early days of the American colonies,

[129] Colton, 'Thirteenth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1913', pp. 104, 26.
[130] Governor Colton to Col. Charles C. Walcutt, Jr., Acting Chief, BIA. 16 November 1912, Folder June 1912, Box 558, Corr. Gen., ODG, AGPR.

when officials feared the perceived lack of sanitary regulations in the Caribbean and Latin America.[131] In the more immediate context of the Roosevelt Corollary, the United States continued in this vein of interference in the sanitary status of her neighbours, especially through treaties and international accords.

In light of the advantages of keeping abreast of the latest in scientific advancement and surveillance of her neighbours, island officials pressed for continued engagement with the international community. Transnational networks of municipal administrators, public health officials, and sanitary engineers among others 'often linked the governance of cities throughout the globe [and] sought to develop a scientific and universalistic approach to urban problems.'[132] Colton sent a representative to the 1912 International Congress of Hygiene to present on the plague experience in Puerto Rico. Such formal opportunities for meetings supplemented networks of communication and exchange as evidenced by the significance of published journal articles and informal letters that swiftly circulated throughout the plague outbreak in San Juan.

In other realms, the undetermined source of the 1912 Caribbean disease outbreak continued to be debated, especially given the international implications of notification of infectious disease outbreaks. Prior to the San Juan plague situation, American medical officers remained stationed in ports like Puerto Cabello, La Guayra, and Trinidad, where cases of bubonic plague were known to frequently occur. As such, plague was more logically to have come from a port where plague existed and its presence was concealed. While theories at various times assigned the origin of the disease to be Venezuela or even the mainland U.S., ultimately the Canary Islands proved to be the source of the disease, having hid the existence of plague's presence on the islands from the international community for years. The plague outbreak in Cuba and Puerto Rico during the summer of

[131] Harrison, *Contagion*, p. 23.
[132] Rosenberg, *A World Connecting: 1870*-1945, p. 948.

1912 caused the Surgeon-General to recommend all large seaports in the U.S. 'to determine whether plague had spread to them.'[133] Further episodes in New Orleans, Florida, and Texas reinforced the lessons learned from the global encounter with the third pandemic. Rodent control and further preventative hygiene measures remained of secondary importance only to securing public cooperation in public health campaigns.

In the local context of an abundance of competing interest groups, Lippitt recognized that the goals of the Sanitation Service could only be achieved if carried out with "absolute impartiality." Public health must be disentangled from political tussles. Unfortunately, the politicking and partisanship associated with passing major legislative initiatives on health (Act No. 68 and Act No. 81) did not disappear with the reorganization of the Sanitation Service, but only became more visceral: 'Influences, personal, political, fraternal, and religious have been brought to bear to alter the dispositions adopted, and even threats of personal violence have been resorted to in the effort to secure exemptions from the requirements of the sanitary regulations.'[134] Still, the picture was not so bleak following the successful control of bubonic plague.

Because of the recognized intimacy of the work of the Service, native Puerto Ricans occupied roughly 97% of the positions in the Sanitation Service. Only 10 of the 312 employees of the Service, including the Director, were Americans, most of whom had spent a considerable amount of time on the island. Lippitt optimistically highlighted: 'It must be said in justice to The People of Porto Rico that except in rare instances it is their desire to carry out whatever may be necessary to improve the sanitary conditions in the island.' When a further outbreak of bubonic plague struck the island in 1921, health authorities rapidly controlled the spread of the disease. By working alongside one

[133] Link, 'A History of Plague in the United States of America', p. 43.
[134] Colton, 'Thirteenth Annual Report of the Governor of Porto Rico to the Secretary of War for the Fiscal Year Ending June 30, 1913', p. 129.

another, perhaps the Americans and Puerto Ricans could work toward a balanced state of health and well-being for the population.

Chapter 5: Puerto Rico and the Rockefeller Medicine Men, 1910-1920

Introduction

With the launch of the Rockefeller Foundation's International Health Commission in 1913, hookworm disease became the target of one of the world's earliest coordinated global health campaigns. Endowed with virtually unlimited monetary, technical, and professional resources, director Wickliffe Rose engineered the opening phases of an infectious disease eradication program that would eventually span more than eighty countries in the global hookworm belt that contained more than half of the world's population. Following the Foundation's work in the American South, the IHC hoped to expand its treatment techniques, educational programs, and community-based approach to its first foreign staging grounds in other parts of Latin America and the Caribbean.

The earliest pilot programs in British Guiana, Costa Rica, Panama, Guatemala, Nicaragua, and Trinidad served as stepping-stones for the larger and more commonly historically examined projects in Mexico and Brazil. Just as the plague work in San Juan depended on the circulation and exchange of knowledge between public health scientists and physician-researchers around the globe, the Rockefeller intervention in hookworm was not simply a further auspicious and isolated musing of John D. Rockefeller, Sr. Rather, the Rockefeller preoccupation with hookworm as an "entering wedge" in international public health can be seen as the product of information extraction from the decade-long Puerto Rican campaign against uncinariasis. At the same time, revolutions in transportation and communications technology such as steamships and international telegraph cables combined to create a fundamentally new international environment alongside the globalization of U.S. humanitarianism and American imperialism.[1] This

[1] Adas, *Dominance by Design*, p. 190.

new sense of "world responsibility" went hand in hand with a growing level of wealth among elite Americans who "gave out of habit or in response to social pressure."[2]

As previously discussed, the work of Dr. Bailey K. Ashford and the Puerto Rico Anemia Commission directly addressed this global epidemic as it infected hundreds of thousands of Puerto Ricans. The disease Ashford faced among the Puerto Rican peasantry was highly detrimental in the jíbaro population, more so than hookworm infection in other regions. As a young army medical officer, he encountered pernicious anaemia in patients who did not recover under the conventional protocol. He drew on the medical knowledge of his day, using resources proffered by his colleagues around the globe in identifying the source of the disease. In the coming years, the Puerto Rico Anemia Commission worked to set up independent anaemia dispensary stations in which the doctrine of preventive medicine was preached to open-minded rural peasants with astonishing results.

The unprecedented scale and efficacy of the Puerto Rico dispensary method gained international repute. This efficient and effective model would be employed in the colonies of the British and Germans, and by the Rockefeller Sanitary Commission (the Rockefeller body predating the International Health Commission). Most strikingly, the Rockefeller medicine men unswervingly appropriated the protocol designed by Ashford and his team without direct acknowledgement or compensation for their intellectual and physical investments in the project. In spite of the rapid and fluid exchange—or expropriation—of knowledge, the attention of international researchers, major global philanthropic organizations, and national governments on multiple continents could not stem the tide of uncinariasis infection. Long-term infection rates fluctuated with periods of investment and neglect.

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[2] Merle Curti, *American Philanthropy Abroad: A History* (New Brunswick: Rutgers Univeristy Press, 1963), pp. 219, 623.

To this end, this chapter further outlines the apparent contradiction between the use of pioneering public health practices and the inability to affect lasting improvements in health outcomes in Puerto Rico. I will first provide a brief overview of the state of American tropical medicine leading up to and including the launch of Rockefeller philanthropic endeavours to combat this parasite. Similarly, the island's overall political status and public health situation during this period merits review, given the fundamental role of politics in the provision of health. I will continue with an exploration of how the Rockefeller Foundation converged around the eradication of hookworm disease as its first major foray into direct public health intervention.

Hookworm disease represents a critical insight into the larger political functions of health as it was a condition afflicting the vast majority of the labouring population in many countries and which severely inhibited economic productivity. Systematic responses to epidemics and the execution of disease campaigns became major sources of political conflict and subject to partisanship that transcended physical boundaries. These dynamics ensnared one of the world's first and largest biomedical philanthropies—the Rockefeller Foundation—setting the organization on a path that would lead to interventions in dozens of countries around the world. The subsequent sections of this chapter will discuss the emergence of the Rockefeller Sanitary Commission and the long-term relationship between Rockefeller leaders and Dr. Ashford. Finally, the major historiographical debates that have emerged in the last decades over the place of Rockefeller philanthropy in American empire will be addressed. Overall, in the face of attention from the highest echelons of Washington elites and the original American robber baron, the story of twentieth century Puerto Rican public health continuously stumbled along without being taken seriously by its American overseers, Congress.

Historical Context

With the end of the Spanish-American War and the emergence of the United States Public Health Service, American tropical medicine kept pace with the expanding American empire. As previously discussed, the medical research produced by such giants as Walter Reed and William C. Gorgas among others through the Typhoid Board, the Yellow Fever Board, and the Tropical Disease Board increased the esteem of tropical medicine as a discipline. While the civilian population greatly influenced the research interests of the Yellow Fever Board in Cuba, the Tropical Disease Board in the Philippines could focus little attention on public health outside the military services at the outset of the army's occupation of the Philippines. Given the army's experiences during the Civil War, it was in some respect the best-equipped agency to address problems of public health in civilian communities ravaged by war.

However, many diseases and health crises escaped the Board's purview in the Philippines. The four disease boards in the Philippines set about researching diseases affecting American troops in some direct way. In this setting, infectious diseases like tuberculosis, hookworm infection, dysentery, and typhoid would not be addressed in the larger population.[3] Rather quickly, scientific victories like the discovery of the yellow fever vector and the digging of the Panama Canal overshadowed the early days of the war against tropical diseases, which were riddled with the disasters of typhoid epidemics in the army war camps and yellow fever epidemics among troops in Santiago.[4] The scientific prestige and political influence of the Army Medical Corps amplified such that these men could no longer be ignored. The production of knowledge among this cohort of scientists undoubtedly shaped public policy.

[3] Farley, *Bilharzia: A History of Imperial Tropical Medicine*, p. 42.
[4] Ibid., p. 43.

Disease itself held significance not only for the realm of biomedicine, but also in determining political and economic policy and partnerships within the new boundaries of American empire. American scientists and their colonial counterparts discovered the role of healthy carriers in the spread of typhoid fever and called for the reform of military education to better incorporate knowledge of sanitation and hygiene. It is important to point out the broader political implications of tropical medicine during this period. In both Cuba and the Philippines, the U.S. Army served as a testing ground for medical research and political and social controls imposed by the metropolitan government both at home and abroad.[5] As Anderson argues throughout his Philippines work, the American intervention in Cuba and the Philippines altered the state of health and well-being of Cubans and Filipinos, but also extended American values and control across the globe.[6]

While the Army Medical Corps expanded its reaches across the globe, the Rockefeller Foundation's roots were contemporaneously laid during this apparent zenith in tropical medicine research. More than forty years after the establishment of Rockefeller's IHC and after working in seventeen countries with funding from the Rockefeller Foundation, Dr. Lewis Hackett reflected upon these same formative years in his 1960 Presidential Address before the American Society of Tropical Medicine and Hygiene. Given his position as an actor in the earliest days of the organization, his glowing nostalgia is expected: '[L]ooking back to a Golden Age…when public health, and especially international public health, were at the starting line, and progress was about to make a great leap forward…'[7] He describes the motivations of the IHC as a scientific commission, *not* an imperialist venture, but a mission in the tradition of Charles

[5] Anderson, *Colonial Pathologies*, p. 54.
[6] Anderson, 'Immunities of Empire: Race, Disease, and the New Tropical Medicine, 1900-1920', p. 112.
[7] L. W. Hackett, 'Once Upon a Time', *The American Journal of Tropical Medicine and Hygiene,* 9/2 (March 1, 1960 1960), p. 105.

IV of Spain and his work to spread Jenner's cowpox inoculation around the globe in the early nineteenth century.

Similarly, Hackett casts aside any questionable economic motivations of the IHC's work. Instead, he points out the unique necessity of a non-governmental organization like the Rockefeller Foundation: 'Other suggestions in the nineteenth century to create an international agency to address epidemic diseases were seen as an infringement upon national sovereignty and pride.'[8] Decades after the first annual report of the Rockefeller Foundation, he echoes the original rationale used in targeting hookworm disease, explaining that the Sanitary Commission's campaign 'revealed the magnitude of the problem, its social repercussions on the community, and the feasibility of its solution.'[9] Reminiscent of comments in early annual reports on the positive interactions with local elites, Hackett described the fluid exchange between Rockefeller physicians and native-born physicians as they eagerly sought indigenous knowledge and expertise: these were relationships crafted for mutual uplift and not exploitation.[10] His optimistic conclusion characterizes similar laudatory accounts written by Rockefeller physicians in the 1950s and 1960s who described the work of 'a private organization to stir oppressed peoples to work for their own salvation.'[11] Obviously, such approbatory comments conceal the nuance of negotiation inherent in such international philanthropic work. The intervention of any foreign body in a dramatically divergent geopolitical situation must necessarily adapt to and respond to local conditions.

In this vein, the engagement between Rockefeller elites and Puerto Rican medical elites began during a period of major turmoil within the Sanitation Department and the

[8] Ibid., p. 106.
[9] Ibid., p. 108.
[10] The stated intentions of Hackett and others align the Rockefeller Foundation's work in a larger paradigm of systematic international philanthropy in the late nineteenth and early twentieth centuries. For discussion of American moral reformers and their international efforts, see: Tyrrell, *Reforming the World*.
[11] Hackett, 'Once Upon a Time', p. 115.

political bodies on the island as a whole. As previously discussed, between 1900 and 1909, no major initiatives to amend the Foraker Act emerged. Prominent criticism against the law arose from many channels, including the American Federation of Labor and the Executive Office over issues like the denial of American citizenship to the Puerto Rican population. Much of the tenets of the American Progressive era emphasizing adequate education and the provision of basic healthcare for the masses did not extend to American imperial holdings. With an impasse in Congress over the status of Puerto Rican citizens, the political forces on the island came together to pass a serious legislative attempt to remedy the problem of health and sanitation. Meanwhile, the effort to combat hookworm disease garnered the support of local leaders and the attention of the international medical community.

Ashford joined forces with local physicians under the Puerto Rican Anemia Commission to publish in leading American medical journals and draw the attention of the larger medical community to the unprecedented scale of the work being conducted. After surveying the prevalence of the disease, the Commission established dispensary stations in areas with high reported rates of infection. While the island's physicians began to scientifically "modernize" and seek out European medical education even before the arrival of the Americans, the impact of Ashford's work is unquestionable. As Rodrigo Fernós explains, 'Although Ashford had not invented a new science, he had revolutionized the way an entire population looked at their world and themselves. The differences between cultural transfers and scientific revolutions are not as great as many care to imagine.'[12]

Ashford's leadership and the work of the Commission became so successful and pervasive—if only in the short-term—due to his collaboration with local Puerto Rican

[12] Fernós, *Medicine and International Relations in the Caribbean*, p. 179.

physicians. Again, Fernós remarked on this feature of the campaign against anaemia, saying: 'Although this collaboration might have to do with the fact that the American intent was to train locals in American cultural and political sophistication, their ability to work together is itself an indication of more closely shared paradigms than the ones encountered by Manson in China.'[13] The nature of this success would not go unnoticed, especially by the adviser to one of the world's richest men, John D. Rockefeller, Sr.

The Rockefeller Sanitary Commission

The Rockefeller investment in hookworm eradication arose during the dawn of the age of international philanthropy at the beginning of the twentieth century. Christopher Abel remarks on Rockefeller's motivation to be a part of this upsurge in large-scale philanthropic work:

> John D. Rockefeller was a convinced Baptist layman whose entry into philanthropy was, contrary to some Roman Catholic and secular assumptions, motivated less by a desire to expiate guilt and buy public favor than by a Protestant ideology of voluntary giving, together with a determination that rational social progress achieved through the application of science should complement economic change.[14]

The Standard Oil baron used portions of his vast fortune to found the University of Chicago, the General Education Board, and the Institute for Medical Research, all within a few years of each other. Within an equally short span of time, hookworm disease appeared on the Rockefeller agenda, spawned its own organizational structure, and received an endowment of $1 million over a five-year period to combat its prevalence in the American South. This move finally gave hookworm disease the public and financial capital required to garner notice with the general American public.

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[13] Ibid., p. 182.

[14] Christopher Abel, 'External Philanthropy and Domestic Change in Colombian Health Care: The Role of the Rockefeller Foundation, Ca. 1920-1950', *The Hispanic American Historical Review,* 75/3 (1995), pp. 341-2. For further discussion of the Protestant underpinnings of Rockefeller philanthropy, see: John Ettling, *The Germ of Laziness: Rockefeller Philanthropy and Public Health in the New South* (Cambridge, Mass.: Harvard University Press, 1981).

Hookworm disease did not simply fall into the lap of the elder Rockefeller, but was brought to his attention by Frederick T. Gates, the man employed by Rockefeller to transform his sporadic and incoherent giving philosophy into a rational, scientific program of giving. As John Ettling argues in his 1981 monograph, *The Germ of Laziness: Rockefeller Philanthropy and Public Health in the New South*, Gates employed a very specific vision in laying out the foundations of all future Rockefeller programs: 'From the first, he insisted that he remain independent of Rockefeller in all matters short of those requiring the most important decisions…Although he was officially an adviser, his duties were such that he enjoyed virtual autonomy in the formulation of policy.'[15] Gates had no patience for charity in the conventional sense of almsgiving. Rather, Rockefeller philanthropy evolved as an investment in specific and tangible causes that must produce visible and measurable benefits. From the outset, the mission of the Rockefeller Foundation as an organized, mechanized entity emerged and was 'concerned with size, efficiency, economies of scale, and the risk of over-capacity and aimed to develop a corporate tradition and esprit de corps among its employees.'[16]

American scientific research on hookworm infection fused all of these interests, especially given the precedents of the Rockefeller Institute for Medical Research and the General Education Board. These two organizations represented the two key components of any hookworm treatment campaign: science and education. The American parasitologist who would lay claim to the discovery of *Necator americanus*, Dr. Charles Wardell Stiles, hunted for funding and general support to combat the disease until 'Rockefeller money bridged the gap.'[17]

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[15] Ettling, *The Germ of Laziness*, p. 59.
[16] Abel, 'External Philanthropy and Domestic Change in Colombian Health Care: The Role of the Rockefeller Foundation, Ca. 1920-1950', p. 342.
[17] Ettling, *The Germ of Laziness*, p. 79.

Charles Wardell Stiles: Innovator and Polarizer

Between 1901 and 1907, Ashford and his colleagues worked through the various stages of popular denial, rejection, and ultimately success in gaining governmental and some degree of financial support for his hookworm disease programs in Puerto Rico. To his great benefit, Ashford had continuously petitioned his superiors for assignment to the island: 'If Manson had acquired power by returning to the metropolis, Ashford gained it by "leaving it."'[18] On the contrary, Stiles' became mired in the politics of the American federal bureaucracy as he remained within the Washingtonian bubble.

Stiles struggled to navigate the partnership between governmental and philanthropic public health and scientific enterprise that arose during the last decades of the nineteenth century.[19] At the same time as the federal government crafted a more substantive role in overseas relief, 'a great scientific establishment arose within the government, developing its own typical organization around the problems it faced, recruiting a specialized personnel, and contributing greatly to the scientific resources of the country.'[20] Even though Stiles gained immediate recognition in his naming of the parasite responsible for hookworm disease in North America, in the coming decades, he and Ashford squabbled over credit for formulating the earliest large-scale campaigns against the disease and the support of governmental and philanthropic institutions. Reconstructing Stiles' career and his feud with Ashford serves as a further illumination of the dichotomy between individual successes and political inefficiency of the period, of the institutional failures in Puerto Rico in contrast with the successes of Progressives and their institutions on the U.S. mainland.

Stiles set out to address such issues in his 1939 article, "Early History, in Part Esoteric, of the Hookworm (Uncinariasis) Campaign in Our Southern United States." He

[18] Fernós, *Medicine and International Relations in the Caribbean*, p. 172.
[19] Curti, *American Philanthropy Abroad*, p. 219.
[20] Dupree, *Science in the Federal Government,* p. 376.

bluntly declared the vital outcomes of the campaign: anti-hookworm workers in the South treated thousands of people and helped institute preventive sanitation measures. However, these outcomes disappear from the forefront as Stiles actively strove to clear up the 'discrepancies' surrounding the origin of the hookworm campaign in the United States in light of contemporary literature published. The flow of Stiles' narrative and the research innovations he discusses seem like little more than an attempt to undercut the role of Ashford and the Puerto Rico Anemia Commission in the hemispheric hookworm eradication story. The 'recent literature' he claims to respond to would appear to be the nostalgic Ashford memoir published in 1934, *A Soldier for Science*. While not explicitly named, he structures much of the article around this axis, illuminated in headings such as: 'Reports of Hookworm Disease in the United States and in Puerto Rico Prior to 1884.'[21]

Rather than beginning his discussion with an examination of the debates surrounding the Saint Gotthard tunnel epidemics in the 1870s through 1882, he selects Hirsch's 1883 *Handbook of Geographical and Historical Pathology* as the central text in the earliest years of major hookworm research. He elevates pre-1890s scientists, while also inspiring doubt as to the veracity of his interpretations. His project of decentralizing Ashford seems to take precedence: 'Several authors have either intimated or stated that this new species was based upon specimens which Ashford had brought or sent to me. This would be a minor point were it not viewed in connection with certain other statements. Under the circumstances, it seems wise to give the facts.'[22]

Stiles' narrative correspondingly continues as he unequivocally recalls thoughts and conversations from more than 40 years previous, verbatim: 'In every lecture (1892-1897) on this malady before the students of Georgetown, Johns Hopkins, and the Army Medical Schools, I made it a point to repeat the remark: "Gentlemen, if you find cases of

[21] Charles Wardell Stiles, 'Early History, in Part Esoteric, of the Hookworm (Uncinariasis) Campaign in Our Southern United States', *The Journal of Parasitology,* 25/4 (1939), p. 285.
[22] Ibid., p. 292.

anemia in man in the tropics or subtropics, the cause of which is not clear to you, consider the possibility of hookworm disease; make a microscopic examination of the feces and look for eggs.'"[23] While he questions the integrity of Ashford's remembrances, the same level of critique for his own recollections does not appear.

The apparently bitter feud between the two scientists emerges in subtly underhanded discourse juxtaposed with ostensible praise for Ashford's work. In one instance, Stiles describes the praise and support of friends and colleagues for Ashford's progress in Puerto Rico, highlighting an early publication of Ashford's: 'This report was, as far as my notes show, the first instance in which hookworm disease, confirmed microscopically as to the etiological agent, was reported for this island, which by this time had become United States territory.'[24] Despite previously ascribing origination to the work of Hirsch and others, Stiles cites Ashford's work as drawing the attention of the American medical profession to the problem—perhaps a more significant development.

Still, Stiles' vacillation in assigning tribute for the extension of the hookworm disease efforts continued. In one section, he outlines the timeline of anti-hookworm campaigns executed by various parties, listing his own work as the predecessor of the Puerto Rico campaign.[25] In actuality, Ashford and King's work in the Tricoche Hospital in Ponce had already commenced by the start of the Southern investigations under the U.S. Public Health Service. As Stiles himself points out, the importance of the entire hookworm endeavour rested on the treatment of afflicted individuals, but the squabbling over authority and commencement of work is quite crucial in the long-term trajectory of public opinion and the investment of financial resources for the eradication efforts.

Setting aside the wrangling between Ashford and Stiles professionally, Stiles continued fieldwork on the problem of hookworm disease through a federal investigation

[23] Ibid., p. 289.
[24] Ibid., p. 290.
[25] Ibid.

into child labour practices in the U.S. South. He determined that hookworm disease largely entered cotton mills in the South by the migration of workers from soil-polluted farms. In a *New York Sun* article, based on conclusions of his report, Stiles obtusely intimated that children who migrated from rural areas to mills generally improved their health due to the higher sanitary conditions of the mills.[26] While the essence of the sentiment may have been true, child labour groups read this conclusion as support for the exploitative practices of cotton mill owners in the region. Stiles alienated factions that might have been supportive in his larger project to address soil pollution and hookworm infection.

Instead of this being an educational experience from which Stiles matured, the situation only served to highlight his alienating personality. Described in Boccaccio's largely admiring account of his hookworm efforts as a 'zealous and a brusque man,' Stiles' public relations skills left much to be desired. His handling of the cotton mill issue resulted in widespread criticism from labour unions. Rather remarkably, a cotton mill president offered Stiles $50,000 to combat the disease, but Stiles rejected the gift given his position as a government officer and the potential backlash from misinterpretation of the donation. Nevertheless, Stiles' superiors dismissed him from government service for the time being.[27]

Stiles persisted in his efforts to bring widespread attention to his research, and he set off with the 1908 Roosevelt Country Life Commission in the company of renowned editor and publisher, Walter Hines Page.[28] Fortunately for Stiles, the well-connected Page became interested in finding a donor for the hookworm work, eventually turning to Frederick T. Gates and Rockefeller. In short time, Gates invited Stiles to present before

[26] Mary Boccaccio, 'The Rockefeller Sanitary Commission 1909-14', *Journal of the History of Medicine and Allied Sciences,* 27/1 (January 1 1972), pp. 33-4.
[27] Ibid.
[28] On the 1908 Country Life Commission and environmentalism, see: Ian R. Tyrrell, *Crisis of the Wasteful Nation: Empire and Conservation in Theodore Roosevelt's America* (2015), pp. 139-44.

the Southern Education Board on hookworm disease and immediately promised support from Rockefeller. According to Stiles, after discussing the financial requirements of the project, Gates accepted the $1 million price tag for the work in exchange for Stiles' formal resignation from all governmental responsibilities.

Stiles apparently emphasized the role of education in the campaign as it held the key to improvement in overall sanitation, and with this premise, he suggested the appointment of a well-known professional educator as the administrative officer of the project.[29] To conduct the fieldwork, Stiles suggested using officers of the U.S. Public Health Service recommended by Surgeon-General Wyman, painting this work as a successful collaboration between government and private philanthropy. These officers were to be residents of the southern states and were to offer their services to State Boards of Health, while Rockefeller would pay all expenses and salaries. Finally, Stiles believed he should devote his time to continued public lectures while remaining in government service. If he went through with a resignation, 'the interpretation would be made that I had not been able to convince Washington of the importance of this work but had succeeded "in pulling the wool over the eyes of the Rockefeller office."' Gates agreed to take the plan under advisement and sought board members to assist in the administration of the funds. [30]

On October 26, 1909, John D. Rockefeller, Sr. announced his endowment of the Rockefeller Sanitary Commission for the Eradication of Hookworm Disease. He sent an open letter to the Surgeons-General of the Army, Navy, and Public Health Service, as well as the heads of all the southern State Boards of Health and the Associated Press. Stiles, of course, pointed out that despite receiving suggestions from a number of different organizations and individuals as to how the money should be dispersed and how

[29] Stiles, 'Early History, in Part Esoteric, of the Hookworm (Uncinariasis) Campaign in Our Southern United States', pp. 301-2.
[30] Ibid., p. 302.

the work should be conducted, Rockefeller agreed to Stiles' plan.[31]

Once again, Stiles overtly rejects all connection between his plan for the U.S. South and the Puerto Rican plan already at work under the Puerto Rico Anemia Commission. Contrary to the timeline for hookworm activities on the island and the relationship that developed between Rockefeller leaders and Ashford, Stiles expounds:

> The ultimate outcome was the adoption of the three methods already advocated by the Public Health Service in the period 1902-1908 as fundamental, namely, (1) discussion before medical societies to accelerate treatment in private practice, (2) extension of the free clinic system, and (3) a campaign for better sanitation. These three factors were of course basic and would immediately occur to anyone familiar with the literature, the premises, and the objects to be obtained. Statements by at least three authors to the effect that the Puerto Rican plan was taken as a basis for the organization in the United States are based on insufficient premises.[32]

His assertions completely ignore Ashford's 1903 presentation before the Puerto Rican Medical Association, the subsequent appropriations by the insular government for the Puerto Rican Anemia Commission in 1904, and the coordinated efforts with the various bodies of the Sanitation Department in crafting policies for improving overall health and hygiene. Not only does Stiles reject such developments and overlap, he out-and-out rejects the campaign as pioneering in any way. Rather, the Puerto Rican Commission 'followed the lines of work recommended by the U.S. Public Health Service.'[33] Similarly, he argues that the work of the Rockefeller Sanitary Commission begun in 1910 would likewise build off his own work with the U.S. Public Health Service, not the Puerto Rican work.

Just like the Puerto Rico Anemia Commission, the Rockefeller Sanitary Commission and its successor organizations employed three simple directives in their campaigns that were adapted according to local dynamics: 'making a survey to determine the geographic distribution and the approximate degree of infection,' 'microscopically

[31] Ibid., pp. 302-3.
[32] Ibid., p. 304.
[33] Ibid., p. 308.

examining the people and curing those who are found infected,' and 'setting in operation and making effective such sanitary measures as will put a stop to soil pollution.'[34] In keeping with their practical and realistic outlook, Rockefeller leadership recognized the impossibility of total eradication in any one country and the inherent undesirability of an outside agency pursuing such a goal. The newly appointed administrative secretary, Wickliffe Rose, believed that eradication should only come from a permanent public health institution operated by the country itself. Accordingly, local elites—physicians, planters, government officials, and religious leaders—were quickly incorporated into the Rockefeller programs. Ultimately, between 1914 and 1924, the Rockefeller International Health Commission expanded hookworm eradication programs to fifty-two countries. Counter to Stiles' claims, the methods employed by the Rockefeller medicine men harken directly back to the methods delineated and published upon by Ashford and the Puerto Rico Anemia Commission in the previous decade.

Partnership or Exploitation: Wickliffe Rose and Bailey K. Ashford

Though Stiles' would have the world believe that Gates immediately succumbed to the ingenuity of his research and campaign plan, Gates conducted his own investigation alongside Rockefeller's personal attorney into the hookworm arena. As Ettling articulates, Gates closely examined Ashford's work in Puerto Rico and the new initiatives being launched in Florida before coming to the conclusion that a large-scale intervention in the U.S. South would be an effective use of Rockefeller capital.[35] Developments at the imperial periphery, in particular the hookworm intervention conceptualized by Ashford and his colleagues, prompted powerful transformations in the metropole. In this case, 'Conquering tropical poverty and its attending consequences in both domestic and

[34] Wickliffe Rose, 'The Rockefeller Foundation International Health Commission First Annual Report: June 27, 1913-December 31, 1914', (2nd edn.; New York: The Rockefeller Foundation, 1915), pp. 131-2.

[35] Ettling, *The Germ of Laziness: Rockefeller Philanthropy and Public Health in the New South*, p. 103.

imperial contexts was key to buttressing the power of the nation-state.'[36] The Progressive era prerogative of social, economic, moral, and physical 'uplift' linked the South and the United States' colonial possessions. Northern philanthropists and government officials alike recognized the need to cultivate 'healthy, efficient bodies' at home and in their territorial possessions.[37] Gates gathered a team of individuals for the board that would ensure Southern cooperation in these endeavours: 'If Gates and Stiles had brought zeal and hookworm together to form the Commission, Wickliffe Rose was the man who organized the campaign and made it work.'[38]

Ashford and his team were the first U.S.-based researchers to gain recognition for their hookworm interventions (via their publications in American medical journals) and to launch a large-scale systematic intervention to eradicate hookworm on American soil. From the earliest days of the Rockefeller Sanitary Commission, Ashford's work was brought to the attention of the controlling figures of the organization as they developed their plan of attack. In January 1910, the linchpin in the Rockefeller organization, Frederick T. Gates, even wrote to the newly appointed head of the Commission, Wickliffe Rose, urging him to make 'careful study' of the successful methods employed in Puerto Rico. The subsequent letters exchanged between Rose, Ashford, and other Washington elites illustrate an active cultivation of dialogue and partnership between the island and Rockefeller efforts in the South.

These dynamics went unacknowledged in the current historiography until the publication of José Amador's *Medicine and Nation-Building in the Americas, 1890-1940*. Prior to Amador's discussion of the relationship between Ashford and Rockefeller executives, John Ettling described Rose's first forays into the Washington game as

[36] Natalie J. Ring, 'Mapping Regional and Imperial Geographies: Tropical Disease in the U.S. South', in Alfred W. Mccoy and Francisco A. Scarano (eds.), *The Colonial Crucible*, p. 306.
[37] Ring, *The problem South*, p. 93.
[38] Boccaccio, 'The Rockefeller Sanitary Commission 1909-14', p. 37.

follows: 'Rose brought only a layman's knowledge of medicine to his job, but he came to Washington with some definite ideas on how the campaign against hookworm disease should be conducted. Through the winter months of 1910, he mapped out the plan of attack and selected and deployed his personnel…'[39] The formative role of Puerto Rico in these plans does not appear in Ettling's narrative. Amador instead highlights 'the networks of hookworm exchanges that Ashford helped create…'[40] Similar to the imperial internationalism typified by the campaign against plague in 1912, the knowledge generated and expanded upon by Ashford and the Puerto Rican context led to major connections with Germany, Brazil, Italy, and other nation-states. The protocols to eliminate hookworm infection transcended individual imperial systems to circumnavigate the globe.

Further, the letter from Gates to Rose in January 1910 does not just include a suggestion to investigate the methods employed on the island. Rather, Gates encloses a personal letter from Dr. William H. Welch concerning the work being conducted in Puerto Rico. To put this "suggestion" in context, during the early twentieth century, William H. Welch was the preeminent physician in the country. After travelling around Europe, studying the laboratories of Europe's foremost scientists—including Koch and Pasteur—Welch educated such medical titans as Walter Reed, Abraham Flexner, and George Whipple. He was a founding member of the Johns Hopkins School of Medicine and the school's first dean, helped found the Johns Hopkins School of Hygiene and Public Health, and became the founding president of the Board of Scientific Directors at the Rockefeller Institute for Medical Research. With such a cosmopolitan education and interaction with the world's leading scientists, Welch suggested Ashford as the man to work with (not Stiles): 'I should think that Ashford might be of great service in the work

[39] Ettling, *The Germ of Laziness*, p. 117.
[40] Amador, *Medicine and Nation Building in the Americas, 1890-1940*, p. 92.

of the Rockefeller Commission against hookworm disease, and I hope that some way may be found to utilize his large experience and evident desire to lend his cooperation.'[41] As testament to this prospect, Welch enclosed a letter from Dr. Lyman Abbott from December 1909 in which he describes the success of the insular government in combatting hookworm disease. He calls attention to Ashford's leadership, under which a five-year preliminary study followed by a five-year campaign had treated 250,000 patients. Perhaps most strikingly, Abbott called attention to the notion of the Germans, Italians, and English employing Ashford's protocol in their tropical colonies. In all, from these early days, Rockefeller leadership would use a survey of Puerto Rican work not just as a self-educating exercise, but also as leverage in gaining access to Washington elites.

At various points in the coming months, the highest levels of Washington federal administration urged Wickliffe Rose to travel to Puerto Rico to investigate the work done on the island in combatting hookworm. The Secretary of War explicitly suggested a financial contribution to the Puerto Rican campaign in light of its value to Rockefeller's own hookworm mission. If Rose could get the Rockefeller's to donate to the Puerto Rican campaign, this would essentially ensure the support of the entire federal government in the Rockefeller Sanitary Commission's work in the South. But, how and why did such a situation arise?

Backdoor politics, Front-of-house success

Following upon the heels of the Gates-Welch-Abbott correspondence, in February 1910, Rose's personal secretary, A.P. Bourland, travelled to the White House, where Secretary of War Dickinson and President Taft warmly received him: 'I really cannot convey to you in a letter the cordiality and the fine spirit of both the President and Mr.

[41] Gates to Rose. 18 January 1910, Folder 161, Puerto Rico 1910, Box 10, Reel 7, Series II, Field Offices, Rockefeller Sanitary Commission for the Eradication of Hookworm Disease (RSC) Records, 1909-1915, Finding Aid (FA) IV2B1, Rockefeller Archive Center (RAC).

Dickinson toward us.' As he explained to Rose, Dickinson 'wants you to go at once to Porto Rico, study the situation there, get acquainted with Ashford, and so on, furthermore, he wants us to contribute to Ashford's work in Porto Rico. If we will do this, he will lend us Ashford.' Most importantly, Bourland suggests appropriating $25,000 for Ashford to use on the hookworm campaign in Puerto Rico: 'Mr. Dickinson said this help was seriously needed as Ashford cannot complete his work without some such assistance. In addition to the work which we will do for suffering humanity through this appropriation, we will enlist in our work in the South, the President, Mr. Dickinson, and the forces of the National Government.' A minor donation for Rockefeller but a significant donation for Puerto Rico could easily set the Commission on a path to success, a notion with even greater significance given the troubled public reception of Rockefeller ventures at the time.

In a handwritten addendum to the letter, Bourland illuminated the essential point that came out of the meeting, contradicting Stiles' self-aggrandizement: the Commission's work must move out of Stiles' shadow if it hoped for success. The discrepancies, in-fighting, and tensions that emerged in the 1930s in Stiles' and Ashford's remembrances of the period clearly made themselves apparent to those controlling the administrative and financial interests of hookworm in the 1910s: 'Dickinson has a very high opinion of Ashford, he expects to make him Health Commissioner of Porto Rico soon.' Bourland continues,

> An element in the station I did not 'dictate,' fresh as it cropped out in the conversation with the Surgeon General so in Dickinson's conversation—the feeling is that Ashford is entitled to the credit for the Hookworm discovery, and hence the Administration (this only inference) resents the attitude of Dr. S. in taking all the credit. As matters are now we will not get much if any cooperation from the government outside Dr. S's sphere of influence where as we need it largely. But by taking up the Porto Rico work we will get cooperation and all the benefit of Ashford's work…Dickinson will give you a letter to the Governor of Porto Rico—the island will be yours!...If necessary we can easily get to the

President, and at any time…[42]

Clearly, the circumstances were ripe for Rockefeller engagement. The Puerto Rico Anemia Commission required a large infusion of capital to push their work into the isolated mountain districts of the island where the disease still held strong due to the limited resources of the insular government. Ashford and the Governor warmly anticipated Rose's visit to the island, believing that Rose would help them garner recognition for the place of Puerto Rico in putting hookworm disease on the map of American public health concerns.

Prior to the Puerto Rican Anemia Commission, hookworm received little publicity in the medical community within United States, and certainly the affliction received no systematic work in terms of eradication. As Dupree explains, 'Although the application of science to human beings made unparalleled strides in the period from 1865 to 1916, the government was more reluctant to impose the results of research on the citizens themselves than on their environment or their domestic plants and animals.'[43] The Department of Agriculture appropriated large sums in order to combat blights and parasites directly affecting farm production, but hookworm did not destroy cash crops or livestock: 'hookworm struck farmers, not farm products…It would give way only to a massive and ongoing program of education and social welfare, something few people in Washington were prepared to undertake.'[44] Puerto Ricans had embarked on such a program on the island, and Rockefeller pursued the same policy for the American South.

The case for support for the work in Puerto Rico continued to make its way to Rose's office. His personal secretary repeatedly encouraged him to make 'a liberal

[42] Bourland to Rose, 25 February 1910, Folder 161, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.
[43] Dupree, *Science in the Federal Government*, p. 256.
[44] Ettling, *The Germ of Laziness*, p. 22.

appropriation for the work of Porto Rico…'[45] given the strategic significance of such a move in terms of the federal government. The head of the Bureau of Insular Affairs, Clarence Ransom Edwards, similarly forwarded letters to Rose on behalf of a diverse range of interested parties. Lieutenant-Colonel Kean of the Army Medical Corps submitted a memo detailing Ashford's multi-pronged approach. He recounted the story of Ashford's early days in Puerto Rico when he was ordered to create a field hospital at Ponce in 1899 after the San Ciriaco hurricane, and Kean likewise emphasized the point that despite more than a quarter of a million persons treated, these efforts were not enough and required additional support.[46]

A second letter from Henry Wellcome, the American-British pharmaceutical entrepreneur, expressed his gratitude for a report on Ashford's work in fighting endemic hookworm infection. Wellcome suggested the potential global implications of the work and noted: 'This will be of special interest in this section of the Historical Medical Exhibition to be held in London 1913, at the time of the International Medical Congress.'[47] Although the first International Sanitary Conference held in Paris in 1851 resulted in only three states signing the subsequent convention, in only sixty years, these smaller conferences became a pivotal means of reaching international consensus on specific topics of national interest.[48]

Ultimately, Edwards forwarded a short report submitted by Ashford to Governor Colton summarizing the current situation. After a period away from the island, Ashford visited coffee plantations in December 1909 to evaluate the physical condition of the labouring classes in the isolated mountain districts. Above all, he sought recognition of

[45] Bourland to Rose, 25 February 1910, Folder 161, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.
[46] Kean Memo, 7 February 1910, Folder 161, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.
[47] Wellcome to Dickinson, 10 February 1910, Folder 161, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.
[48] Harrison, 'Disease, Diplomacy and International Commerce: The Origins of International Sanitary Regulation in the Nineteenth Century', pp. 197, 216.

the place of Puerto Rico in establishing uncinariasis as a disease of concern in the American South:

> Inasmuch as Porto Rico has, through legislative appropriations, cheerfully made consistent provision for combatting this vast and dangerous menace to her industrial progress ever since 1904 and has done this entirely alone, without the slightest aid from any source save that of two medical officers of Federal services and certain material for a field hospital loaned by the Army, it is of much importance that in the publicity given to the rich gift of a prominent American philanthropist making possible a campaign of similar import in the Southern States some deference be paid to the Island of Porto Rico whence the enmity of this hitherto unrecognized disease in America was first brought to the attention of Dr. Stiles and the other American physicians who are now engaged in the valuable work of exterminating the parasite in the Southern States.[49]

Ashford outlined the crux of the matter: hookworm disease was not just an affliction that merited attention given its human cost, but it was an affliction that seriously undermined the economic prosperity of vast swaths of the population.

In the Puerto Rican context, the decade of American occupation had done little in the way of generally improving the socioeconomic outlook of the island's residents. The coffee industry experienced a dramatic decrease in profits due to the change from Spanish to American currency, a loss of foreign markets due to tariff agreements, a decimation of the coffee crop following the San Ciriaco hurricane of 1899, and sustained infrastructural impediments that raised the cost of transportation of products to the coast. The primary solution offered to such problems was an increase in production, but hookworm infection lowered average productivity by 50% as compared to healthy workers. Ashford estimated that the island's Commission required roughly $100,000 per year for three years to eradicate anaemia in these districts and educate planters and labourers on prevention techniques.

The Rockefeller Sanitary Commission could, with little effort or cost, make some level of financial appropriation to jumpstart such efforts. The overt implications of a

[49] Ashford to Colton, 18 January 1910, Folder 161, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.

financial contribution reappeared in letters from the Secretary of War to Rose and Ashford alike over the coming months. As Dickinson intimated to the Governor of the island in March 1910, '[Rose] has almost promised me to assist us [in Puerto Rico] with a contribution from his fund. I believe that he will do it…I will give him a letter to you, and of course know that you will do everything to impress him justly and favorably.'[50]

Rose Visits the Island

After some delays due to scheduling conflicts, Rose visited Puerto Rico in 1910, travelling across the entire island with Ashford and his partners. He witnessed first-hand the model of treatment that was being heralded around the globe as the method of choice for combatting hookworm disease. He built a relationship with Ashford and the other members of the Commission, as they discussed the state of the campaigns on both the island and mainland, with Rose even requesting names and introductions to leading researchers and scientists in the field.

Shortly after his return from the island, he recounted his visit to Secretary of War Dickinson. Rose noted that he travelled over 400 miles across the island with Ashford and Gutierrez, viewing areas that had been thoroughly worked by the Commission and left little or no infection. Likewise, he visited mountain districts where the Commission's work had yet to extend. He offered unadulterated praise: 'I had every opportunity to study the economic and social conditions in its relation to the disease and the methods which the Commission has employed for its eradication. It would be difficult to commend too highly the methods which the Commission has adopted and the results which it has achieved.'[51] Rose likewise wrote directly to several of the coffee plantation owners he met thanking them for 'one of the most instructive parts of this experience. What I

[50] Dickinson to Rose, 8 March 1910, Folder 161, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.
[51] Rose to Dickinson, 22 June 1910, Folder 161, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.

learned during my short visit with you convinces me of the possibilities of American enterprise in Porto Rico.'[52]

The work in Puerto Rico seemed to fit all of the criteria Gates required for Rockefeller philanthropic investment: collaboration with local agencies, support of local business leaders, and the promise of long-term sustainability and benefits. However, Rose immediately began withdrawing any suggestion of financial support upon his return from the island. Despite Colton and Ashford's express desire for Rockefeller aid, Rose wrote to Ashford, explaining that Colton himself suggested symbolic support rather than financial support: 'It was his judgment that the spirit of cooperation thus manifested would be of more value than any financial assistance involved. I asked him to go over the matter with you. You and Dr. Gutierrez know the situation; I trust your judgment absolutely. I would not have anything done that would in any way impair the efficiency of this service.'[53]

Colton's subsequent letter to Rose seems to counter such a move away from financial support, saying: 'I am sure that your visit to Porto Rico will be of great benefit to the Island…I hope your commission will take such direct action in the premises as will serve as a recognition of our need in this behalf.'[54] Similarly, Ashford rejected a mere "symbolic" show of support in place of direct contribution: 'It would be a pleasure to me to see a handsome tribute paid to these people, who, representing a different civilization and with the traditions foreign to our own nation, quietly laid hands on 300,000 anemics…This campaign against anemia is a popular one and the people give it life, an honorable thing for the island and an accomplishment for which they should receive due credit.'[55] Subsequent letters from Rose did not respond to these requests, and in fact,

[52] Rose to Mr. Marvin and Mr. Jones, 23 June 1910, Folder 161, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.
[53] Rose to Ashford, 23 June 1910, Folder 161, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.
[54] Colton to Rose, 1 July 1910, Folder 161, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.
[55] Ashford to Rose, 2 July 1910, Folder 161, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.

redirected the discussion to how Ashford could help the cause of anaemia more generally in the American South.

Late in the summer of 1910, Rose suggested that Ashford give a series of four lectures upon his return to the mainland. These lectures would serve two purposes: 'First, to get before our people even in this preliminary way what Porto Rico is doing for the eradication of anemia, and second, I want this as an introduction to the report which Dr. Ashford is preparing and which we hope to distribute throughout the South.' The ten-year anniversary report coordinated by the Puerto Rico Anemia Commission not only summarized the decade-long work of the Commission, but also, as the title suggested, "Uncinariasis (Hookworm Disease) in Porto Rico: A Medical and Economic Problem," presented the disease as a concern beyond the realms of health. Rose pitched the distribution of the report and the hosting of the lectures as a service for Puerto Rico, but also as a tool for Rockefeller's own interest: 'The Department of War has agreed to let me have as many copies for distribution as the law will allow. I want to distribute this report freely throughout the South. If I can get Dr. Ashford to deliver three or four addresses in the South and get this thoroughly reported in the Southern Press, this will create an interest in advance of this report.'[56] Once again, the Sanitary Commission could potentially gain credence for their own nascent organization via Puerto Rican efforts without any financial investment of their own.

In the coming years, Rose and Ashford maintained their relationship through a regular exchange of letters and meetings when Ashford returned to Washington. The letters exchanged between the men continuously evoke a sense of extraction—either intentional or unintentional—on the part of Rose. He seemed quite able to solicit guidance and information without ever fulfilling the repeated requests for financial

[56] Rose to Russell, undated, Folder 161, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.

support. In December 1910, Rose forwarded reports from the state directors of rural sanitation for Ashford's perusal, explaining that Rose allowed the directors a certain degree of freedom in the exact details of their work. He also pursued Ashford's extensive network of contacts in the international scientific community. Rose requested very specific information as he endeavoured to produce a global report on hookworm for Rockefeller use:

> I should be greatly obliged if you would send me a statement of the countries and portions of countries in which you have positive evidence of infection. I should like also a statement to what is being done in these several places toward the eradication of the disease in so far as you have definite knowledge of the facts. Could you also give me a list of men to whom I might write to find out conditions and activities in any of these countries. I am going to undertake to get together a body of information concerning what is being done in this campaign in the different countries of the world.[57]

Ashford does not hesitate in offering his assistance by providing a list of key researchers, including such figures as Sir Patrick Manson, Dr. Arthur Looss, and Dr. J.S. Haldane. He provided a list of the world's elite tropical medicine and hookworm experts, even telling Rose to use his name by way of introduction.[58] Rose continued in merely suggesting an interest in helping to distribute the Commission's report while reaping the benefits of Ashford's knowledge and network.

Beyond the soliciting of information, Rose shared his surprise in the initial success of the work in five states that set up country dispensaries. This plan explicitly discussed with Ashford with scepticism produced serious results: 'They are meeting with most phenomenal success. The very thing which you and I laughed at Villealb [sic] as a thing so impossible in the United States is being done. People come to those dispensaries for 30 miles for examination and treatment. Four men working in four counties in North

[57] Rose to Ashford, 15 December 1910, Folder 161, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.
[58] Ashford to Rose, 12 February 1911, Folder 162, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.

Carolina for the four weeks in July treated 7,260 cases."[59] The county dispensary stations so successfully employed on the island became Rockefeller's hallmark system in the South.

In the wake of this apparent success, Rose again backpedalled on his previous assurances of assistance with the distribution of the Puerto Rico Anemia Commission report. By March 1912, he told Ashford that any 'contribution for its publication seems to be doubtful.' Rather than simply admitting an inability or unwillingness to assist in matters relating to the island, Rose again suggested the possibility of future assistance: 'A bill has been introduced in the present Congress to charter the Rockefeller Foundation. This will have larger powers. When this charter goes through I shall be very glad to bring this matter to the attention of the Foundation.'[60] With this bit of enticement, Ashford persisted in his attempts to secure Rockefeller funding.

Given the geographic distribution of the disease in Puerto Rico, the effects of hookworm infection no longer possessed much visibility. The rural population most affected lived and worked on dispersed agricultural operations throughout the island, not in the immediate vicinity of urban centres. In addition, the recent debacles in passing sanitation legislation and appointing a head of the Sanitation Department only further pushed hookworm disease off the radar. Public attention for the disease shifted away, but high rates of infection remained entrenched in the mountain districts, and therefore, absent of any prospect of a Congressional appropriation, Ashford needed to know 'how to get at Mr Rockefeller' for assistance.[61]

In discussion with Director Lippitt and Governor Colton, Ashford concluded that if Rockefeller offered help, the campaign could be completed with Ashford at the head. Rockefeller would escape the bitter partisanship and feuding that afflicted the Sanitary

[59] Rose to Ashford, 17 August 1911, Folder 162, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.
[60] Rose to Ashford, 26 March 1912, Folder 162, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.
[61] Ashford to Rose, 18 August 1912, Folder 162, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.

Service since the newly established Institute of Tropical Medical Research offered an outside avenue to pursue the anaemia campaign. Ashford is blunt and forthright in his appeal to Rose: 'Now I have a plan and I want you to throw yourself into this thing with the same enthusiasm that you have shown me you have for our own home folks…The island is in a very hard position. They are spending nearly $500,000 a year on sanitation and the money is not being wasted for there is a lot to do.'

Ashford once again resorted to calling in his due, arguing that Rose and the Foundation must recognize that uncinariasis would not be an issue of concern for the United States public if not for the Puerto Rican jíbaro. He proposed the formation of a new commission, 'and I will promise you that we will get more results than any three States put together—excuse my brashness. This time we will tackle it from all sides, treatment, education, inspection of homes and soil-pollution laws and we will win…or bust.' The blame for the financial situation on the island resulted not from inept management or corruption, but rather the unexpected burden of combatting plague and the loss of revenue from the sugar tariff.

The Legislature could not afford more than token appropriations, but Rockefeller could certainly afford to help: 'Now, try to think a way out to do this for I have reached the point where I am just itching to get at this thing. It would be really a beautiful and graceful act to extend help on this matter which is an economic as well as a medical problem.' In Ashford's view, the opportunities to effect widespread reduction in infection rates were dwindling and who better to appeal to for support than a representative of the world's richest man. Rose again offered encouragement, saying: 'I feel quite hopeful that something may be done to get things going down there.'[62]

[62] Rose to Ashford, 27 August 1912, Folder 162, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.

The relationship between the two men remained asymmetrical. Ashford offered further resources to Rose, sending him drafts of two papers to be presented at the International Congress of Hygiene and Demography in September 1912. In "Economic Aspects of Hookworm Disease" and "Control and Eradication of Hookworm Disease," he succinctly laid out the exact phases of development for uncinariasis campaigns, a description of the methods that succeeded and failed, and a comprehensive breakdown of how hookworm disease affected the labouring population, landowners, and governments. Such detailed analysis is undeniably an invaluable resource from a scientist who had more than a decade of experience combatting the disease in the direst of circumstances.

Rose was the only person to receive copies of the papers before the conference and acknowledged, 'The definite information which you have collected on the economic aspect of hookworm disease is just the information which all of us have been wanting for a long time. Every man in the service in this country will be deeply interested in your paper.'[63] Such sentiments failed to produce any tangible results, with Ashford again requesting Rockefeller aid through 1914 before the Rockefeller Sanitary Commission formally dissolved and re-chartered as the International Health Commission.[64]

As John Ettling describes, 'The RSC, no doubt at Gate's insistence, did not see fit to extend its work to include Puerto Rico. Rockefeller's original gift had been specifically earmarked for a campaign in the Southern states. Congress also turned a deaf ear to Ashford's and Colton's request for more funds to enlarge the work of the Anemia Commission....'[65] Though Gates and Congress failed to concede the pioneering impact of the island, the connections between the Puerto Rico work and the direction of the Rockefeller health mission are irrefutable. The earliest campaigns launched with the

[63] Rose to Ashford, 26 July 1912, Folder 162, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.
[64] Ashford to Rose, 20 April 1914, Folder 163, Box 10, Reel 7, Series II, RSC records, FA IV2B1, RAC.
[65] Ettling, *The Germ of Laziness*, p. 141.

British in Ceylon and Jamaica, and then spread to locales throughout Latin America and the Caribbean. These interventions link directly back to the Puerto Rican initiatives.

These global efforts arose from Gate's earlier ruminations on work in Puerto Rico, especially his request for Rose to make a survey of global hookworm prevalence. The survey would not have proceeded so rapidly without Ashford's and Gutierrez's assistance through their introductions to major researchers. This method of resource extraction served Rose well as, '[he] did not discourage the notion that the Commission sought to strengthen local public health efforts, but when questioned on this score, he would reply that the Rockefeller Sanitary Commission had been created for only one purpose—the eradication of hookworm disease in the Southern states.'[66]

Such a message was not indicated to Ashford in any of the correspondence he exchanged with Rose. The Rockefeller Sanitary Commission and Rose failed to make the initial and subsequently insinuated financial contributions they had implicitly agreed to in surveying the Puerto Rico Anemia Commission. It would be nearly a decade after their first overtures before the IHC decided to offer both the manpower and financial support so desperately needed. More importantly, the work of Puerto Rican physicians and their patients in establishing an efficient and effective model of care was not fully acknowledged in Rockefeller publications. Even the website celebrating the centennial anniversary of the Foundation ignores the pivotal role of the island—and by extension, the United States civilian and military medical infrastructure—in launching one of the organization's most important ventures.[67]

Rockefeller Involvement in Puerto Rico Post-Sanitary Commission

By 1914, Gates' attention had shifted from the Sanitary Commission's work in the South to implementing the new mantra of the Rockefeller Foundation: 'to promote the

[66] Ibid.
[67] See, for example, "100 Years: The Rockefeller Foundation," http://rockefeller100.org/.

well-being of mankind throughout the world.' The dramatic success of the dispensary model spurred his acceptance of an invitation by the British colonial officials in London 'to extend the anti-hookworm work started by the Sanitary Commission into the colonies and territories of the British Empire.'[68] Under Rose's continued leadership through to 1922, the basic principles of the International Health Commission solidified. The IHC focused on creating or strengthening government health agencies, combatting diseases 'with global health impact and global economic impact (diseases that stunted a country's economic growth by reducing the productive capacity of its citizens).'[69] The early annual reports of the foundation claim that the successful model of the Rockefeller Sanitary Commission was expanded upon: collaborating with local government, addressing specific diseases as a means of establishing a permanent network of public health agencies, and focusing on long-term results. However, as Steven Palmer shows, the Rockefeller Foundation did not have a formal plan for their hookworm campaigns before asking permission to start work in various Latin American countries.

The Foundation coordinated with already-existing national hookworm treatment infrastructures in Costa Rica, Guatemala, Brazil, and Colombia. Where no such structures were in place, as in the British imperial holdings, Rockefeller work failed until experienced locals were brought in to take ownership: 'They used Puerto Rico as inspiration and surrogate laboratory for possible deployment in Latin America and noted how local physicians had comfortably assumed operational control over an increasingly ambitious network of dispensaries.'[70] Americans working abroad during this period

[68] Ettling, *The Germ of Laziness*, p. 178.
[69] Amanda Tremaglio, 'Rockefeller Sanitary Commission (RSC)', *100 Years: The Rockefeller Foundation* <http://rockefeller100.org/exhibits/show/health/rockefeller-sanitary-commissio>, accessed 10 March 2014.
[70] Palmer, 'Migrant Clinics and Hookworm Science: Peripheral Origins of International Health, 1840-1920', p. 706.

seemed to understand the key to progress hinged on enlisting locals in whatever undertaking being pursued, not simply preaching to them or coercing their cooperation.

The supervisors sent to these new and exotic locales did not immerse themselves directly in the colonial bureaucracy, as they sought to avoid the perception of the IHC as an arm of United States' foreign policy. Similarly, defined agro-export zones and specific labour forces were not the articulated targets of Rockefeller interventions, rather, the mission focused on national coverage for all those susceptible to hookworm infection.[71] Palmer bluntly describes the ad hoc nature of Rockefeller work during these years: 'Social scientists invariably overestimate the Rockefeller Foundation's knowledge of the medical and health matters in the countries in which they planned to operate, ascribing to its agents an ability to analyze, manipulate, and influence that they could scarcely dream of.'[72]

Meanwhile, public health activities in Puerto Rico reached a watershed with the passage of a new Organic Act for Puerto Rico in March 1917. The product of 'seven years' continuous effort,' this bill represented the first "serious" attempt to replace the Foraker Act since the failed activities of 1910, and the solution to the struggle for citizenship that had been ongoing since 1905.[73] Governor Yager painted a contradictory portrait of the fiscal situation on the island. While his introduction of the report described a period of continued economic prosperity, all endeavours relating to public health and sanitation were reported to be plagued by a lack of funding. The newly created Department of Health struggled to quell an epidemic of measles, while hospitals, first aid stations, and pharmacies remained dilapidated, and uncinariasis work lacked adequate funding.

[71] Palmer, *Launching Global Health*, p. 123.
[72] Ibid., p. 95.
[73] Arthur Yager, 'Seventeenth Annual Report of Arthur Yager, Governor Porto Rico: Covering the Fiscal Year Ending June 30, 1917', (Washington, D.C.: Government Printing Office, 1918), p. 16.

The system of "Beneficencia municipal" or municipal charity work seemed to suffer the worst: 'The root of the difficulty seems to lie in the fact that the extreme poverty of large numbers of the people combined with the remoteness and inaccessibility of their habitations from the municipal centres makes it practically impossible for the municipal governments to give medical attention to the sick poor with the resources at their command.'[74] Similarly, the Institute of Tropical Medicine and Hygiene experienced 'abnormal conditions' in which a dearth of sufficient funds prohibited hospitalization of patients and annual expeditions to investigate other parts of the island ceased.

The annual report also explained a shift of attention to malaria through an anti-mosquito campaign. By 1912 and the formal establishment of the Sanitation Service, work sporadically took place to address the high rates of malaria infection. A U.S. Army Medical Corps member, Major Robert E. Noble, initiated a project against mosquitoes, and malaria incidence subsequently declined. However, without adequate funding, work discontinued, and cases again increased. Between 1915 and 1916, the department provided funding to renew such efforts.[75] Relatively shortly thereafter, the Rockefeller Foundation returned to Puerto Rico. John D. Grant surveyed the state of hookworm and malaria work on the island in 1919, after Governor Yager and the Health Officer of Porto Rico invited the International Health Commission to conduct an infection survey given the state of the island's financial affairs.[76] When the results were published, it became apparent that hookworm infection had reached pre-Anemia Commission levels. As Ashford promoted from the outset of his work, the Caribbean director of the IHC concluded that education and sanitary campaigns must replace treatment campaigns to effect long-term results.[77]

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[74] Ibid., p. 6.
[75] Ibid., p. 199.
[76] Farley, *Bilharzia: A History of Imperial Tropical Medicine*, p. 179.
[77] Ibid., p. 80.

The entire history of the Puerto Rican efforts to control the hookworm infection rate was summarily dismissed in the 1919 Annual Report of the International Health Commission. The failure of the Rockefeller Foundation to fulfil its previous obligations and the serious entanglements of Rose and Ashford did not warrant any discussion. Instead, the report describes the situation as if Rose and his officers were completely unaware of this tangled history: 'Porto Rico also affords a striking example of the hopelessness of treatment campaigns unless they are accompanied by good sanitation…A recent infection survey showed the infection to be as high as when the original program was begun. The indications are that more than 80 per cent of the rural population remain infected. At more than three-fourths of the rural homes there were not latrines.'[78] The report does acknowledge the work started under the Puerto Rico Anemia Commission in 1904, mostly of the "dispensary type." However, it continued to emphasize the lack of sustained improvement in Puerto Rico over the period between 1904 and 1919 and returned to the inability to control soil pollution. Perhaps the repeatedly rejected requests for financial assistance from Ashford starting in 1910 could have been used to pursue such expensive, yet necessary investments in long-term improvements in sanitation.

The report presented an optimistic outlook on the situation, concluding: 'There is every prospect that an energetic control program, which stresses latrine building and other proper preventive precautions, will produce excellent results in bringing about a reduction in the prevalence of the disease.'[79] Ashford had put such recommendations forth since the turn of the century, but they were lost among the politicking and larger public health struggles of the first decades of Puerto Rican civil government under American power. Nonetheless, the experiences of the Rockefeller Foundation in British Guiana and India finally instigated a fundamental shift in the policy of the IHC. The overemphasis of

[78] 1919 Rockefeller Foundation Annual Report, George E. Vincent, 'The Rockefeller Foundation Annual Report, 1919', (New York: The Rockefeller Foundation, 1920), pp. 100-1.
[79] Ibid., p. 179.

treatment at the cost of prevention was not a sustainable philosophy, and thereafter, hookworm campaigns were only pursued in areas 'where latrines were already in place. This decision mirrored the programmatic decision to shift from the broader goals of sanitation and public health to medical research and treatment.'[80]

By the end of the 1920s, the Foundation turned toward other diseases, researching and actively implementing campaigns against yellow fever and malaria. Malaria work expanded to ten southern states and twenty-four countries as of 1928. The Foundation consulted with the Puerto Rico Department of Sanitation from 1918, as the island represented the ideal geographic location for malarial study and campaign. The disease reached endemic proportions given the masses of susceptible populations and ripe climatic profile. Unlike the story of hookworm disease on the island, a dedicated Bureau of the Control of Malaria remained active from 1925, with funding and support from the federal government and the Rockefeller Foundation. By 1954, malaria no longer existed as a public health concern in Puerto Rico, and the World Health Organization issued a certificate of eradication in 1962.[81]

Paranoia or Realism: Rockefeller Historiographical Debates

Twentieth-century Rockefeller involvement in Puerto Rico and the larger Latin American and Caribbean community may inspire scepticism or doubt and most basically, utter disorientation regarding the stated aims, the effected practices, and the larger motivations of the organization. To evaluate the role of the Foundation in Puerto Rico more specifically, it is important to consider the extent to which the IHC shaped the course of public health and medicine in the region and how this has been understood in the historiography. Fluctuations in optimism and pessimism concerning the success of

[80] Tremaglio, 'Rockefeller Sanitary Commission (RSC)',
[81] Rafael Miranda Franco and Alfredo Casta Vélez, 'La Erradicación De La Malaria En Puerto Rico', *Revista Panamericana de Salud Pública,* 2 (1997).

their infectious disease campaigns correspond to fluctuations in the strains of historical interpretation concerning the Rockefeller Foundation and IHC.

Following the closure of the then-named International Health Division (IHD), in 1951, celebratory histories written by Rockefeller staff physicians, such as the aforementioned Lewis Hackett, recounted the glowing optimism felt toward the predicted eradication of infectious disease in years to come and the momentous accomplishments of the organization as a forerunner to the post-World War II international health apparatus of the World Health Organization.[82] With the work of Thomas McKeown during the late 1960s and early 1970s, in which he attributed the demographic explosion of the modern era to broad social and economic improvements rather than biomedical interventions, a new group of historians and social scientists, including E. Richard Brown, sceptically viewed the Rockefeller Foundation as an inherently self-interested capitalist organization, acting as servant of American imperialism, and motivated by profits to improve the health of the third world's labour force.

In the last fifteen years, the emergence of a more nuanced and sophisticated analysis of the complexities involved in the work of the IHC in Latin America enables a re-evaluation of the organization's impact on the region's public health and medical structures. The IHC can no longer be seen as either a purely altruistic philanthropic endeavour or an exploitative capitalist machine. Instead, the stated motivations, methodologies, field realities, and outcomes as presented by the organization and the staff itself must first be established. The negative backlash and debate of the 1970s can be analysed through the writings of E. Richard Brown and his colleagues, before closely considering contemporary historical perspectives on the IHC in Latin America. Perhaps an understanding of how historians and social scientists have viewed the impact of the

[82] Palmer, *Launching Global Health*, p. 3.

Foundation's work in different periods is more instructive than an exclusive examination of quantitative or measureable outcomes on disease morbidity and mortality.

The first two annual reports of the Rockefeller Foundation and the International Health Commission drive the current scholarly consensus that concretely characterizes the IHC's international health model as a top-down, donor-driven, non-governmental organization with a biomedical and vertical approach to preventative and curative medicine.[83] At the forefront of historical debate is the question of why one of America's most famous "robber barons" devoted such a vast amount of his personal fortune to addressing infectious diseases that did not afflict the people of his immediate surroundings in the Northern United States. The opening pages of the 1913-14 annual report explain the desire to pursue philanthropic work with the potential for the most extensive and long-term impact. As a result, the executive committee turned to 'the advancement of public health through medical research and education, including the demonstration of known methods of treating and preventing disease.'[84]

As discussed in previous sections, their hookworm campaign in the American South for the previous five years revealed more than 2 million sufferers of a disease that could be 'readily cured and easily prevented' and that 'has probably been an important factor in retarding the economic, social, intellectual and moral progress of mankind.'[85] Hookworm represented an ideal intervention in that not only were there known prevention and treatment techniques, but it also represented significant goals that could be furthered through an extension of their hookworm campaigns; for example, the

[83] Ibid., p. 2.
[84] Jerome D. Greene, 'The Rockefeller Foundation Annual Report, 1913-14', (1st edn.; New York: The Rockefeller Foundation, 1915), p. 11.
[85] Ibid., p. 12.

awakening of 'an intelligent public interest' in 'hygiene and in modern scientific medicine and in practical measures for permanent public sanitation.'[86]

This two-pronged strategy involving the establishment of public sanitation institutions and spreading knowledge of scientific medicine did not transpire as an arm of informal empire of the United States as some critics have argued. Rather explicitly, the IHC was directed to not just diagnose and treat, but to develop 'relations of cooperation and mutual confidence between the Commission and the governments and physicians of the communities visited….'[87] A crucial and fundamental guideline shaped this discourse: 'In each country where this work is in progress it is being done under the authority and direction of [local] Government.'[88] Field directors who met with mistrust or resistance did not call on the American diplomatic leaders in the region so as to avoid all association between the hookworm campaigns and American imperialism. The Rockefeller Foundation deliberately set out to avoid all impressions of their work as that of an agent of formal or informal empire. Perhaps this in part explains Rose's absolute avoidance of any commitment or assistance for the Puerto Rican hookworm work during the 1910s.

In the late 1970s, health policy advisor, E. Richard Brown, strongly denounced the work of the Rockefeller Foundation in his 1976 article, "Public Health in Imperialism: Early Rockefeller Programs at Home and Abroad," and subsequent book, *Rockefeller Medicine Men: Medicine and Capitalism in America*. He articulates a straightforward Marxist argument, saying: 'Rockefeller Foundation public health programs in foreign countries were intended to help the U.S. develop and control the markets and resources of those nations.'[89] He directly links the interests of the American government with the

[86] Ibid., pp. 11-12.
[87] Ibid., p. 15.
[88] Rose, 'The Rockefeller Foundation International Health Commission First Annual Report: June 27, 1913-December 31, 1914', p. 24.
[89] E. Richard Brown, 'Public Health in Imperialism: Early Rockefeller Programs at Home and Abroad', *American Journal of Public Health,* 66/9 (1976), p. 897.

Rockefeller Foundation, in spite of the explicit rejection of such a claim in the organization's annual reports and without providing any evidence to undermine those official statements. Brown argues that the Foundation's work was also motivated by a desire for political, cultural, and social domination. In order to successfully exploit the resources, markets, and investment opportunities in these countries, Rockefeller needed to increase overall national development. Tropical diseases not only threatened the economic contributions of these supposed backward peoples, but also kept them from receiving 'the benefits of civilization.' The biomedical sciences and public health programs of the IHC would both increase the working capacity of these populations and convince them 'to accept Western industrial culture and U.S. economic and political domination.'[90]

Brown seems to consider all actions of the Rockefeller Foundation inherently suspect and laden with an underlying motivation of advancing the 'new industrial order' and its plot to gain power and resources. Not only does he insist on the collaboration of the organization with the U.S. government, he also denies any agency to the peoples of Latin America and the Caribbean themselves. He claims that the IHC undermined indigenous forces seeking economic and political independence, with no mention as to which forces or in what countries. Overall, his sweeping condemnations lack specific supporting documentary evidence. He states that he employed published reports and archival material of the Rockefeller Foundation, but his reading of the sources appear dramatically skewed, a significant basis of criticism that arose in the debate over Brown's work.

A number of reviews for *Rockefeller Medicine Men* appeared in two of the *Bulletin of the History of Medicine's* 1980 issues. Editor Lloyd G. Stevenson in "A

[90] Ibid, p. 897.

Second Opinion" describes Brown's work as presentist and polemical, lacking any attempt at objectivity or neutrality.[91] He harshly calls the monograph 'a competent hatchet job' of questionable historical value. Brown's subsequent response in a later issue in turn criticizes Stevenson's review as 'polemical hyperbole.'[92] Ultimately, the hyperbole is set-aside in a final review contributed by Daniel M. Fox. He carefully dissects Brown's methodology, attempting to compartmentalize the obvious personal ideology that directs Brown's research and interpretations on the Rockefeller's work. He concludes that Brown single-mindedly reduces the complex nature of the Foundation's motivations, goals, and actions to fit in with his overarching belief in the exploitative, class-driven practices of the Rockefeller medicine men. He summarizes his position, saying: 'Brown is entitled to his polemical views, as well as to the ideology that guides his scholarship…But historians of medicine need to be judged by rigorous standards, both in their scholarship and in its applications.'[93]

Recent historical scholarship, not without its own variations in ideological bent, attempts to read the institutional and popular sources more dispassionately than Brown. Research by Marcos Cueto, John Farley, and Steven Palmer among others reveals the complicated nature of the Foundation's Latin American campaigns and endowment projects. John Farley's 2004 book, *To Cast Out Disease: A History of the International Health Division of the Rockefeller Foundation, 1913-1951* undercuts the common accusation of the Foundation's work as means of furthering capitalist propaganda for the United States. He calls into question authors like Anne-Emmanuelle Birn who he argues neglect the medical aspects of the campaigns in favour of emphasizing evidently

[91] Lloyd G. Stevenson, 'Book Review: *Rockefeller Medicine Men*, a Second Opinion', *Bulletin of the History of Medicine,* 54/1 (1980), p. 138.
[92] E. Richard Brown, 'Response to Lloyd Stevenson's "Second Opinion"', ibid./3, p. 591.
[93] Daniel M. Fox, 'Rockefeller Medicine Men Again: Ideology Vs. Methodology', ibid., p. 593.

nefarious economic and political motivations.[94] Based on his own work in the Rockefeller archives over the course of two decades, Farley asserts that '[N]either the allocation of its budget nor the way in which the Health Division operated sustain the thesis that it was an American capitalist advance guard used as a wedge for capitalist manipulation.'[95] Instead, the IHC had a narrow focus on medicine with little commentary present in correspondence and reports detailing the political and social aspects of the countries where work was being done.

Farley's classification of Birn's work does not take into account the nuance of her "marriage of convenience" thesis, which describes Rockefeller's involvement in Mexico as complex and multifaceted. The decision to expand their hookworm campaign was not simply out of an industrialist's self-interest. As she argues, 'The IHD was instrumental in turning existing efforts of colonial health and a budding spirit of medico-commercial cooperation into an international health system that generated it own demand through the creation of new national bureaucracies, programs of aid and development, and rural public health activities around the world.'[96] The "marriage" between the RF and Mexico was mutually beneficial in that it helped to reawaken interest in rural public health among the population and stimulate increased governmental support for such work.[97]

Though Birn paints hookworm in Mexico as a useful means of propaganda rather than a lethal disease, hookworm disease remained a concern in most countries because of a general preoccupation with the health of workers.[98] Additionally, the organization's

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[94] John Farley, *To Cast out Disease: A History of the International Health Division of the Rockefeller Foundation (1913-1951)* (Oxford: Oxford University Press, 2004), p. 293. See, for example, Anne-Emanuelle Birn, *Marriage of Convenience: Rockefeller International Health and Revolutionary Mexico* (Rochester Studies in Medical History; Rochester, N.Y.: University of Rochester Press, 2006).

[95] Farley, *To Cast Out Disease*, p. 294.

[96] Birn, *Marriage of Convenience*, p. 9.

[97] Ibid., p. 115.

[98] See, for example, the discussion of scientific research on hookworm disease conducted in the "periphery" in Palmer, 'Migrant Clinics and Hookworm Science: Peripheral Origins of International Health, 1840-1920'.

trustees, apparent representatives of American capitalist interest, were patently cut off from the daily decision-making and overall direction of the campaigns. While Farley represents a distinct category of interpretation, the specifics of his work and that of his colleagues on the goals and outcomes of the IHC's work in Latin America and the Caribbean must also be evaluated to better understand its historical impact.

Assessing the potential divergence between the explicit and implicit motivations of the IHC campaigns dominates a significant portion of the historical literature. For more than twenty years, Marcos Cueto's research has delved deeply into the workings of the Rockefeller Foundation and its international health projects in Latin America. In one piece, "The cycles of eradication: the Rockefeller Foundation and Latin American public health, 1918-1940," Cueto explains that Latin America served as the ideal testing ground for disease eradication strategies. The U.S. public health authorities maintained a vested interest in the region due to the threat of infection spreading from Latin America into the U.S. and its impact on economic relations. He highlights the Rockefeller Foundation for its critical role in the region given the lack of an international framework to address common health problems.[99] Farley further clarifies the philosophy behind IHC work as one dominated by the view of philanthropy as 'an investment. It should be offered to government agencies, not individuals; it should be of limited duration so as to stimulate self-help, not dependence; and it should be withheld unless recipients showed promise of continuing to work after aid had ended.'[100] As previously explained, a biomedical view of health in which all social ills—such as poverty, crime, and addiction—stemmed from disease typified the IHC's intentions.

[99] Marcos Cueto, 'The Cycles of Eradication: The Rockefeller Foundation and Latin American Public Health, 1918–1940', in Paul Weindling (ed.), *International Health Organisations and Movements, 1918-1939* (Cambridge ; New York, NY: Cambridge University Press, 1995), p. 232.
[100] Farley, *To Cast Out Disease*, p. 4.

The negativity of E. Richard Brown reappears in the caustic tone of Löwy and Zylberman in "Medicine as a Social Instrument: Rockefeller Foundation, 1913-1945." They portray the work of the Foundation as aiming to 'display in public the fortune, power and good will of its originator and benefactor,' a determination made without providing any specific evidentiary support. Their article attempts to cast doubt on the entire program as a demonstration of public health as politics by other means:

> [I]t may be suggested that a (putative) pro-U.S. propaganda, conducted through attempts to eliminate transmissible diseases, the development of outpatient clinics, the distribution of vaccines, the development of medical and nursing schools, the construction of laboratories, not to mention the training of scientists and hygienists, were not necessarily more problematic ways to try to impose upon "others" than the use of economical weapons, or weapons *tout court.*[101]

Their significant methodological flaws starkly contrast with Steven Palmer's noteworthy contribution to the field, *Launching Global Health: the Caribbean Odyssey of the Rockefeller Foundation*.

While the aforementioned authors rely on predominantly institutional source material, as Birn does in her work on the RF and Mexico, Palmer incorporates material generated by local medical communities before, during, and after the IHC campaigns.[102] He evaluates the dual reports offered by field directors to the local governing bodies and the home office in order to assess what elements have been discarded or escaped the notice of previous scholarly endeavours and to restore agency to local public health actors. His work helps to evaluate the evolution of the organization's goals and motivations from the first days of the campaigns, reading the archival sources with a firm and solid local political and cultural context. Palmer explains the strategic significance of the pilot programs in British Guiana, Costa Rica, Panama, Guatemala, Nicaragua, and

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[101] Ilana Löwy and Patrick Zylberman, 'Medicine as a social instrument: Rockefeller Foundation, 1913-1945', *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences,* 31/3 (2000), p. 368.

[102] Palmer, *Launching Global Health*, p. 20.

Trinidad given their geographic location, ties to U.S. political relations, and their small-scale nature. Echoing the annual reports and Farley's argument, Palmer argues that the IHC did not operate as an arm of American informal empire, but worked to distance itself from ties to the diplomatic and military interventions in Cuba, Puerto Rico, and the Philippines.[103] He succinctly explains: '[P]eople had to be won over—often against their gut instincts, which told them to mistrust and stay away from the operations of a rich U.S. agency flying the banner of the new imperial power's preeminent robber baron.'[104] The IHC had to demonstrate their genuine desire to control disease in order to win over such a suspicious population.

Though Palmer resists assessing the various disease campaigns as either successes or failures, Farley unequivocally judges the hookworm campaigns across the region as failures in terms of cure rates based on resurveys conducted in 1920 that revealed pre-campaign levels of infection.[105] Farley's assessment questions the long-term impact on disease eradication given that the $650 million dollars (in 1990 U.S. dollars) spent in over 80 countries, was spread too thin and attempted to achieve too much. While its institutional framework greatly influenced the early years of the World Health Organization, the IHD failed to adjust to the new global scene after World War II in which welfare states were being set up and public health work shifted from the national to the international scale.[106] Although Farley points out that no alternative to the IHD's biomedical view of public health existed in the first half of the twentieth century, the structural avoidance of addressing social and economic ills certainly curtailed the long-term impact of the organization exclusively in terms of infectious disease rates in Latin America and the Caribbean.

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[103] Ibid., p. 60.
[104] Ibid., p. 86.
[105] Farley, *To Cast Out Disease*, p. 80.
[106] Ibid., p. 205.

Looking beyond the current historiography, the limitations of Rockefeller archival records do not allow for an explicit demarcation of the relationship between the RSC and Puerto Rico as exploitative. However, it becomes apparent that the shortcomings of Rockefeller's exclusive focus on biomedical interventions mirrors the trajectory of the hookworm eradication program in Puerto Rico. Rockefeller officials appropriated the methods and strategies designed and implemented by Ashford and his Puerto Rican colleagues without providing reciprocal support. In the organization's avoidance of association with American imperialism in any guise, Rockefeller (un)wittingly denied Puerto Rico the opportunity for long-term success in its failure to meet its implicit obligations as set down with officials of the federal government. The "marriage of convenience" between Rockefeller and Ashford certainly did not benefit Puerto Ricans in the early years of the 1910s.

Conclusion

In the century since the Rockefeller Foundation commenced its work on hookworm disease in the U.S. South, the organization has remained one of the most important American philanthropies to address global health concerns. Although most contemporary international health organizations rely on a broad-based, horizontal model that seeks to address the social and economic conditions that contribute to ill health, the IHC's biomedical approach to public health dominated the first half of the twentieth century. In their own words, the Rockefeller Foundation, the IHC, and staff physicians sought to address diseases on a global scale in a manner that would reach the most number of people and result in permanent improvements. Though scholars in the 1970s, including E. Richard Brown, tended to demonize the IHC's work as American capitalist propaganda, more recent scholarship reveals an ambitious organization striving to tackle several of the world's deadliest diseases. While Rockefeller's methodologies resulted in

varied levels of success in terms of infection rates, the Foundation significantly shaped the development of public health institutions throughout Latin America and the Caribbean.

Most assuredly, the reappearance of the Rockefeller International Health Board in Puerto Rico in the 1920s exemplifies the potential for both positive and negative outcomes of such foreign philanthropic investment. As this chapter has shown, the continuous negotiation and hopeful correspondence of the 1910s resulted in no definite benefit for the Puerto Rican people, while the later intervention certainly gives the impression of expiation for previous abandonment. The Rockefeller Foundation's global health efforts continued well into the twentieth century until the founding of the World Health Organization curtailed much of their public health interventions. Steven Palmer delineates an apt metaphor for the International Health Commission throughout this period, that is, the IHC as a "parasite": 'Ranging over an expansive geopolitical ecology, it was drawn to this dense cluster of host states in Latin America where national, if somewhat barefoot and vulnerable, scientific communities had developed bodies in which the institution could reproduce itself.'[107] Historians of medicine must carefully consider the legacy of similar philanthropic organizations without allowing our own ideologies to colour our conclusions.

For Puerto Rico, the development of a hookworm eradication campaign that received international praise, treated more than 300,000 of the island's population, and directly shaped the global fight against hookworm disease by the Rockefeller medicine men, was not enough. Anaemia work and public health on the island in general suffered due to bitter partisanship, limited funding, and a convoluted bureaucracy. Periods of rapid improvement in health coincided with major American economic investment that

[107] Palmer, 'Migrant Clinics and Hookworm Science: Peripheral Origins of International Health, 1840-1920', p. 709.

expanded infrastructure, access to education, and generally increased the socioeconomic status of the population. However, as American philanthropic and economic interests waned, the government structures responsible for ensuring public health similarly faced stagnation. In the face of widespread turmoil, public health leaders could not rely on Congress, the insular legislature, or the unfulfilled promises of the Rockefeller Foundation. The question remains to this day as to how federal and local governmental agencies can effectively and responsibly ensure the public's health.

Conclusion

Despite lasting only four months and resulting in few combat casualties, the Spanish-American War marked a new epoch in the history of American public health and medicine. Fending off disease not only held significance for the realm of biomedicine, but also in determining the course of public policy in the frontiers of the new American empire. This thesis has shown that administrators and troops encountered a tropical paradise, albeit one riddled with diseases of poor sanitation and lacking any semblance of public health or medical infrastructure. The military governors received minimal directives from Congress, whose priorities focused on cultivating the economic potential of the island and withholding American citizenship until a "proper" American-style education in democracy could be carried out.

The military governors developed agencies and campaigns to meet the immediate needs of the troops and the population. Following the transition to civil government under Charles A. Allen in 1900, the legacy of such campaigns almost immediately disappeared as the insular government attempted to improve all areas of life using few resources and under the strain of a bitter partisan divide between the two major political parties. With the coffee industry decimated, the loss of a favourable trade relationship with its former Spanish imperial brethren, and the devaluation of its currency, the Puerto Rican economy provided little surplus to be used for improving major infrastructure and access to medical services.

From 1898 until 1900, American medical men in Puerto Rico, in cooperation with local medical professionals, developed and executed an island-wide smallpox vaccination campaign, provided relief efforts in the wake of the San Ciriaco hurricane, and established a Superior Board of Health and Board of Charities with little, if any, interference from Washington bureaucrats. Though the Spanish left an abundance of

regulations and advisory bodies in operation, including a sporadic and often ineffective vaccination program, the Army Medical Department faced a health and disease environment that had dramatically deteriorated in the late nineteenth century as the Spanish government experienced significant and continuous political instability throughout their empire.

Within this context, Bailey K. Ashford and his collaborators implemented a far-reaching project to eradicate uncinariasis among the island's labouring masses that would shape the work of one of the first and most important international medical philanthropies, the Rockefeller Sanitary Commission. Throughout the first decades of the twentieth century, Ashford became a central link between American and Puerto Rican medical and political leaders, a man who was able to navigate the halls of Washington and earn recognition as a "Puerto Rican." Ashford and his collaborators purposefully established their system of anaemia clinics outside of the regular channels of insular bureaucracy, a bureaucracy that produced no meaningful public health legislation between 1900 and 1911. From his first 1899 encounter with hookworm disease in Puerto Rico, Ashford recognized the basis on which he had to build the case for intervention in uncinariasis and support for the Puerto Rico Anemia Commission's work: hookworm disease was not just an affliction that merited attention given its human cost, but it also seriously undermined the economic prosperity of the population. The Commission overcame obstacles in funding, jurisdiction, and partisanship to launch a model of care replicated not just in the tropics, but also around the world. Ashford himself epitomizes the transnational nature of public health scientists of his era, traversing institutions on the island and mainland, be it the military, the scientific establishment, or the political arena.

Ashford insisted that the Commission's anaemia dispensaries be made independent of party leaders as political negotiations between the reigning parties on the

island resulted in a decentralization of health policy-making and boards of health. With budget shortfalls, sanitation and infrastructure improvements faced stagnation. The Department of Health, Charities, and Corrections failed to control any of the municipal boards with local physicians placed at the whim of local mayors and political parties given the tax structure. With these factors in mind, the Puerto Rico Anemia Commission chose to incorporate local participation without local politics as it gained the support of both the population and the island's medical association.

Similarly, with the outbreak of bubonic plague in June 1912, any overreliance on local municipal boards at a time when the reorganization of the Sanitation Service was far from secure could have produced devastating results. While the campaign against hookworm disease eventually became entangled with the insular political system in spite of Ashford and Gutierrez's best intentions, improved the health of hundreds of thousands of Puerto Ricans, and called attention to the limitations of the island's health system again and again, plague actually demonstrated the potential for efficient and world-class public health in Puerto Rico, evoking the success of the smallpox vaccination campaign under the military government in 1899.

The actions of Secretary of War Stimson prevented catastrophe when he appointed the head of the USPHS, Surgeon-General Blue, to lead the anti-plague efforts in conjunction with Director Lippitt. As Lippitt concluded, foundational public health reform required absolute impartiality in the face of continuous efforts to gain exemptions from sanitary requirements, hence the need to position the Sanitation Service above island party politics. The American experiences in San Francisco and Hawaii as well as the British experience in Hong Kong, India and South Africa fundamentally informed the work of the U.S. Public Health and Marine Hospital Service and help us to understand the broader international context of medicine and public health science during the third

pandemic. Control measures implemented by authorities on the ground prevented Puerto Rico's encounter with bubonic plague from having any serious negative impact on the delicate balance of geopolitical and commercial interests.

Just as Puerto Rico's endeavours to halt the spread of bubonic plague relied on a dynamic interchange of public health science and personnel from around the globe, the decades-long fight against hookworm disease similarly exemplifies the inherent bi-directionality of health and politics in Puerto Rico, especially in light of the island's engagement with the Rockefeller Sanitary Commission. After careful study of the methods employed by Ashford and the Puerto Rico Anemia Commission, the Rockefeller Foundation converged around the eradication of hookworm disease as its first major public health intervention. The relationship between Wickliffe Rose and Bailey K. Ashford played a critical role in setting the organization on a path that would lead to interventions in dozens of countries around the world. Unfortunately, the Rockefeller Foundation failed to properly recognize the Puerto Rican method as it launched campaigns across the globe from 1914. The methods employed in British Ceylon and Jamaica take their roots in the protocol worked out by Puerto Rican and American physicians among a supportive patient population, and alongside the reinforcing support of commercial, media, and political interests.

Since these remarkable adventures in the American and Puerto Rican imperial relationship transpired, the earliest years of the American experience in Puerto Rico have received little scholarly attention. In contrast, the implications of American imperialism for the health and medicine of U.S. annexation and hegemony have been studied quite thoroughly in both Cuba and the Philippines. At the same time, in considering the Puerto Rican disease environment encountered by American occupying forces, the historiography does not utilise the full range of primary sources when analysing the

smallpox vaccination campaign or the burgeoning hookworm institutions. A similar lacuna also limits our understanding of the bubonic plague epidemic of 1912 and the Rockefeller Foundation's relationship with the island.

Instead, the reliance on published reports, memoirs, and even a handful of letters does not permit a nuanced view of Puerto Rican state formation, policymaking, and the actors behind those institutions. In the same way, the ideological bias of some commentators informs their narrative to the extent that their historical analyses emerge as a defence of the Puerto Rican elite and a maligning of all American interventions as subverting and hegemonic processes, essentially an "us" versus "them" dichotomy in a colonial setting. This thesis has worked to overturn such simplifications by surveying a range of sources both in the United States and Puerto Rico. The historical actors and the words they leave behind illuminate the convoluted and contingent circumstances that informed state activity following the Spanish-American War.

The circulation of personnel, philosophies, materials, and technologies within the American sphere of influence alone resulted in a sanitary imperialism that was a unique and cosmopolitan amalgamation of the latest medical and public health science of the day. The exceptional American focus on improving the health of labour forces and securing overall economic solvency in their newly acquired territories permeated Puerto Rican health policy, especially: the fight to complete universal smallpox eradication, the rapid response against the San Ciriaco hurricane, the push to reduce uncinariasis infection, and the efficient anti-plague campaign. This is not to say that other imperial powers—such as the Japanese and British—were not concerned with the overall health and economic output of their territories.

Japanese medical elites employed sanitary police, quarantine, and reforms of local sanitary habits in order to instil a "hygienic modernity" into the peoples of their empire.[1] In contrast, the hygienic uplift narrative in Korea and Taiwan lacked a direct focus on labour and faltered under the overarching prerogative of improving the living conditions of Japanese settlers, rather than the local population.[2] For the British in Ceylon, just as in Puerto Rico, the economic development and resources of the colony limited improvements in health.[3] Hookworm disease was comparably diagnosed for the first time in Ceylon in 1888, just before the beginning of Ashford's work in Puerto Rico in 1899. However, rather than a call to action and the launch of a wide-scale campaign under government auspices to combat the disease afflicting much of the migrant labour force, the legislation passed in 1909 to compel plantation owners in Ceylon to implement sanitary reform provided no enforcement mechanism.[4] Unlike the Puerto Rican situation, the impetus to improve Ceylon's labouring population did not change British imperial policy such that an institutional organization emerged to address the hookworm crisis. No substantive work occurred until the arrival of the Rockefeller Foundation in 1914. The United States' focus on the well-being and productivity of the workforce in its territories was fundamentally unique in the broader spectrum of twentieth century sanitary imperialism.

This work has not attempted to tell the story of the Puerto Rican people en masse, but instead offers insight into institutional formation and elite motivations, with the hope that further source evaluation can be used to construct the lived experiences of the Puerto Rican population that underwent Ames' smallpox vaccinations, Ashford's hookworm purgatives, and Blue's rat-proofing enthusiasm. Moreover, this thesis challenges the

[1] Rogaski, *Hygienic Modernity*, pp. 163-4.
[2] Liu, *Prescribing Colonization*, p. 165.
[3] Jones, *Health Policy in Britain's Model Colony: Ceylon, 1900-1948*, p. 29.
[4] Ibid., pp. 157-59.

standard division of "colonizer" and "colonized" when considering the progress of public health and medicine, illuminating frequent patterns of continuity and exchange between metropole and colony. American officials on the ground immersed themselves in a government service made up largely of Puerto Ricans. Barriers between Americans and Puerto Ricans began to dissolve as American physicians and scientists made lives on the island, and Puerto Rican physicians turned to American universities for higher education until the establishment of the University of Puerto Rico and its medical school.

Health policy reform and disease eradication campaigns in Puerto Rico must also be put in the context of the American Progressive movement. Progressives' burgeoning ideology was manifest in administrators and experts in Puerto Rico, just as they were in New York City and Boston of the 1900s and 1910s. The cohort of medical men trained in medical schools and organizations at the forefront of Progressive era-institutional health reform was driven by a moral passion for efficiency, a desire for professional expertise, and a hope that the future could be improved upon. Experts both on the mainland and on the island possessed a fundamental belief in their ability to directly improve the structure of politics and government.[5]

The smallpox vaccination campaign, the work of the Puerto Rico Anemia Commission, and the bubonic plague eradication work demonstrate the dynamic interplay of expertise and politics, with various manifestations of the relationship between "experts": locals and outsiders, federal experts and insular experts. The notion of maintaining the highest standard of personal hygiene and public sanitation did not stop at the U.S. borders for Progressives. American scientists, physicians, and administrators recognized their unique ability to remedy society's ills, both at home and abroad.

[5] Wiebe, *The Search for Order*, p. 181.

Whether on the mainland or island, the expansion of government purview coincided with the formation of professional associations and a push for real government accountability.

The impact of the "splendid little war" on the health and disease environment of Puerto Rico would continue to be felt in the decades to come as various interest groups worked to solidify their own path to a sustainable future. In spite of its political inefficiencies and failure to implement longitudinal institutional reform, American sanitary imperialism should be seen as a triumph of administration in the face of epidemic threats. Major scientific and medical advances transpired through the circulation of medical knowledge between experts at the "peripheries" and in the "metropole". No overarching imperial doctrine guided the actions of American administrators on the ground in Puerto Rico. Though the United States Public Health Service was still playing catch up with European medical and public health science at the turn of the century, the development of effective campaigns against smallpox, hookworm disease, and bubonic plague demonstrate the rapid advances of both federal and Puerto Rican public health authorities and infrastructure. The American scientific successes in Puerto Rico, the Panama Canal, and its other foreign arenas helped push the nation to the forefront of the international stage as much as its political and diplomatic conquests.

The annexation and administration of Puerto Rico was above all haphazard in the early years of the twentieth century. The narrative that emerges from other historians who argue that highly specific themes or debates were the central issue—e.g. gender/race tensions explain the health of the era—does not fit the archival record. Such single-factor explanations as race, gender, sexuality, religion, or economic expansion mask the importance of highly particular factors on the ground.[6] Rather, health policy and institution building from 1898 to 1917 is a story of the continuous attempt to disentangle

[6] See, for example: Lafeber, *The New Empire.*; Robert Kagan, *Dangerous Nation: America and the World, 1600-1898* (London: Atlantic, 2006).; Briggs, *Reproducing Empire*.

public health from partisan politicking. In large part, public health and disease campaigns were conceptualized as a means of enhancing commercial ties with the international community and improving the economic outlook of the island.

The story of early twentieth century Puerto Rican public health may be seen in terms of a constant struggle for substantive federal support and an inability of local forces to overcome political strain. The origins of subsequent public health problems may be found during these early decades of the United States' control of Puerto Rico, and further study is needed to continue charting this trajectory. Following the manufacturing boom of the 1940s and the subsequent decline in Puerto Rico's economic outlook over the last four decades, the indicators for the health and well-being of the population have similarly languished. In all, the patterns that emerge cannot be allowed to overshadow the twenty-first century as well. Historians, policy makers, health professionals, and the people of Puerto Rico must employ the lessons learned through five centuries of imperial influence to forge a healthier future.

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Appendix A: Names and Dates

Key Dates:

- 10 December 1898: Treaty of Paris of 1898
    - Ended the Spanish-American War
- 12 April 1900: Foraker Act a.k.a. Organic Act of Puerto Rico a.k.a. “An act temporarily to provide revenues and a civil government for Porto Rico, and for other purposes”
- 16 July 1909: Olmsted Amendment
- 29 January 1910: Olmsted Bill a.k.a. H.R. 23000
    - A proposed bill to replace the Foraker Act
- 9 March 1911: Act No. 68 “An act to provide Porto Rico with a law on sanitation"
- 15 March 1912: Act No. 81 "An Act to Reorganize the Sanitation Service”
- 1912: Jones Bill a.k.a. H.R. 11586 a.k.a. A Bill to provide a department of health for Porto Rico, and for other purposes
- 12 March 1917: Jones-Shafroth Act
    - Extension of American citizenship to Puerto Ricans

Key Figures:

- Brigadier General George W. Davis: Military Governor of Puerto Rico, 1899-1900
- Governor Charles H. Allen: First Governor of Puerto Rico, 1900-1901
- Governor George R. Colton: Governor of Puerto Rico, 1909-1913
- Governor Arthur Yager: Governor of Puerto Rico, 1913-1921
- Elihu Root: Secretary of War, 1899-1904, Senator 1909-1915
- William Howard Taft: Secretary of War, 1904-1908; President, 1909-1913
- Jacob M. Dickinson: Secretary of War, 1909-1911
- Henry L. Stimson: Secretary of War, 1911-1913
- Brigadier General Clarence R. Edwards: Chief of the Bureau of Insular Affairs, 1902-1912
- William Atkinson Jones: Congressman, 1891-1918; Chairman of the House Committee on Insular Affairs, 1911-1918
- Marlin Olmsted: Congressman, 1897-1913; Chairman of the House Committee on Insular Affairs, 1909-1911
- Dr. William F. Lippitt: Chief Surgeon of the United States Army in Puerto Rico; First Director of Sanitation
- Luis Muñoz Rivera: Member of the Puerto Rican House of Representatives, 1906-1910; Resident Commissioner, 1911-1916