

2012

## The Yellow Fever Epidemic in Savannah, Georgia of 1876: A Case for Applied Historical Analysis

James R. Gruenberg  
*Wright State University*

Follow this and additional works at: [https://corescholar.libraries.wright.edu/etd\\_all](https://corescholar.libraries.wright.edu/etd_all)



Part of the [History Commons](#)

---

### Repository Citation

Gruenberg, James R., "The Yellow Fever Epidemic in Savannah, Georgia of 1876: A Case for Applied Historical Analysis" (2012). *Browse all Theses and Dissertations*. 1075.  
[https://corescholar.libraries.wright.edu/etd\\_all/1075](https://corescholar.libraries.wright.edu/etd_all/1075)

This Thesis is brought to you for free and open access by the Theses and Dissertations at CORE Scholar. It has been accepted for inclusion in Browse all Theses and Dissertations by an authorized administrator of CORE Scholar. For more information, please contact [library-corescholar@wright.edu](mailto:library-corescholar@wright.edu).

**THE YELLOW FEVER EPIDEMIC IN SAVANNAH, GEORGIA OF  
1876: A CASE FOR APPLIED HISTORICAL ANALYSIS**

A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Master of Arts

By:

JAMES R. GRUENBERG  
B.A., Cedarville University, 1984

2012  
Wright State University

WRIGHT STATE UNIVERSITY  
GRADUATE SCHOOL

November 3, 2011

HEREBY RECOMMEND THAT THE THESIS PREPARED  
UNDER MY SUPERVISION BY James R. Gruenberg  
ENTITLED The Yellow Fever Epidemic in Savannah, Georgia in 1876: A  
Case for Applied Historical Analysis BE ACCEPTED IN PARTIAL  
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF  
Master of Arts

---

Jonathan R. Winkler, Ph.D.  
Thesis Director

---

Carol Herringer, Ph.D., Chair  
Department of History  
College of Liberal Arts

Committee on  
Final Examination

---

Jonathan R. Winkler, Ph.D.

---

John Flach, Ph.D.

---

Edward F. Haas, Ph.D.

---

Noeleen McIlvenna, Ph.D.

---

Andrew T. Hsu, Ph.D.  
Dean, Graduate School

## ABSTRACT

Gruenberg, James R. M.A., Department of History, Wright State University, 2012. The Yellow Fever Epidemic in Savannah, Georgia in 1876: A Case for Applied Historical Analysis.

Yellow fever was a constant and deadly visitor to the southern United States since the middle of the seventeenth century. Dying of yellow fever was gruesome and terrifying. Black vomit was the prominent symptom as the patient bled to death internally and externally. Yellow fever, or 'yellow jack' to the locals, would bring Savannah, Georgia to its knees on three different occasions. In 1876, however, the city would lose a full 6% of its population, or 1,066 souls. This thesis argues that this tragic outbreak was preventable, and that the physical conditions that were well known to contribute to yellow fever spread were present in Savannah and ignored by city officials who succumbed to economic hardship and a desire for increased commerce. If this epidemic was preventable, then it has potential to inform modern community decision-makers by applying lessons of the past to present policy and practice. To defend this argument, this thesis will discuss the physical, social, and politico-economic conditions in Savannah that contributed to the outbreak and the decisions that marginalized the yellow fever threat. Also, the thesis will discuss applied historical analysis in theoretical terms and identify a model for the systematic analysis of past disaster events for contemporary emergency management decision-makers.

## TABLE OF CONTENTS

Introduction.....	1
Chapter 1: Applied Historical Analysis.....	12
The Controversy Over Applied History.....	12
Pitfalls of Applied History.....	13
The Appropriate Use of Applied History.....	16
Military History as a Model for Applied History.....	17
The New Model Monograph of Disaster History.....	19
Chapter Conclusion.....	20
Chapter 2: Savannah in 1876.....	22
Savannah’s Yellow Fever History.....	24
Savannah and the Civil War.....	26
Chapter Conclusion.....	28
Chapter 3: Yellow Fever.....	29
Onset of Disease in the New World.....	30
Climate and Yellow Fever.....	32
Other Diseases of the South.....	33
Yellow Fever and the Civil War.....	35
The Yellow Fever Debate.....	37
Nineteenth-Century Medicine.....	42
Treating Yellow Fever.....	44
Chapter Conclusion.....	45
Chapter 4: Physical Conditions in Savannah.....	46
Naturally Found Physical Characteristics.....	46
Man-Made Physical Characteristics.....	52
Chapter Conclusion.....	55
Chapter 5: Political and Economic Conditions in Savannah.....	57
Economic Characteristics.....	57
Yellow Fever and Foreign Policy.....	60
Local Reaction to State and Federal Initiatives.....	62
Medical Politics.....	64
Newspaper Politics.....	67
Chapter Conclusion.....	70
Chapter 6: Social Conditions in Savannah.....	72
City Services and the Poor.....	73
Medical Care and the Poor.....	74
Chapter Conclusion.....	76
Conclusion.....	78

Epilogue .....	84
Bibliography .....	89

## ACKNOWLEDGEMENT

When an adult learner takes on the adventure of a master's degree, two consequences are bound to occur. First, he will take on the challenge with a passion rather than as a mere academic requirement, and second, his family will invariably become drawn into the process. Both certainly occurred in my case. These two consequences, bound together, formed a two-and-a-half-year expression of love from my family toward me as I spent countless hours engrossed in a constant battle to excel.

I first, therefore, express my love to my wife and kids who went without a husband and dad for a long time. I love you. You have allowed me the honor of learning without the expectation of anything in return. I now honor you with this degree. You deserve it more than I do.

I also express my gratitude to the faculty of the History Department who were willing to look past the clumsy naïveté of the old guy who wanted to get an advanced degree. They accepted my passion and allowed me the privilege to learn from them. I will never forget the words of Dr. Sean Pollock, the first victim of my degree pursuits. Holding my final paper in his hand, painted in red ink, he kindly said, "Jim, your final grade is actually ironic." It was an A, by the way, but he was right; it was ironic. This 'rigorous kindness,' as I'll call it, was the rule for each and every faculty I encountered on my journey. Thanks to your collective tutelage, I have matured as a learner, and certainly as a writer. Thank you for the rigor and for the kindness.

I would also like to thank my thesis director, Dr. Jonathan Winkler, who accepted my unique academic focus and understood its efficacy. His guidance during my Independent Readings experience, which formed much of the rationale for this thesis,

was formative for me as I strove to challenge current paradigms. The books he gave me as a reading list are now permanent fixtures in my personal library. His willingness to go beyond the bounds of what's expected and connect me with various people who he thought could help me was appreciated and valuable. I look forward to sustaining that relationship as I move past my degree and into the future.

My thesis committee, selected based on their academic focus, each contributed to my learning experience in important ways. Of note, Dr. John Flach, Professor and Chair of the Department of Psychology, was instrumental in introducing me to Clausewitz, Sumida and the notion of applied history.

The staff at the Georgia Historical Society archives was fantastic. This excellent collection is well kept and managed, and they were very helpful and informative. Similarly, the archivists at the City of Savannah's archives were very generous with their time and allowed me to uncover documents that greatly influenced my thesis, namely the court case against Dr. James J. Waring. Touching these original documents was indescribable and helped me taste the thrill of the historian. Finally, the staff of Wright State University's Dunbar Library is second to none. The human and material resources there allowed my pursuit to flourish, and their patience was needed and appreciated during those long hours.

I enter the realm of a novice historian with a humble spirit. I look forward to the day when my skills of analysis, and writing, will reach higher levels. Learning will always be a process for me, however, and all of the people who I acknowledge here have given me the tools to do just that. I am indebted.

## INTRODUCTION

As dawn broke across the lowcountry marshes of the Savannah River on the morning of August 21, 1876, little did the residents of the bustling port of Savannah, Georgia suspect that death would soon engulf them. James Cleary would be the first to fall victim to yellow fever. A poor twelve-year-old boy, Cleary lived with his family on a small *cul de sac* named Wright Street; a street notorious for poor living conditions and visitation by foreign sailors in port. On August 23, *The Savannah Morning News*, in an attempt to suppress panic over disease outbreaks, listed his cause of death as “congestive fever.”<sup>1</sup> The autopsy, performed within two hours of his death, was indisputable.<sup>2</sup> Dr. T.O. Somers of Nashville and Dr. Chevis of Savannah chronicled the horrific details of a yellow fever autopsy. Their record describes that “the blood thick, non-coagulable, and denuded of all its albumen, is dammed black upon the walls of the intestines... the spleen... is enormously hypertrophied... the gall bladder filled with a stringy substance.”<sup>3</sup> The gruesome autopsy clearly identified the cause of Cleary’s death as yellow fever, which “unlike any other disease, carried a mysterious horror to it. Its attack was acute, its duration painful.”<sup>4</sup>

The best doctors or scientists did not yet know that the *Aedes aegypti*, the common mosquito, was hard at work biting the sick and healthy and spreading the yellow

---

<sup>1</sup> *Savannah Morning News*, August 23, 1876, p. 3, column 5.

<sup>2</sup> Woodhull, Alfred A., MD. “On the Causes of the Epidemic of Yellow Fever at Savannah, Georgia in 1876.” *The American Journal of the Medical Sciences* (n.p.), no. CXLVII (July 1877): 25.

<sup>3</sup> The British Medical Journal, "The Morbid Anatomy of Yellow Fever," *The British Medical Journal* (BMJ Publishing Group) 1, no. 951 (March 1879): 434.

<sup>4</sup> Molly Caldwell Crosby, *The American Plague: The Untold Story of Yellow Fever, the Epidemic that Shaped Our History* (New York: Berkley Books, 2006), 61.

fever virus around the city. The disease was quickly found in all quarters and among all classes. Interestingly, there were no cases found outside the city limits. Even a large orphanage, located close to the city limits, was not affected.

In the days leading up to August 21, mild symptoms of fevers were reported. These symptoms, such as frontal headache, pains in the extremities, and abdominal lethargy, were being handled by the local doctors and not raising any alarms. This phase of the disease, however, would be short lived. Local physician, Dr. Louis A. Falligant, reported “The advance in the type of disease from the milder... to the malignant and typhoid, was so rapid in different localities that I at once advised my friends that in my opinion we were on the threshold of a pestilence more terrible than that which had devastated our fair community in 1854!”<sup>5</sup> Falligant was correct; its spread was wild and erratic and would eclipse any outbreak to date.

Yellow fever rapidly permeated Savannah. Panic ensued. Thousands fled the city for refuge in the countryside or with relatives in safer climates.<sup>6</sup> Physicians were soon overwhelmed. Many of its victims were left to die, or to be cared for by one of the few benevolent societies at work in the city. Backlogs of burials became a problem. At the height of the outbreak, bodies were stacked at the gates of the cemeteries awaiting burial, adding to the horror of the event. By the middle of November, after the disease had run

---

<sup>5</sup> Louis A. Falligant, *A Monograph on the Yellow Fever of 1876 in Savannah, Georgia* (1878; repr., Danvers, MA: General Books, 2009), 7.

<sup>6</sup> James J. Waring, *The Epidemic at Savannah, 1876: Its Causes and Measures of Prevention, Adopted by the Municipality During the Administration of Hon. J.F. Wheaton* (Savannah, GA: Morning News Steam Printing House, 1879), 161.

its course, Savannah buried 1,066 of its citizens in its already full cemeteries and reeled from a tragedy that shook the community to its core.<sup>7</sup>

This thesis argues that the yellow fever outbreak in Savannah, Georgia in 1876 was preventable. This indictment is humbling to this writer who is obligated to reveal evidence against a city government that is unable to defend itself. The evidence, however, is indisputable: officials of the City of Savannah failed to take action against the signs of disaster that had emerged and willfully ignored practices that could have fended off the epidemic. Physical, social, political, and economic conditions of Savannah, on the eve of this epidemic, will be examined to defend this argument. Each will reveal that factors were in place that made Savannah ripe for a yellow fever disaster, that those factors were recognizable and understood by the community, and that segments of the city's leadership were in a position to recognize the threat but did little to manage it.

There are two purposes for pursuing this argument. First, the body of literature concerning the post-reconstruction South should include a focused study of this tragedy. Second, with pandemic disease and both natural and man-initiated disasters continuing to threaten the world's population, contemporary community emergency planners can learn lessons from Savannah that may prevent the loss of life. History, therefore, can be used to provide guidance to the future.

The on-going challenge of every historian, is to answer this question: So what? In the case of Savannah, Georgia, this is a valid and worthy of examination. Three factors call for the study of the yellow fever outbreak in Savannah. First, Savannah was a city of

---

<sup>7</sup> Edward C. Anderson, *Report of Edward C. Anderson, Mayor of the City of Savannah, for the Year Ending December 31, 1876* (Savannah: Geo. N. Nichols' Steam Printing House, 1877), 19.

significance and has yet to receive academic attention in relation to the outbreak. Second, Savannah's death toll of 6% puts it at the high end of deaths per capita for yellow fever outbreaks during the period. Third, Savannah's smaller population made it more probable that mitigation measures could have been accomplished in reasonable time.

In contrast to Savannah, New Orleans was easily the greatest bastion of yellow fever in eighteenth and nineteenth century America. Located below sea level at the mouth of the Mississippi, New Orleans was also blamed for the spread of the fever to other Coastal communities. The city was host to many visitors from other Caribbean ports, including Havana, Cuba, reputed to be the culprit for America's yellow fever scourge. Of a much greater population than Savannah, New Orleans certainly received, and continues to receive, much of the research attention. The yellow fever epidemic of 1853, in New Orleans, has been considered the worst attack ever, taking a tenth of its population and causing a full 40% to fall ill.<sup>8</sup> Modern estimates of the economic impact of this epidemic indicate that nearly 45 million dollars were lost between disease related expenditures and reduced business revenue.<sup>9</sup> Yet despite the primacy of the New Orleans experience in the extant literature, Savannah remains an important investigation and worthy of attention and should not be overshadowed by seemingly more significant communities.

Savannah may not have been as populated as New Orleans or Mobile, Alabama, but in the nineteenth century Savannah was the third busiest cotton port in America and a major transportation hub for commerce throughout the South, the Caribbean, and the rest of the U.S. Its prominence as an Atlantic port placed Savannah in the center of the debate

---

<sup>8</sup> John Duffy, "Yellow Fever in the Continental United States During the Nineteenth Century," *Bulletin of the New York Academy of Medicine* 44, no. 6 (June 1968), vii.

<sup>9</sup> David K. Paterson, "Yellow Fever Epidemics and Mortality in the United States," *Social Science and Medicine* 34, no. 8 (April 1992), 863.

over Cuba's liability in the yellow fever problem. Likewise, the city's connection with the railroads makes it a target of investigation because the control of disease was critical to transportation success. Also, fear of disease inhibited travel into the area as well as the delivery of goods from an area that was potentially the source of yellow fever importation.

As widespread as the disease was during the period, individual cases such as Savannah's warrant attention. Local conditions were different and unique, and thus cannot be generalized along with the larger cities. Scholars have named Savannah among the hardest hit cities on the Eastern seaboard along with such notorious yellow fever cities as New Orleans and Mobile, AL.<sup>10</sup>

Another reason for examining this outbreak is that the per capita death rate in Savannah was high compared to other outbreaks during the period, with a rate put at between 6% and 13%. In contrast, the 1870 outbreak in New Orleans only took the lives of between 1 and 2% of the population.<sup>11</sup> Savannah's epidemic of 1820 took a full 15% of the population.<sup>12</sup> Considering that the 1876 percentile does not include those who fell ill but did not succumb, which is closer to 50%, this epidemic certainly warrants specific attention.<sup>13</sup>

Savannah's smaller size, in comparison to other notable yellow fever hot spots, indicates a higher likelihood of city administration's capacity to take care of the problem. Simply stated, prevention is more possible when a smaller bureaucracy manages city

---

<sup>10</sup> Martha Carolyn Mitchell, "Health and the Medical Profession in the Lower South," *The Journal of Southern History* 10, no. 4 (November 1944): 426.

<sup>11</sup> Paterson, 860.

<sup>12</sup> *Ibid.*, 861.

<sup>13</sup> This discrepancy is unsolved. The Annual Mayor's Report for the year 1876 put the death rate at 6%, however, local physician Dr. James J. Waring claims 13%.

resources. Today, a full twenty percent of America's population resides in incorporated communities of 30,000 inhabitants or less, thereby making Savannah's experience important in the protection of a sizable number of U.S. citizens today.<sup>14</sup> Drilling down into the decision-points of a small city such as Savannah provides excellent data for much of today's cities of similar population.

The body of literature on the topic of Savannah's yellow fever epidemic is small. This paper seeks to fill this void in two ways. First, it seeks to single out Savannah's experience in 1876 as unique and worthy of specific examination apart from other yellow fever cities. Second, it seeks to provide an exemplar of disaster history by conducting a scholarly examination of a historical tragedy that can be used to inform contemporary emergency management planners and community decision-makers.

Several secondary monographs address yellow fever during this period and mention characteristics of the Savannah outbreak, but fail to isolate Savannah for focused examination. These works can be divided into two groups. Those that focus on the yellow fever disease, and second, those that focus on Savannah's history. Both groups will mention Savannah, or mention the epidemic of 1876, but neither provides adequate contextual data that frames decisions made in relation to the outbreak.

An excellent example of scholarship is Molly Caldwell Crosby's work, *The American Plague: The Untold Story of Yellow Fever, the Epidemic that Changed Our*

---

<sup>14</sup> Figures based on 2009 figures as derived from the U.S. Census Bureau. This number is representative as it assumes that an incorporated community has a government structure and services, however, most citizens that live in unincorporated communities (as measured by the Census) still have government services in the form of townships or tribal authorities. Likely, this number is conservative.

*History*.<sup>15</sup> Crosby examines America's high watermark of yellow fever, namely the epidemic of 1878, especially as it struck Memphis and New Orleans. Her background material provides excellent insight into the disease as it emerged in the South. Likewise, *Yellow Fever and the South*, by Margaret Humphreys, offers significant data on some of the socio-political aspects of yellow fever and the medical debate over its cause and spread.<sup>16</sup>

Several journal articles also provide valuable information. Lisa L. Denmark's article, "'At the Midnight Hour': Economic Dilemmas and Harsh Realities in Post-Civil War Savannah," in the *Georgia Historical Quarterly*, is the only secondary source that deals exclusively with the 1876 epidemic.<sup>17</sup> Her excellent analysis of the economic conditions of Savannah, and how they relate to the epidemic, are well written and easily corroborated in the primary documents. Several other articles address components of Savannah's epidemic and other contextual information. Of note, K. David Patterson's "Yellow Fever Epidemics and Mortality in the United States, 1863-1905," in *Phylon*, provided useful statistical analysis.<sup>18</sup> Werner Troesken also published an article in *The Journal of Economic History*. This article titled, "The Limits of Jim Crow: Race and the Provision of Water and Sewerage Services in American Cities, 1880-1925," was helpful

---

<sup>15</sup> Molly Caldwell Crosby, *The American Plague: The Untold Story of Yellow Fever, the Epidemic that Shaped Our History*. (New York: Berkley Books, 2006).

<sup>16</sup> Margaret Humphreys, *Yellow fever and the South* (New Brunswick, NJ: Rutgers University Press, 1955).

<sup>17</sup> Lisa L. Denmark, "'At the Midnight Hour': Economic Dilemmas and Harsh Realities in Post-Civil War Savannah," *Georgia Historical Quarterly* 90, no. 3 (Fall 2006).

<sup>18</sup> David K. Paterson, "Yellow Fever Epidemics and Mortality in the United States," *Social Science and Medicine* 34, no. 8 (April 1992).

in understanding the class and race issues that surrounded Savannah's drainage problems.<sup>19</sup>

There is also a lack of literature that are dedicated to scholarly histories of disasters or that address applied historical analysis in the domain of disaster history. Although it will be shown that military history and military historians have a strong and vital place in the execution of modern war, there is no parallel in the civilian sector. Several important books call for historical application. The work, *Thinking in Time: The Uses of History for Decision-Makers*, by Richard E. Neustadt and Ernest A. May, has obviously influenced this writer.<sup>20</sup> Their thoughtful and exhaustive examination of specific cases of significant policy decisions, the Cuban missile crisis to name but one, forms a compelling how-to manual on how historical analysis should be applied to modern circumstance. Jon Tetsuro Sumida's contribution to applied history, *Decoding Clausewitz: A New Approach to On War*, also brings relevant perspective to the topic as he parses Clausewitz's epic work.<sup>21</sup>

Despite the lack of secondary literature specific to the Savannah epidemic, or the existence of a body of work that would describe a historical discipline in disaster history, the public health and medical sectors have advanced ideas of applied history. This effort is noteworthy and additional study should be conducted to establish methodologies that

---

<sup>19</sup> Werner Troesken, "The Limits of Jim Crow: Race and the Provision of Water and Sewerage Systems in American Cities, 1880-1925," *The Journal of Economic History* 62, no. 3 (September 2002).

<sup>20</sup> Richard E. Neustadt and Ernest R. May, *Thinking in Time: The Uses of History for Decision-Makers* (New York: The Free Press, 1986).

<sup>21</sup> Jon Tetsuro Sumida, *Decoding Clausewitz: A New Approach to On War*, (Lawrence, Kansas: University Press of Kansas, 2008).

could be applied to the disaster domain much like the military has applied in its historical work.

Although public health does not seem to have developed a historical discipline within the field, it has identified the need to apply past events for the purpose of developing current policy. In 2001, *The Journal of Epidemiology and Community Health* published an article entitled, “History of Health, a Valuable Tool in Public Health.” The authors propose a similar applied historical approach to disease prevention and response. They assert, “The use of history in public health highlights the importance of contextualizing health problems and contributes decisively to the genesis of a theory of the social conditioning of health and disease processes. In other words, it helps to make public health experts aware of the complexity of the social, cultural, political and economical circumstances that frame each particular case.”<sup>22</sup> This excellent article goes on to expound on the importance and efficacy of historical understanding to modern public health needs.

The field of medicine has developed a historical arm that writes of great figures in medical development and the stories behind clinical breakthroughs. The *Journal of the History of Medicine and Allied Sciences* published an article that highlights the value of medical history to modern practice. Titled, “A Kindly, Useful Mentor; Applying the History of Medicine to Public Policy,” the author constructs a similar argument toward a hybrid approach to medical history – one that “applies history to policy and decision

---

<sup>22</sup> E. Perduero et al, “History of Health, a Valuable Tool,” *The Journal of Epidemiology and Community Health* 55, no. 9 (September 2001): 668.

making (applied history).”<sup>23</sup> Here, again, the contextualization of historical events is deemed critical form the exploitation of historical data for modern use. This thesis will take the groundwork laid in applied historical analysis and look specifically at the Savannah epidemic.

Chapter one will look deeper into the issues that surround applied history. The purpose, here, is to allow the reader to better understand why, and how, the Savannah story has potential for valuable insight into modern problems. This chapter is not meant to distract the reader from the intrinsic value of the Savannah tragedy, but instead to empower the reader to view the event through a unique window of opportunity.

Chapters two and three provide background information about Savannah and yellow fever respectively. The reader will be provided adequate context in order to fully grasp the significance of the paper’s argument. It is particularly important to understand the nuances of yellow fever in order to understand that Savannah’s officials knew sufficient facts about the disease in order to manage it effectively.

Chapter four looks at the natural and man-made physical characteristics of Savannah that made it uniquely susceptible to yellow fever and other disease in 1876. It was the physical characteristics of the city that provided the environment for yellow fever and it was the physical characteristics of the city that could have been controlled to manage the threat.

The ensuing chapters examine the ancillary factors that influenced the city’s officials to ignore the threatening physical conditions that made the yellow fever attack

---

<sup>23</sup> Phillip M. Teigen, “A Kindly, useful Mentor; Applying the History of Medicine to Public Policy,” *Journal of the History of Medicine and Allied Sciences* 54, no. 9 (1999): 355.

that much more virulent and deadly. The politico-economic and social characteristics of the city, respectively, will identify indices that pointed to disaster. These chapters will show how the city's economic hardship and social constructs were pervasive and greatly influenced the city's administration as it related to potential disaster.

This paper will coalesce a significant amount of primary documents, and appropriate secondary works, into a cohesive picture of the epidemic and the conditions that should have warned a city of an impending crisis. This thesis, then, fills an important gap. It addresses the need for a focused work on the Savannah epidemic as well as the need for a body of work that seeks to inform modernity in critical disaster preparedness lessons learned. Although the argument of this thesis is a damning one, the reader should conclude that not only is the argument valid, but also that it also provides exciting opportunity to allow such a tragedy to foster a new and important historical discipline, and to thus save lives now and in the future.

## CHAPTER ONE: APPLIED HISTORICAL ANALYSIS

Lessons can, and should, be learned from Savannah. It is as easy to oversimplify the problem, as it is the solution, but if lessons can be learned, what are they, and how should those lessons be discovered and communicated? This chapter will explore the issues that surround applied history and reveal a model with which these issues can be leveraged to create a valuable body of work.

### **The Controversy Over Applied History**

The use of events, such as Savannah's epidemic, for the purposes of contemporary decision-making is controversial. Purists of the historicist model dispute the ability, or plausibility, of mining historical events for pragmatic purposes. John Tosh states, "History as a disciplined enquiry aims to sustain the widest possible definition of memory, and to make the process of recall as accurate as possible, so that our knowledge of the past is not confined to what is immediately relevant."<sup>24</sup> Tosh's statement serves as an excellent warning to those who wish to exploit history as a means to further a personal agenda. Tosh's statement serves as a challenge to ensure that any investigation of an event in the past be carefully conducted as to avoid "socially motivated misrepresentations of the past."<sup>25</sup> That being said, the question begs to be answered: should community planners of today learn from the Savannah epidemic? When exploring a potential life-threatening condition, can the boundaries of historicism be stretched to allow the past to properly inform the present?

---

<sup>24</sup> John Tosh, *The Pursuit of History: Aims, Methods and New Direction in the Study of Modern History* (New York: Pearson Education Limited, 2010), 2.

<sup>25</sup> *Ibid.*, 21.

The iconic R.G. Collingwood helps answer this question. As a historical philosopher, Collingwood acknowledged the value of history beyond itself. In his seminal work, *The Idea of History*, he elaborates on the extension of history into present life. He claims,

Thus history has a value; its teachings are useful for human life; simply because the rhythm of its changes is likely to repeat itself, similar antecedents leading to similar consequents; the history of notable events is worth remembering in order to serve as a basis for prognostic judgments, not demonstrable but probable, laying down not what will happen but what is likely to happen, indicating the points of danger in rhythms now going on.<sup>26</sup>

If determining probability is possible, Savannah offers an opportunity to not only examine the tragedy for its own sake, but to provide a window into the future to potentially avoid a historical repeat. Accomplishing such application is not an easy task and is not without its challenges.

### **Pitfalls of Applied History**

Historical application is not without its pitfalls. Besides raw dishonesty, or the attempt by the historian to manipulate the past to proffer a personal agenda, two other problems emerge: the inappropriate use of analogy and the reliance on only basic, or core, historical data to draw overarching conclusions.

Analogy is a tool used to connect one event to another. Webster's Dictionary defines analogy as "A form of logical inference, or an instance of it, based on the assumption that if two things are known to be alike in some respects, then they must be alike in other respects."<sup>27</sup> This tool has potential for good or evil. Used correctly, analogy allows a person to sidetrack unnecessary investigation in order to draw a reasonable

---

<sup>26</sup> R.G. Collingwood, *The Idea of History* (New York: Clarendon Press, 1993), 23.

<sup>27</sup> *Webster's II: New College Dictionary Third Edition*, s.v. "Analogy."

conclusion in a small amount of time. Used incorrectly, it provides an avenue for grave error.

On September 22, 2011, at the 4<sup>th</sup> Annual CBRNE Symposium, joint sponsored by Wright State University and the Air Force Institute of Technology in Dayton, Ohio, a U.S. Army radiation expert was asked by the author about the relationship between the Fukushima Daiichi Nuclear Power Plant incident, in the aftermath of the earthquake and tsunami off the shore of Japan in 2011, and the explosion of the nuclear power plant in Chernobyl, Ukraine in 1986. The question was, “Is there sufficient similarity between the two incidents whereby the Chernobyl accident could have informed the Fukushima Daiichi accident?” The answer was surprising. “No, not really,” said the colonel, “the climactic differences alone make the difference.” He went on to explain that the dryer Ukraine climate meant that radioactive particles that fell onto the ground, buildings, and vegetation was easily re-released into the atmosphere, whereas the wetter Japanese climate eliminated that re-release. Also, the cause of the incidents is enough to make a clear comparison impossible. This discussion reinforced the fact that inappropriately applied analogy, often separated by small but important subtleties, must be avoided for applied historical analysis to work properly.

Richard E. Neustadt and Ernest R. May warn that although history has a unique capability to inform contemporary problems, the misapplication of past events can lead to problematic outcomes. They argue this from the standpoint of decision-makers who normally disregard the historical record altogether. They claim that “debate in serious decision situations starts at least nine times out of ten with the question: What do we do? Background and context get skipped. The past comes in, if at all, in the form of analogy,

with someone speaking of the current situation as like some other.”<sup>28</sup> Broad assumptions, therefore, can divert attention away from critical dissimilarities.

Another pitfall of historical application to present problem solving is the overreliance on core or basic historical data that fails to account for contextual analysis. This problem has challenged military historians who seek to improve modern strategic schema by building a new model that correctly extracts relevant data.

Jon Tetsuro Sumida and David Alan Rosenberg identify the Navy’s oversimplified application of the past to current technology challenges. They claim, “given incomplete or overgeneralized understandings... important questions about the connections between them have for the most part not even been asked, to say nothing of being answered.”<sup>29</sup> John B. Hattendorf subtly criticizes the overreliance on basic historical information that simply recounts situations and how navies were deployed in battle. He acknowledges the work of modern, more enlightened, naval historians who “have come to understand that navies and those who serve in uniform do not exist separately from other parts of society. In addition to seeing their actions in terms of leadership, tactics, and strategy, scholars must also understand them in terms of the external environment....”<sup>30</sup>

The improper use of analogy and the exclusive use of basic historical data are pitfalls that can each lead to inaccurate and inappropriate applied history. Casting a broad comparison between Savannah’s epidemic, the Spanish Flu epidemic in 1918, and a

---

<sup>28</sup> Neustadt and May, 4.

<sup>29</sup> John B. Hattendorf, *Doing Naval History: Essays Toward Improvement* (Newport, RI: Naval War College, 1995), 26.

<sup>30</sup> John B. Hattendorf, “The Uses of Maritime History In and for the Navy,” *Naval War College Review* 56, no. 2 (Spring 2003), 21.

modern flu outbreak, for example, may be completely inappropriate when all of the factors are actually examined. All factors that surround an event must be investigated; political, economic, physical, and social. Analogies and historical stories may make for good reading but may, in fact, threaten the very good it was intended to accomplish: eliminating the replaying of the mistakes of the past, in this case, a tragic disease epidemic.

### **The Appropriate use of Applied History**

Applied historical analysis does have its place and, when used properly, can be of tremendous benefit to modern decision-makers. There is not a historian, past or present, which would deny the criticality of accuracy in the building of a historical account. Nor, is there a layperson that would not believe that learning from the past would not have value. The answer lies somewhere in the middle: a rigorous analysis of the past, coupled with building a library of case studies that contemporary decision-makers can reference in the management of community threat. If the yellow fever epidemic in Savannah in 1876 has potential to prevent a similar outbreak today, then a full analysis must be made that takes into account the breadth of issues that surrounded the event by careful handling of primary source information that accurately reflects the event. But how should this be accomplished? By combining rigorous investigation of the historical record with a comprehensive analysis of context a rich and valuable tool can be written. Military historians have provided a model with which disaster historians can build these analysis tools.

## **Military History as a Model for Applied History**

Military historians have provided a model that demonstrates how applied history can work appropriately. Military historians have long studied the battles of the past to inform current strategy and tactics. Although, as will be discussed, they are still learning how best to accomplish this historical analysis, their approach is helpful to understanding how past events can be similarly applied in the disaster domain.

Unquestionably the first military historian to leverage the past for future value was Thucydides. An advocate for keeping to a pure and accurate historical account, he also valued the potential of examining war as a means of informing future warriors. In his speech entitled, “The Method and Purpose of this History; the Greatest of the Peloponnesian War,” Thucydides entreats, “But if he who desires to have before his eyes a true picture of the events which have happened, and of the like events which may be expected to happen hereafter in the order of human things, shall pronounce what I have written to be useful, then I shall be satisfied.”<sup>31</sup> This affirmation of the timeless value of the historical record underscores the potential value of leveraging what people have suffered in the past for the reduction of suffering in the future. Interestingly, Thucydides chronicled a plague that attacked Athens during the Peloponnesian War. “The general character of the malady no words can describe,” wrote Thucydides, “and the fury with which it fastened upon each sufferer was too much for human nature to endure.”<sup>32</sup> Unwittingly, his account could just as well have described Savannah in 1876.

---

<sup>31</sup> Thucydides, *Speeches from Thucydides* (repr., New York: Oxford University Press, 1919), 14.

<sup>32</sup> *Ibid.*, 36.

Thucydides promoted this approach in the classical era, but it was General Carl Von Clausewitz who pioneered applied historical analysis in the modern era of military history. Clausewitz stands out as one of the preeminent thinkers of military and national strategy. As the senior inspector of artillery for the Prussian army in the early nineteenth century, he engaged in a process that would challenge conventional thought on the prosecution of war based on a historical context and mental reenactment. In his epic tome, *On War*, Clausewitz demonstrates that approach. In the explanation of the general principles of defense, he refers his readers back to previous Prussian engagements, namely, the battle of Aspern and the siege of Dantzig.<sup>33</sup>

Jon Tetsuro Sumida is a prominent scholar of the implications of *On War*. In his book, *Decoding Clausewitz: A New Approach to On War*, Sumida unpacks Clausewitz's teachings on the application of history. Sumida writes that Clausewitz "offered instruction as to how a sense of intuition, and thus of genius, might be acquired by someone without experience in supreme command. This was to be done through the mental reenactment of historical case studies of command decision."<sup>34</sup> Thus, Clausewitz demonstrates that value of mining the historic record for pragmatic purposes.

Today, Williamson Murray and Richard Hart Sinnreich echo Clausewitz's views. In their book, *The Past as Prologue: The Importance of History to the Military Profession*, they indict military leadership who "seem to have neither the time nor the

---

<sup>33</sup> General Carl Von Clausewitz, *On War*, trans. Colonel J.J. Graham (1832; repr., London: Routledge and Kegan Paul, 1966), p.217.

<sup>34</sup> Sumida, 3.

inclination to look for the past for help.”<sup>35</sup> They cite the example of 2003 Iraq invasion planners who, according to the authors, “chose deliberately or by oversight to ignore history.”<sup>36</sup> Murray and Sinnreich also acknowledge the challenge of applied history as previously identified: yielding to oversimplification and improper analysis of the historical case. They chide, “The inherent danger, of course, is that one’s own errant judgment and prejudices can thus be reinforced, or that one seeks to generalize from the particular without taking due account of changing circumstances.” They continue, “This points toward the necessity for military professionals to be guided and mentored in their study of military history by historians....”<sup>37</sup> Their appreciation of both the advantage and importance of scholarly reach back should be regarded by disaster professionals.

The extent to which military historians have applied effort and rigor to the exploitation of historical analysis provides an excellent parallel for disaster planners and responders. Appropriately reaching back to past disaster events, planners have a unique opportunity to avoid similar mistakes.

### **The New-Model Monograph of Disaster History**

Currently, the civilian emergency management domain (of which public health is an uncomfortable and distant partner), is beleaguered by a reactionary approach. In other words, until a problem is detected, no problem exists. This paradigm is problematic and deadly, for, by definition, once a problem is detected, it is too late. In the parallel case of a flu epidemic, for example, once the flu is deemed epidemic in proportion, incubation

---

<sup>35</sup> Williamson Murray and Richard Hart Sinnreich, *The Past as Prologue: The Importance of History to the Military Profession* (New York: Cambridge University Press, 2006), 1.

<sup>36</sup> Ibid.

<sup>37</sup> Ibid., 27.

and vast spread of the virus has already spawned and has yet to be detected in other locations!

Rosenberg and Sumida advocate for a new military history called “new model monograph.”<sup>38</sup> They assert that these tools, “employ, and the decision-making process analysis approach calls for, the integrated examination of technical, personnel, economic, administrative, and financial factors in order to reinterpret the course of policy-making and its consequences in operations.”<sup>39</sup> Looking at all the ancillary factors of a battle the tactical theorist has a much better chance of identifying probable successes and chances of failure. This is especially true in modern irregular warfare, where social conditions are as much a factor to military success as machinery and weapons. The same can be said for the scholarly analysis of a disaster.

### **Chapter Conclusion**

Taking the concept of applied history from the military domain to the civilian emergency planning domain, the correlation is quite obvious. If the yellow fever outbreak in Savannah, Georgia of 1876 was preventable, and specific factors were detectable, knowable, and predictable, then, armed with this case history, appropriate surveillance can be put in place to monitor those conditions today. Thus, Savannah can be utilized as a case study in the training and education of modern community planners and thus potentially save lives.

---

<sup>38</sup> Jon Tetsuro Sumida and David Allen Rosenberg, “Machines, Men, Manufacturing, Management, and Money: The Study of Navies as Complex Organizations and the Transformation of Twentieth Century Naval History,” in *Doing Naval History: Essays Toward Improvement*, ed. John B. Hattendorf Newport, RI: Naval War College Press, 1995), 25-39.

<sup>39</sup> Hattendorf, *Doing Naval History*, 30.

This paper, then, seeks to be a framework for the 'new model monograph' of a potentially new discipline: disaster history. In so doing, the lives of James Cleary, and all of those of Savannah who were lost to the terrible curse of yellow fever, can be redeemed by a new generation who seek to reach back to the past, to protect the future.

## CHAPTER TWO: SAVANNAH IN 1876

In 1876, Savannah, Georgia was a prominent and important river port. Savannah ranked number three in cotton shipping in the nation.<sup>40</sup> Ships would enter the protection of the Savannah River from around Tybee Island and deliver goods to the growing city while draymen hauled to its banks the cotton and rice that met the requirements of foreign markets and the demands of industry. Its importance as a hub of commerce and transportation was a driving factor for the city fathers, and the resultant craving for shipping would lead the city into economic hardship that would contribute to the disease that would kill them.

On a charter by King George II to form the thirteenth and final colony, James Edward Oglethorpe, and 114 colonists sailed from England aboard the *Anne* in 1733 and founded Savannah. The city was built 16 miles inland from the Atlantic Ocean on the banks of the Savannah River and its surrounding Yamacraw Bluff. It was surrounded by what is called the lowcountry, which is a stretch of wet, marshy land that runs from Charleston, South Carolina, south past Savannah to St. Mary's, Georgia. Oglethorpe, a visionary, determined that Savannah should be built in an orderly and democratic fashion and implemented the New World's first urban planning scheme. Savannah's streets were thus organized around a series of common, grassy squares that characterize the city to this day.

The actual population of Savannah in 1876 is not exactly known. The city's annual report of 1876 lists the population as 18,967, however other numbers have been

---

<sup>40</sup> Denmark, 2.

published.<sup>41</sup> Dr. James J. Waring, prominent political and social figure in Savannah, cites the population as 28,000 at the time.<sup>42</sup> It is important to note, however, that Dr. Waring was a very outspoken opponent to Savannah's political leaders during the epidemic as this paper will highlight. His numbers, and his stated death toll of 2,249, could either represent a more accurate assessment (he was also a prominent local physician), or an inflated assessment targeted to further embarrass city officials.<sup>43</sup> Demographically, the city was predominantly colored at 61%, however, the city was controlled, both officially and unofficially, by white elites. Either way, Savannah was a small municipality but of major economic significance on the Atlantic coast.

Savannah historically thrived upon cotton, rice and slavery. Although cotton reigned as 'king' throughout its long history, other cash crops contributed to the economy. Significant to the yellow fever scourge was the rice crop that thrived on the low wetlands surrounding the river. Efforts in the early 1820s to stimulate the city's economy discovered that elsewhere in the lowcountry, rice plantations were bringing in revenue. Several plantations thus emerged, led by plantation owners who were lured to Savannah by the promise of new technology, high prices, and promises of Savannah's future prosperity.<sup>44</sup>

The rice plantation was the perfect breeding ground for the *Aedes aegypti*. Jeffery R. Young describes the rice plantation as a swampy environment particularly conducive to disease. Here, the specific labor demands of rice planting "heightened the slaves' risk

---

<sup>41</sup> Anderson, *Report of 1876*, 12.

<sup>42</sup> Waring, 10.

<sup>43</sup> Ibid.

<sup>44</sup> Walter J. Fraser, *Savannah in the Old South* (Athens, GA: University of Georgia Press, 2003), 205.

of becoming ill. Standing knee-deep in the periodically flooded fields, lowcountry rice slaves were directly exposed to a host of water-borne infections.”<sup>45</sup> Although greatly reduced by city-managed dry culture initiatives, the standing water of the rice industry left a legacy of drainage problems that would plague the city for years to come. Although slavery ended, the plantation system simply replaced slaves with sharecroppers and the risks of working in these environments and the public health risks to the general population never changed.

### **Savannah’s Yellow Fever History**

The epidemic of 1876 was not Savannah’s first visitation by yellow fever. Outbreaks in 1820 and 1854 are well documented. In the wake of New Orleans’ epidemic in 1853, the outbreak of 1854 was quite worrisome for Savannah residents, and was an ominous sign of things to come. Unfortunately, these signs were not recognized in 1876.

A catastrophic fire ravaged the city in the summer of 1820. The numerous empty basement cavities, left behind from burned out buildings, provided ideal conditions for the breeding of mosquito larvae.<sup>46</sup> The resultant yellow fever outbreak took the lives of 895 citizens, a full twelve percent of its population. Several interesting issues germinated as a result of this first catastrophic outbreak. First, attempts to minimize the extent of the outbreak by city officials are first observed. “Mayor Charlton attributed the mortality to “fever and ague,” cites author Walter J. Fraser, Jr., and “The City Council published false reports that the health of the city was good even as death rates reached epidemic

---

<sup>45</sup> Jeffery R. Young, “Ideology and Death on a Savannah Rice Plantation, 1833-1867,” *The Journal of Southern History* 59, no. 4 (November 1993): 680.

<sup>46</sup> Fraser, 199-200.

proportions.”<sup>47</sup> The mayor recanted his assessment after Savannah residents, who fled to other cities for refuge, prompted other Georgia newspapers to challenge the city’s statements. This very same practice would re-appear in 1876.

Another issue that took root during the 1820 outbreak is the emergence of Dr. James Proctor Screven as an agitator against city filth and its contribution to the yellow fever problem. Following the outbreak of 1820, the city appointed Dr. Screven as the city’s health officer to address the city’s sanitation problems. It was this same Screven who would later serve as mayor of Savannah from 1856 and 1857 and divert significant city funds to cleaning up the city.

Finally, the 1820 outbreak introduces Dr. James J. Waring to the Savannah yellow fever debate. As a member of the elite Waring clan, Waring held tremendous political clout. As a local physician, he was very interested in attacking what he felt was the cause of the fever: filth and standing water. Both Waring and Screven were instrumental in beginning to advocate for a good cleaning of the city. Although it would be much later learned that drainage, and not filth *per se*, was the direct cause of yellow fever spread, the city’s awareness of the connection of poor drainage to poor sanitation, can be traced clear back to the 1820 epidemic.

The year 1854 would likewise be a similar year of great tragedy in Savannah. Following the script of the 1820 outbreak, city officials minimized the outbreak and delayed any official announcement. Outside newspapers accused Savannah of suppressing the outbreak and an open letter would be published in the paper maligning

---

<sup>47</sup> Fraser, 200.

the over-reaction to the illness and calling for calm.<sup>48</sup> Mayor Richard Arnold, himself a prominent physician, “had joined with politicians, businessmen, and newspaper editors in a public relations campaign that was part wishful thinking and part cynical manipulation.”<sup>49</sup> “Above all else,” continues author Jacqueline Jones, “Savannah’s leaders prized prosperity and public order, and on both counts the epidemic was devastating.”<sup>50</sup> Although no figures exist that can attribute death rates to a delay in notification, certainly thousands were put at risk and many fell victim to the fever when denied the opportunity to flee. The 1854 epidemic would yield similar behaviors and similar results, unfortunately warnings were not heeded and history repeated itself, yet again, twelve years later.

### **Savannah and the Civil War**

Unbelievably, Savannah survived the Civil War virtually unscathed. On the night of December 20, 1865, fearing unnecessary destruction to the city, the Mayor, Dr. Richard Arnold, and a group of Aldermen, sought out the Union Army to arrange terms of the city’s surrender. On December 21, 1865 General Henry W. Slocum’s Twentieth Corps entered the city. The ensuing occupation occurred without violence but the city’s occupation by a contingent of 60,000 troops and the sudden influx of freed slaves entering into the city’s mainstream was not without difficulties. At the very least, city services were stretched to the breaking point until order returned.

Of note, the city’s black clergy were highly influential in redefining life in Savannah after the war, certainly for the freedmen. Perhaps their most dramatic

---

<sup>48</sup> Fraser, 299.

<sup>49</sup> Jacqueline Jones, *Saving Savannah: The City and the Civil War* (New York: Alfred A. Knopf, 2008), 28.

<sup>50</sup> *Ibid.*, 29.

demonstration of their influence was the formation of an all-black school for the ex-slave children, immediately after the city's occupation. Ceremoniously, the children were marched out of the First African Baptist Church and into the Bryon Slave Mart on St. Julian Street where they sat on benches "surrounded by remnants of the old regime – handcuffs, whips, paddles, sales receipts for slaves- and positioned in front of the auctioneer's desk, now occupied by their teacher."<sup>51</sup> It was this and other social organizations that would later play an important role when they petitioned the city for adequate medical care for the city's poor.

After the war Savannah carried on as a cotton hub, but had to learn a new behavior under a new social paradigm. Old habits died hard, however, and Savannah struggled to redefine itself while shedding that old system. Wishing to exploit its position as a cotton-shipping hub, it sought to expand its importance by become a major center of commerce and transportation. To accomplish this, the city invested hundreds of thousands of taxpayer dollars to own shares in a couple of railroad ventures. As will be demonstrated, this move put the city into grave debt.

Freed blacks continued to suffer under the bondage of old systems. In July of 1872, unrest broke out over segregated streetcars. In the end three black protesters lay dead and stray bullets wounded "two white women and their children, who were sitting on their front stoops on Bull Street".<sup>52</sup> Voting riots also plagued the city, as freedmen continued to be harassed at the ballot box. City services remained favorable to white elites. Black, and poor white sections, suffered under difficult, if not intolerable, conditions.

---

<sup>51</sup> Jones, 213.

<sup>52</sup> Jones, 379.

## **Chapter Conclusion**

On the eve of 1876, Savannah had a rich history of both failure and survival. It was, and remains today, the quintessential South, but as August 1876 approached, the winds of change were threatening, and the city was perched on the edge of disaster. History was prepared to repeat itself as the scorching heat of summer began to stretch across the wetlands of the Savannah River. Disaster would soon strike, and strike hard.

## CHAPTER THREE: YELLOW FEVER

Yellow fever was, and still is, a terrible scourge to humans. A viral haemorrhagic disease, it still has no known cure. Today, as in 1876, treatment goals are aimed at relieving the harsh symptoms that the patient suffers. After incubating in the body for three to five days, yellow fever erupts as a fever with two distinct phases. The first phase includes severe headache, muscle ache, fever, shivers and loss of appetite, no different than most flu-like fevers. After four to five days the symptoms disappear, this remission either heralds the end of the attack, or for 15% of the victims, serves as a precursor to a more serious, and often deadly second phase. In this acute phase, “high fever returns...the patient rapidly develops jaundice and complains of abdominal pain with vomiting. Bleeding can occur from the mouth, nose, eyes and stomach.”<sup>53</sup> Today, approximately 200,000 cases are reported annually worldwide with the death toll at approximately 30,000. Much like the nineteenth century, the death rate remains around 50% of those infected.<sup>54</sup> A recent outbreak in Côte d’Ivoire in early 2011 took twenty-five lives.<sup>55</sup> Today, however, a vaccine is available to stop the spread even after an outbreak starts. In the Côte d’Ivoire case, 840,000 people were vaccinated in the surrounding region of the outbreak, essentially arresting its proliferation.<sup>56</sup>

---

<sup>53</sup> World Health Organization, “Yellow Fever,” under “Factsheets,” <http://www.who.int/mediacentre/factsheets/fs100/en> (accessed August 30, 2011), 1.

<sup>54</sup> World Health Organization, “Yellow Fever,” 1-2.

<sup>55</sup> World Health Organization, “Yellow Fever in Cote d'Ivoire,” under “News,” [http://www.who.int/csr/don/2011\\_01\\_25/en](http://www.who.int/csr/don/2011_01_25/en) (accessed August 30, 2011).

<sup>56</sup> Ibid.

## Onset of Disease in the New World

Yellow fever, or Yellow Jack as it was known in the South, was not a new phenomenon in the nineteenth century South. As Europeans started to emerge from their continental roots they were both carriers and victims of biological threats. Alfred W. Crosby, in his groundbreaking book, *Ecological Imperialism: The Biological Expansion of Europe, 900-1900*, suspects that the first disease of substance crossed the European continental border to the British Isles in 664 A.D., evidently “laying low a vast number of people.”<sup>57</sup> Crosby claims that biological factors were more influential to European expansionism than imperial intention.

In the New World, disease, including yellow fever, was an early arrival. Smallpox and flu obliterated the Huron Indians. From the early to mid seventeenth century this tribe dwindled from 30-40,000 down to such a few in number that the remaining remnant were simply absorbed into other tribes. A tribe on Nantucket Island, off the coast of Massachusetts, was riddled by disease. In 1763, their numbers went from 3,000 down to 348. “An epidemic of yellow fever that year left only twenty survivors.”<sup>58</sup>

Yellow fever, until the last epidemic in 1905, would claim the lives of countless native and new Americans. It would appear every summer, throughout the Eastern seaboard. Although incorporating all common diseases at the time, scholars estimate that the Native American population, in what is now the United States, plummeted from 5-10 million in 1492, to mere 600,000 in 1800.<sup>59</sup> How many whites died is difficult to estimate

---

<sup>57</sup> Alfred W. Crosby, *Ecological Imperialism: The Biological Expansion of Europe, 900-1900* (New York: Cambridge University Press, 1986), 35.

<sup>58</sup> Colin G. Calloway, *New Worlds for All: Indians, Europeans, and the Remaking of Early America* (Baltimore: Johns Hopkins University Press, 1997), 37.

<sup>59</sup> Calloway, 40.

given the variation of how disease was identified and recorded, however, case-fatality rates ranged from 15 to 50% meaning that when yellow fever struck, it struck hard, and took a good number of the population with it. Despite its long history, however, yellow fever remained an enigma and the warnings of the past often went unheeded.

The yellow fever virus is believed to have hit the North American continent in Spanish Florida in 1649-1650, but did not extend to the British colonies until 1693 when “warships from the West Indies infected Boston and other towns.”<sup>60</sup> The theory that it came from ships and sailors was widespread and certainly somewhat accurate. The slave trade was the culprit. Yellow fever’s origin was in the heart of equatorial Africa. Infected slaves, and mosquitos that bred in the various water containers about the ships, survived the Middle Passage. White slave-owners, and the various merchants who crowded the wharves, provided perfect blood meals for hungry mosquitos to spread their deadly poison. As the disease proliferated in the tropics, shipping became the ultimate vehicle by which infected persons moved to new locations where the mosquitos took it from there.

Cities along the coast provided excellent breeding grounds. The congested urban environments were exactly what the mosquitos needed. Gerald N. Grob explains: “Irrigation practices, for example, created stagnant bodies of water, thereby providing better conditions for... mosquitos serving as vectors for malaria and yellow fever.”<sup>61</sup> Ironically, the *Savannah Morning News* declared on the day after James Cleary’s death, on August 22, 1876, “If some of our inventive geniuses will only introduce something

---

<sup>60</sup> Paterson, 855.

<sup>61</sup> Gerald N. Grob, *The Deadly Truth: A History of Disease in America* (Cambridge: Harvard University Press, 2002), 11.

that will cause mosquitoes to sleep at night his fortune will be made.”<sup>62</sup> This innocent side note in the morning paper was an omen of things to come.

Those people who originated within the African continent, and who had been exposed, either directly or genetically, to yellow fever carried a level of immunity to the disease. Although they would contract it, they seemed to have better survival rates. This immunity actually helped justify the importation of black slaves who were more acclimated to disease and thus more suitable for labor in the sub-tropical south. Dubbed the ‘stranger’s disease’ by most, it was apparent that those who came to the American South from cooler climates were most likely to die from yellow fever. During the epidemic of 1820 in Savannah, eighty percent of the deaths were outsiders, or ‘strangers,’ who became “transient fodder for the saffron scourge.”<sup>63</sup>

### **Climate and Yellow fever**

Certain climates were very favorable for the spread of the yellow fever virus. The *Aedes aegypti* mosquito is active in moist, hot conditions, and thus the American South was ideal. The mosquito tended to breed in the common sights of the nineteenth century urban environment. Small vessels of water, such as flowerpots, rain gutters, storm sewers, water storage barrels, and the brackish water of non-flowing canals were all perfect places for mosquitos to breed. For the residents of the South, the ‘sickly season’ came like clockwork as the spring storms left their watery breeding grounds and the scorching hot and humid summers kept them intact long enough for the larvae to emerge. The heat was needed for the mosquito to feed, and feed she did. It is difficult to ascertain

---

<sup>62</sup> *Savannah Morning News*, August 22, 1876.

<sup>63</sup> Kenneth F. Kiple and Virginia H. Kiple, “Black Yellow Fever Immunities, Innate and Acquired, as Revealed in the American South,” *Social Science History* 1, no. 4 (Summer 1977): 423.

whether it was simple complacency that lulled Savannah, and other communities, into a sense of inevitability, or whether sheer ignorance was at play. Regardless, the climate calendar alone should have caused the red flags to be raised as the tragedy quietly approached.

### **Other Diseases of the South**

Yellow fever was not the only disease that troubled the Southerner. Malaria, cholera, chronic diarrhea, typhoid fever, and smallpox were also bad characters. Understanding these maladies helps to understand how sanitation was critical to general disease prevention as a whole and how the understanding of malaria, at the time, would minimize the confusion of ‘mistakenly’ identifying James Cleary’s cause of death as congestive fever.

Malaria, unlike yellow fever, is a parasite that is transmitted by another breed of mosquito: the *Anopheles*. Like the *Aedes Aegypti*, the *Anopheles* breeds in stagnant pools and requires blood meals to ovulate and thus reproduce. Thus malaria was a prevalent, but less fearsome, companion to southern life and mortality. *Plasmodium falciparum*, the most virulent form of malaria, was known as congestive fever in the nineteenth century, clearly identifying it as a strain of malaria. Thus, The Savannah Morning News’ reporting of the burial of James Cleary as due to congestive fever, following an autopsy, was a clear misrepresentation, either by the newspaper, or by the person who reported the death to the paper. The interest, by many parties within Savannah, to suppress any panic reaction by the citizens was certainly in play, and citing ‘congestive fever’ as a cause of death was a convenient way to avoid the flight to the countryside that slowed paper sales.

Conditions that caused malaria were widely known and help explain how the conditions leading up to 1876 were unmistakably dangerous. Andrew McIlwain Bell relates that, “Residents of lower Louisiana and Mississippi who lived in swamps near the Mississippi River routinely evacuate their homes to escape the strange sickness that mysteriously appeared whenever it flooded.”<sup>64</sup> The American Quaker poet and abolitionist, John Greenleaf Whittier, in his poem “The Farewell” also reveals life in the dangerous environment of the South. He laments,

Gone, gone, sold and gone  
To the rice swamp dark and lone  
Where the slave-whip ceaseless swings,  
Where the noisome insect stings,  
Where the fever-demon strews  
Poison with the falling dews,  
Where the sickly sunbeams glare  
Through the hot misty air.<sup>65</sup>

Thus, Whittier captured the essence of the southern disease threat: water (rice swamp), mosquitos (insect stings), and summer’s heat (sickly sunbeams). This poem is evidence that the components of yellow fever were known even if they were not fully understood.

Cholera was another endemic disease of the South. Unlike yellow fever, a virus, or malaria, a parasite, cholera is caused when the victim ingests contaminated water or food. The resultant infection within the small intestine causes extreme, watery diarrhea and vomiting that dehydrates the victim, often to death. In the nineteenth century, cholera was known to have a link to poor sanitation. Dr. John Woodworth, America’s

---

<sup>64</sup> Andrew McIlwaine Bell, *Mosquito Soldiers: Malaria, Yellow Fever, and the Course of the Civil War* (Baton Rouge: Louisiana State University Press, 2010), 13.

<sup>65</sup> John Greenleaf Whittier, “The Farewell,” under “John Greenleaf Whittier Poems” on *Famous Poets and Poems.com*, [http://www.famouspoetsandpoems.com/poets/john\\_greenleaf\\_whittier/poems/5337.html](http://www.famouspoetsandpoems.com/poets/john_greenleaf_whittier/poems/5337.html) (accessed October 31, 2011).

first U.S. Surgeon General, was keen on cholera's threat. As Surgeon General of the Union Army during the Civil War, he saw cholera's devastating effects and was a champion for its elimination. In his review of a report published in the *Indian Annals of Medical Science* in 1876 entitled, "The Cholera Epidemic of 1873 in the United States of America," Woodworth indicts the Indian findings on cholera as inaccurate and not scientifically based. He also states that, "The only lessons taught by Indian experience as to the best mode of dealing with cholera are, that a good sanitary condition affords the best chance of escape...."<sup>66</sup> Thus even cholera was identified as a sanitation issue. Interestingly, Woodworth would play a role in the Quarantine Act of 1878 following the yellow fever outbreak of the Mississippi basin in 1878.

There were few diseases in the nineteenth century that were not understood, or suspected, of being caused or worsened by poor sanitation. Although the mosquito was not identified as the vector, it was considered part of the broad public health problem. Likewise, poor drainage was always included as a component of the sanitation problem. As 1876 loomed, Savannah knew the diseases, knew the problem, and could have only anticipated tragedy.

### **Yellow Fever and the Civil War**

The Civil War was characterized by more than bloody military campaigns. Fifty percent of all casualties, from both sides, were due to disease. This is a significant figure given the volume of literature that focuses on the war's bloody battles and valiant generals. The truth is, half of all the soldiers who died didn't die in a pool of blood on the battlefield, but rather in a pool of vomit or feces in a fetid field hospital or along the

---

<sup>66</sup> John M. Woodworth, "Review of the Article, the Cholera Epidemic of 1873 in the United States of America," *Indian Annals of Medical Science* (January 1876), 6.

marching trail. The importance of the war's disease problem is key to understanding Savannah's culpability in the 1876 tragedy. As disease began to have a negative impact on battlefield success or failure, military medicine increased its efforts to face this new enemy. As a result, preventative measures were well known throughout the theatre of war and these measures were well published and institutionalized throughout both armies.

As early as 1862, in the war's infancy, yellow fever was identified as a threat to Union troops and measures were taken to reduce it. On May 1, 15,000 troops, under the command of Major General Benjamin F. Butler, landed at New Orleans to occupy the captured city. Although the Union Navy, under David Farragut, had overcome the city's military defenses, the Confederacy was hoping that yellow jack would take on and defeat the Union's ground troops. Children chanted taunts to their invaders and called upon yellow fever to intervene. Butler, also fearful of yellow fever's threat to his troops, immediately took measures to clean up the city. Bell tells this story in his book, *Mosquito Soldiers: Malaria, Yellow Fever, and the Course of the Civil War*. Bell describes Butler's measures:

In town Butler put an army of laborers to work around the clock flushing gutters, sweeping debris, and inspecting sites thought to be unclean such as stables, 'butcheries,' and New Orleans many 'haunts of vice and debauchery.' Steam-powered pumps siphoned stagnant water from basins and canals into nearby bayous.<sup>67</sup>

These measures were a huge success. During the summer of 1862 in New Orleans, only two deaths were attributed to yellow fever. Bell goes on to confirm, "His [Butler's] stringent sanitation policy eliminated many of the places where *Aedes aegypti*

---

<sup>67</sup> Bell, 38.

mosquitos preferred to breed, such as rain-filled receptacles and stagnant pools.”<sup>68</sup> It is important to note that the drainage of standing water was, again, believed to be a component of community cleanliness, thus the war provided valuable insight into community preparedness. Bell goes on to say that newspapers picked up on this success, thus the news of these sanitation measures, and their outcomes, were widely known beyond New Orleans. Although it is likely that Butler’s specific actions were forgotten by the time 1876 rolled around, there would have certainly been a continued general consciousness of the positive affects of improved sanitation that would have existed.

### **The Yellow Fever Debate**

There were two major theories regarding the cause and spread of yellow fever during the period. Among physicians, the lines of debate were drawn on medicine. Politically, the debate was drawn along local and national political policy lines. In Savannah, the debate was quite animated, especially among local doctors.

As a matter of context, it is important to understand that public health, as a formal and sustaining component of community administration, was in its infancy in 1876. As discussed in the example of the 1854 outbreak, public health officers or sanitation committees were formed in reaction to unusual circumstances. Following the New Orleans epidemic of 1853, the Louisiana legislature established the Louisiana Board of Health, but its effectiveness was marginalized by political battles over quarantine and poor funding.<sup>69</sup> Other factors hampered public health initiatives. John H. Ellis, in his work, *Yellow Fever and Public Health in the New South* makes a damning observation.

---

<sup>68</sup> Bell, 38-39.

<sup>69</sup> John H. Ellis, *Yellow Fever and Public Health in the New South* (Lexington: University Press of Kentucky, 1992), 34.

He asserts, “Within the context of southern slaveholding society, a society ruled by the paternal authority of a slaveholding class, assertion of liberal, urban bourgeois values, such as sanitary reform, were anathema to the governing ideology.”<sup>70</sup>

Georgia would have its own experience with a public health initiative. The Georgia State Legislature did not form a permanent State Board of Health until 1903, or did it? Georgia had, in fact, formed a board in 1875 but “halted all work in 1877.”<sup>71</sup> Ellis goes on to say that, “The new agency was opposed from the beginning, however, by county politicians; by sectarian medical practitioners, who opposed the law’s discrimination in favor of regular physicians; and by the municipal authorities of Brunswick and Savannah, who resented the board’s investigative activity during the yellow fever epidemics in 1876.”<sup>72</sup> This failure of public health initiatives is due to the hesitancy of local governments to recognize the interference of higher government in local affairs.

The debate over the cause and spread of yellow fever was divided into two camps: local origin and importation. Each camp had an almost religious conviction of its view despite the fact that little, if any, hard science could back up their claims. In Savannah, this debate would rage for years.

The local origin theory, or non-contagion theory, held that yellow fever was not contagious and that pervasive local conditions caused it. The medical community, who was most cognizant of early studies, and perhaps observed local conditions in a more objective manner, largely held to this theory. Local origin was partly supported by the

---

<sup>70</sup> Ibid., 35.

<sup>71</sup> Francis R. Allen, “Development of the Public Health Movement in the Southeast,” *Social Forces* 22, no. 1 (October 1943): 70.

<sup>72</sup> Ellis, 34.

findings of early researchers, including Benjamin Rush, who, in the late eighteenth century, declared that the disease non-contagious and nothing more than “aggravated form of the autumnal fevers” not uncommon to Philadelphia.<sup>73</sup> Rush, an ardent revolutionary and signatory of the American Declaration of Independence, was also a physician, receiving his medical training at the University of Edinburgh. Having established a medical practice in Philadelphia, he was on hand during the yellow fever outbreak in that city in 1778.

These pervasive local conditions included a host of sanitation problems that were problematic throughout the nation’s fledgling urban regions, namely sewage, privies, poor water drainage, and rotting flesh and vegetation. As population densities increased, so did these conditions, and as cities grew, so did the problem. This invisible poison was called miasma and it emanated from the rotting flesh of dead animals, dead foliage or the stench of stagnant pools. Falligant, a local origin theorist, describes these factors:

I feel more inclined to believe that that the exhalations of the wet-cultured rice-field in the period of the harvest-flow become more deadly, not so much from vegetation as from organic or insectivorous decomposition, superinduced in these stagnant waters by the hot summer suns.

What wonder, then, that our atmosphere became infiltrated with poisonous emanate! And when we add to this the special pestilential element infused from the ammonioco-putrid odors of the open-surfaced Bilbo sewer outlet... the foul gases everywhere exuding from unflushed sewers, privies and dry-wells, and the filthy street washings....<sup>74</sup>

The publication entitled, *History of the pestilence, commonly called yellow fever, which almost devastated Philadelphia, in the months of August, September and October, 1798*, demonstrates the eerie similarities between Savannah and the earlier Philadelphia epidemics. Hot, humid weather, poor sanitation, and bugs pervaded the city. Again, as in

---

<sup>73</sup> Humphreys, 18.

<sup>74</sup> Falligant, 5-6.

Savannah's case, poor drainage is not directly associated with yellow fever, but is considered as a part of the sanitation problem. Describing Philadelphia, the book states, "A few years ago, there were numbers of ponds of stagnant water, in the outlots of the city, that periodically subjected the inhabitants surrounding them to fever-and-ague."<sup>75</sup> Also mentioned was that, "Many tribes of insects were uncommonly numerous; as mosquitoes, ants, crickets, cockroaches, & c [sic]."<sup>76</sup> Local origin theorists also recognized that the disease tended to remain confined to a particular locality rather than spreading to a region. When an outbreak erupted, residents fled to the country but seldom did any yellow fever follow the evacuees.<sup>77</sup>

The importation theory, also known as the contagion theory, held that skin contact, clothes contact, or even breathing the same air as an infected person spread yellow fever person-to-person. This theory was favored by the press and the general public and allowed the public to seek a scapegoat and look externally for the cause and the ultimate blame.

Typically, officials would identify a particular ship that arrived in port with sick sailors, establish that the sick sailors had shore contact with uninfected persons, and thus spread the disease. Dr. Octavius White reported that Cleary lived "within a stone's-throw of the river bank, about eight hundred and fifty feet from the habitual haunt of *all* [sic.] Spanish seamen who frequented the port, and even within the identical street, about two

---

<sup>75</sup> Thomas Condie, David Rittenhouse and Richard Folwell, *History of the pestilence, commonly called yellow fever, which almost devastated Philadelphia, in the months of August, September and October, 1778* (Philadelphia: R. Folwell Press, 1799), 8.

<sup>76</sup> *Ibid.*, 13.

<sup>77</sup> Julius Caesar Le Hardy, MD., *The Yellow Fever Panic* (Savannah: Townsend, 1888), 6.

blocks distant.”<sup>78</sup> In the case of the 1854 epidemic in Savannah, for instance, the slave ship *Ramirez* was believed to be the culprit.<sup>79</sup>

The difficulty with this position was political. Although it was easy, and often beneficial, to blame a foreign villain, the answer for the contagion theory was quarantine, and quarantine spelled economic hardship. Quarantine required that all incoming shipping be stopped at anchorage, boarded, and inspected for any signs of illness or disease. The ship would be held for “sufficient time to cover the period of incubation of the disease,” typically no less than five days.<sup>80</sup> If no illness emerged, the ship would be allowed to proceed to port. If illness was found, the ship was doomed to anchorage, boarded daily by a city-paid medical doctor, until such a time that the sick either died or recovered, often lasting weeks.

In order to perform proper quarantine, a quarantine station had to be constructed on an outer island where quarantined ships could be supported with food and water, and where sick seamen could be isolated from the rest of the crew. The logistical support of the ships, the daily costs of medical care, and the construction and maintenance of quarantine stations were expensive and had no source of financial sustainment.<sup>81</sup>

Likewise, the disinfection process, including purging a ship with sulphur dioxide, steam, and formaldehyde gas was labor intensive and complicated.<sup>82</sup> More importantly, the

---

<sup>78</sup> Octavius Augustus White, MD., *Report on yellow fever as it appeared in Savannah, Georgia, in 1876* (New York: D. Appleton and Company, 1877), 7.

<sup>79</sup> Waring, 141.

<sup>80</sup> Marine Hospital Service, *Yellow Fever: Its Nature, Diagnosis, Treatment, and Prophylaxis, and Quarantine Regulations Relating Thereto* (Washington, DC: Government Printing Office, 1898), 155.

<sup>81</sup> Julius Caesar Le Hardy, MD., *The Rational Method of Preventing Yellow Fever on the South Atlantic Coast* (Augusta, GA: J.P. Harris and Co., 1879), 36-39.

<sup>82</sup> Marine Hospital Service, 156-157.

interruption of commerce was serious causing delays in the arrival of important goods, the spoiling of fragile cargoes, and the back up of cotton bales. Le Hardy lamented, “While then this policy of strict quarantine has been barren of good results in keeping yellow fever out of the country, what has been the effects upon our commerce? Look at the seaports: Savannah, the greatest of them, with an export business of \$100,000,000 a year, has scarcely any imports – has no great warehouses from which to supply the people at her very doors.”<sup>83</sup> This political contradiction could not be solved.

Regardless of the cause, or conditions of spread, both theories agreed on one thing: poor sanitation and standing water was a contributing factor to yellow fever. Sanitation became of prominent theme throughout the South. The perception that the South was unhealthy threatened to hurt commerce and its re-emergence following the war and reconstruction. The South collectively tried to change that image by improving conditions and by suppressing yellow fever outbreaks.

### **Nineteenth-Century Medicine**

Medicine in 1876 Savannah reflected medicine throughout the South and included a mixture of modern and archaic approaches. Although some of the treatments for yellow fever, during the period, may seem on the surface to be primitive, they were honest attempts at overcoming the disease and to reduce mortality. The almost mystical character of yellow fever contributed to the medical profession’s awkward attempts at treatment.

Medical practice, and its practitioners, consisted of a blend of competency and ineptitude. The horrors of the war brought about certain advances in the treatment of

---

<sup>83</sup> Le Hardy, *The Rational Method*, 19.

wounds, and in some cases disease, but still medicine had yet to reach a standard of practice. Bell states, “Medicine in the 1860s was a hodgepodge of ancient shibboleths, folk remedies, and sound scientific practices. As inheritors of the Greek tradition, Civil War-era physicians viewed the body as a precariously balanced concoction of chemicals which any number of external and environmental stimuli could alter.”<sup>84</sup> It was these stimuli that drew the attention of the local origin theorists who blamed the poison miasma as the culprit to the disease.

In 1876, physicians were still a mix of self-proclaimed and duly educated practitioners. Medical schools remained predominantly commercial enterprises and fell outside of mainstream academia. Once through school, a budding doctor would apprentice himself with a practicing physician who may, or may not, be a duly educated practitioner. No standards existed for what an apprenticeship required or what constituted successful completion.

The physicians in Savannah seemed to be organized and well connected. The Georgia Medical Society chapter in Savannah was well established and apparently had sufficient influence to order the rest of one of its physicians, Dr. Cornelius Rea Agnew, during the epidemic. In a letter to his personal physician on September 13, 1876, Agnew wrote, “I was completely broken down and ordered to rest by our Medical Society. I stayed outside of the city.”<sup>85</sup> The Society also provided rudimentary care to the poor.

---

<sup>84</sup> Bell, 4.

<sup>85</sup> Cornelius Rea Agnew to his physician, September 13, 1876, Cornelius Rea Agnew letters, MS 926, Georgia Historical Society, Savannah, Georgia.

Under agreement with the city, the Society established a rotation of local doctors who would pay visits to the sickly poor.<sup>86</sup>

### **Treating Yellow fever**

Treatment for yellow fever ranged from the ridiculous to the sublime. Dr.

Falligant outlines several medicinal treatments:

The milder types [of yellow fever cases] have already been sufficiently prescribed to render separate illustration unnecessary, except to add that they readily yielded to Aconite and Belladonna tinctures, in watery solution of five drops to a tumbler of water, given in table-spoonful doses in hourly alternation, warm mustard foot-baths being additionally employed to facilitate transportation. In some cases, Aresu., Ipecac., Merc [mercury], sol., China, Nux vomica, Khus tox., and Sulfer were found useful in reliving associated derangements.<sup>87</sup>

Even less sophisticated remedies prospered. Sniffing rags dipped in vinegar, burning gunpowder, and even the practice of women smoking cigars were all believed to have therapeutic value. Many of these treatments were unchanged since the seventeenth and eighteenth centuries.<sup>88</sup>

It was Quinine that seemed to have the most universal use and benefit. Discovered effective during the war, it was the availability of this medicine that would determine the health, and thus battle readiness, of both Union and Confederate troops. In Savannah, Dr. Falligant used Quinine during the remission period between the two phases, claiming “it possesses the happy faculty of cutting off further progress of the disease in a large proportion of cases.”<sup>89</sup>

---

<sup>86</sup> Dr. T.J. Charlton to the Mayor and Aldermen of the City of Savannah, February 10, 1875, Georgia Medical Society collection, MS 2012, Georgia Historical Society, Savannah, Georgia.

<sup>87</sup> Falligant, 14.

<sup>88</sup> Farley M. Foster, “The Mighty Monarch of the South: Yellow Fever in Charleston and Savannah,” *Georgia Review* 27, no. 1 (1973): 68.

<sup>89</sup> Foster, 68.

## Chapter Conclusion

Yellow fever, as was other disease, pervasive in Southern life. Other diseases were more prevalent than yellow fever, however the horrible manner by which its victims succumbed caused yellow fever to become the predominant cause of public health concerns. Grob writes, “One of the most striking characteristics of these outbreaks was the visibility of the dead. Many communities were unable to bury victims quickly enough, and the presence of cadavers, particularly in the warmer months, sometimes constituted a serious health problem.”<sup>90</sup> Constant exposure to a disease, as virulent and deadly as yellow fever, demanded a definitive response. The conditions that enabled the fevers were well known and public, and Savannah, had it been monitoring these various conditions, could have taken action to reduce the threat.

---

<sup>90</sup> Grob, 108.

## CHAPTER FOUR: PHYSICAL CONDITIONS IN SAVANNAH

Savannah, Georgia was a Petri dish for yellow fever. Its physical characteristics provided the perfect breeding ground for yellow fever's vector: the *Andes aegypti* mosquito. At this point, however, the mosquito will be removed from the discussion, as it was unknown at the time that the mosquito was the underlying problem. What was known, and well known, was that poor sanitary conditions contributed to the origination, spread, and virility of yellow fever. This being known, city officials had but to open their eyes during the summer of 1876 and realize that Savannah was on the brink of disaster. Physical conditions within the city, both naturally present and brought upon it, were perfectly suited for the disease to take root and spread. The opportunity to prevent the outbreak, however, was lost as officials deferred to other agendas and allowed the conditions to persist.

### **Naturally Found Physical Characteristics**

Climate and topography were natural characteristics that set Savannah up for a constant battle against disease. Both the general public and city officials commonly recognized these two natural conditions. They knew that the city was predisposed to outbreak and that a constant vigilance was warranted.

Located in the subtropics, the climate of Savannah is easy to define. Winters are mild, but frosts are expected and typically will kill any lingering insect populations. Spring and early summer bring rains, followed by intensely hot and humid summers that last well into late October and early November. The 'sickly season' was known to begin

in late June and last until late October. As mid-August, 1876 approached, this climactic pattern was to be observed and documented.

In 1877, Dr. Alfred Woodhull of Savannah recalled, “The evidence as to the special local conditions affecting the city in 1876 is conflicting, but may be summed up as follows: The winter of 1875-6 was very mild, less rain fell during the spring than usual; a great access of rain fell in June, and there was a great complaint of the extraordinary degree and duration of the heat.”<sup>91</sup> Savannah resident and diarist Solomon Gleason confirmed this weather pattern. He wrote on June 14, “Raining 6¼ inches again in 3 days. Today rain fell 4⅛ inches.”<sup>92</sup> Gleason also commented on the extreme heat from June 24 through the 30.<sup>93</sup> Thus early spring provided the slurry that would soon breed the fetid odors, or miasma, that would be blamed for the yellow fever’s arrival.

The penetrating heat of August would provide the catalyst to turn the wet slurry into the poison thought to be the fever’s genesis. Gleason, a tireless recorder of daily temperatures (he even recorded the temperature while lamenting the eight month anniversary of his wife’s death), documented the extreme heat that was present the entire month of July and well into August. On the eve of the epidemic, August 19, he wrote, “This is the hottest day I have every experienced. 102° in my office and sticky. Sultry as possible.”<sup>94</sup> Speaking of the 1876 epidemic at a meeting of the New York Academy of Medicine on December 21, 1876, Dr. Octavius White of Savannah said, “It is generally conceded that the form of yellow-fever epidemic is determined by electricity, heat,

---

<sup>91</sup> Woodhull, 28.

<sup>92</sup> Solomon Wilson Gleason, diary, June 14, 1876, Solomon Wilson Gleason Diary and other materials, MS 1577, Georgia Historical Society, Savannah, Georgia.

<sup>93</sup> Ibid.

<sup>94</sup> Gleason Diary, August 19, 1876.

humidity, and by prevailing winds, and its character intensified by pernicious gases which exhale from paludal sources, unsanitary sewers, privy-vaults, stables, vaceries, and middens.”<sup>95</sup> It was not only the physicians who recognized the significance of the sickly season, however.

There is evidence that the general populace was well aware of various climactic conditions that affected yellow fever. This evidence indicates that Savannah’s businessmen followed a practice intended to thwart disease. As the close of the business day neared, they would leave the city and spend the night in towns located around the city. This nightly sojourn was done in order to avoid the poisons in the air believed to be partly carried by evening breezes in the city.<sup>96</sup>

On December 2, 1876, Eleanor Lytle Kinzie (Nelly) Gordon, prominent Savannah resident, writes in a letter addressed to “Daisy”, perhaps one of her daughters, “Papa is getting well now, though I feared that he was going to be ill after Mr. Tison’s death. The type of yellow fever he had, was so malignant that the doctors [thought] there should be no public funeral... There has been ice here & a black frost, so we are in no more danger of even sporadic cases.”<sup>97</sup> Culturally, the public understood the climactic markers of the season, everybody knew about the sickly season and what it meant.

Although Savannah suffered through hot summers every year, 1876 was noticeably unique. It rained harder than usual during the early summer and the summer’s heat was unusually intense. The fact that these conditions were documented is evidence

---

<sup>95</sup> White, 9.

<sup>96</sup> Marine Hospital Service, 59.

<sup>97</sup> Eleanor Lytle Kinzie (Nelly) Gordon to Mama, December 2, 1876, Gordon Family papers, Nelly Gordon papers, MS 318, Georgia Historical Society, Savannah, Georgia.

that it was noticed and should have been warning, even as early as July, that the coming sickly season was bound to be worse than usual.

The topography of Savannah also made it a target of disease. Dr. Woodhull describes it well in his paper, *On the Causes of the Epidemic of Yellow Fever at Savannah, Georgia, in 1876*:

Savannah lies on a sandy plain...the plain, which is about a mile and a half wide, gradually slopes toward the swamps on the south, and suddenly falls away to lowlands, which have an average of five (5) feet above low water on the east and west. North of the city, across the main channel of the river and two hundred (200) yards distant, is Hutchinson's island, equally low, or lower, and swampy. The territory... is now owned or controlled by the city, and that on the west is known collectively as the Springfield plantation. This low belt, which can be restrained from lapsing into its natural condition of swamps only by constant care... [is] of irregular shape and indefinite extent in other directions. Only those lands that immediately adjoin the city are under any provision of dry culture or drainage... beyond them, in nearly every direction, are undrained lands and swamps.<sup>98</sup>

Woodhull identifies two major factors of the terrain. First, Savannah, at least the areas closest to the river and surrounding waterways, is swamp. Second, constant surveillance was required to prevent lands claimed for other uses from returning to swamp. This problem of drainage plagued the city and was considered a key component to the sanitary health of the city.

Noah Webster, the prolific educator and political pundit, understood the overall importance of sanitation and drainage to the yellow fever problem. In a series of letters to Dr. William Currie, in 1779, regarding the topic of yellow fever, this ardent local origin theorist wrote, "No city should be raised on level earth."<sup>99</sup> He would go on to write, "But the fact... is very important; and demonstrates the principles I have advanced, with

---

<sup>98</sup> Woodhull, 18.

<sup>99</sup> Noah Webster, *Noah Webster: Letters on Yellow Fever Addressed to Dr. William Currie*. (1758-1843; repr., New York: Arno Press, 1979), 102.

respect to the salubrity of a dry hilly country, and the insalubrity of a low, flat, marshy country.”<sup>100</sup> Webster’s investigation into yellow fever was extensive and his findings claimed that sanitation and healthy air were critical to the prevention of yellow fever and its spread. Writings of the renowned Dr. Roque José de Oyarvide Y Samaritin of Cuba during the late eighteenth century concur with Webster. He simply stated, “damp and marshy places should be filled in.”<sup>101</sup>

Drainage was a recognized nuisance by both the city and the general citizenry. In 1873, a citation was issued to a Mr. Swoll who had erected a dam on his property. The Health and Cemetery and Dry Culture Committees heard the case and reported that, “Mr. Swoll be requested to abate the nuisance at the rear of the Arkwright Cotton Factory, consisting of a dam which ponds water thus destroying the natural flow of the water.”<sup>102</sup>

The Springfield plantation was a constant source of debate. This property, that was once a rice planation, was purchased by the city in order to control the drainage problem. A series of dams and dikes were constructed and water was let in and let out based on various factors that are not completely understood today. It was this plantation that would become the political and literal battleground between the importation and local origin theories and the unwillingness of the city to remove known wet areas. Ultimately this battle would culminate in a dramatic scene. The importance in mentioning this drama here is to highlight the fact that drainage was widely recognized as an

---

<sup>100</sup> Webster, 105.

<sup>101</sup> Robin Price, *An Annotated Catalogue of Medical Americana in the Library of the Wellcome Institute for the History of Medicine* (London: The Wellcome Institute, 1983), 18.

<sup>102</sup> Report of RD Arnold, Chairman Com. Health & Cemetery to John A. Douglas Chairman Com. Dry Culture, March 21, 1873, City Council Meeting Papers, Committee on Public Health, Research Library and Municipal Archives, Savannah, Georgia.

influential factor in yellow fever and was identified as a problem in Savannah before the outbreak would emerge.

It was the night of October 25, 1876 when Dr. James Waring quietly entered the Springfield plantation. The epidemic was now waning yet tensions were high as the medical community and city officials debated over blame for the epidemic. Waring, an outspoken proponent of the local origin theory, was determined to solve the drainage problem that he so adamantly accused the city of ignoring. Evidence shows that Waring was involved in the Springfield Plantation situation, and other drainage problems, prior to his actions in October. He had even informed the Committee on Poudrette of his work to eliminate the drainage problems.<sup>103</sup> In a September 30, 1876 letter to the committee he writes that the “Springfield is drained and that I have found the outlet to the brick ponds on Thunderbolt Road and that they will be dry and covered with lime.”<sup>104</sup> Due to insufficient maintenance, even during the epidemic, the Springfield plantation land apparently remained full of stagnant water. Dr. Waring decided to take the law into his own hands.

Dr. Waring succeeded in his plan but not without ultimately being arrested and charged on three counts. First, “by cutting, or causing to be cut... a dam erected on said Springfield Plantation... and obstructed and interfered with established system of

---

<sup>103</sup> Poudrette is a term that refers to human feces that has been mixed with charcoal dust or charred peat. This apparently was a practice that was meant to control the outhouse, or privie, problem.

<sup>104</sup> Dr. James J. Waring to Dr. Charlton, September 30, 1876, Georgia Medical Society collection, MS 2012, Georgia Historical Society, Savannah, Georgia.

drainage....”<sup>105</sup> Second, “by digging, or causing to be dug... a ditch in West Broadway Street without the permission of Council....”<sup>106</sup> Third, “by causing a connection to be made with the ‘Hogg Sewer’, draining certain portions of the low lands west of the City of Savannah and certain drains in said western portion of said City and deflecting the water and drainage from the Screven Sewer without permission of Council.”<sup>107</sup> This case, although insignificant in the larger picture of the epidemic, illustrates the extent to which there was a general consciousness of drainage problems by both the city and medical community. The veracity of Waring’s bold action indicates that the city had a drainage problem, that the drainage problem was known to be implicated in yellow fever outbreaks, and that they chose not to solve the drainage problem in advance of the sickly season.

### **Man-Made Physical Characteristics**

Savannah also suffered from several man-made physical conditions that contributed to the yellow fever problem. Much like its climate and the natural topography of the land, these structures caused drainage problems that worsened sanitation conditions and thus released the suspected poisonous gasses.

Drainage and sanitation conditions were a general nuisance. A report to the Board of Health of the City of Savannah, by the Committee on Poudrette in 1866, indicates the

---

<sup>105</sup> The Mayor and Aldermen of the City of Savannah and the Hamlet Thereof vs. James J Waring, November 17, 1876, City Council Meeting Papers, Committee on Public Health, Research Library and Municipal Archives, Savannah, Georgia.

<sup>106</sup> Ibid.

<sup>107</sup> Savannah vs. Waring, November 17, 1876

general sanitation conditions of the city.<sup>108</sup> The committee, chaired by none other than Dr. James Waring, indicts the city's handling of sanitation issues. It cites:

It is the opinion of our committee that, on the subject of their special investigation, this city is peculiarly criminal. We venture the opinion that there is not a town or city in this broad Union so wretchedly provided with the means of removing from sight, smell, and atmospheric contaminations, the offensive animal matters that unavoidably accumulate....<sup>109</sup>

Although no specific documents could be located, this same report identified two committees that were to report to the Board of Health: The Committee of Five on Poudrette and the Committee of Ten on Drainage and Sewerage. This evidence reinforces the fact that drainage, going back to 1866, was identified as an important component of the city's public health.

The greatest artificial drainage problem in the city was the notorious Bilbo Canal. Named after the old rice plantation whose land it crossed, it was built to drain the city's eastern dry culture lands. Various sewer lines along its one and one third mile course poured into the canal to eventually be emptied into the river. Floodgates located along its course were to be opened with the incoming tide allowing fresh water to enter into the canal, and naturally flush it of its contents as the tides receded. It was known to be source of foul odors as fecal matter became snagged in the canals various irregularities. The canal was poorly maintained and the floodgates not opened on a regular basis. Dr. Woodhull reports on the Bilbo Canal's condition leading up to the epidemic. He states, "The city surveyor thinks the exact number of times it was flushed before the epidemic

---

<sup>108</sup> Poudrette is a term that refers to human feces that has been mixed with charcoal dust or charred peat. This apparently was a practice that was meant to control the outhouse, or privie, problem.

<sup>109</sup> Savannah Board of Health, *Revised Rules of the Board of Health of the City of Savannah, for 1866: together with the report of the Poudrette Committee, &c. &c.* (Savannah: Chas. O'Sullivan Printer, 1866), 7.

was six.”<sup>110</sup> Falligant claimed that he was “officially informed [that the Bilbo Canal] had not been flooded with fresh water from the river for eight or ten months prior to the breaking out of the epidemic.”<sup>111</sup>

In 1875, the city embarked on extensive sewer and drainage projects. The Mayor’s annual report cites numerous expansions including, the building of “two large trunks... for the purpose of preventing the flow of tide water up the creek and canal, by which the drainage from the swamp would be impeded.”<sup>112</sup> Even the Bilbo Canal is mentioned. “This canal,” the report boasts, “has received constant attention during the year. The obstructions, which are continually forming from the sand and refuse matter of the sewers, have been removed, and tide water admitted as often as was deemed necessary for purification.”<sup>113</sup> This simple report establishes two things. First, it establishes that the city did, indeed, have sewer and drainage problems, and one of them, the Bilbo Canal, was particularly problematic. Second, and perhaps more importantly, the report establishes the extent of the degradation of care and maintenance to sewer and drainage that occurred in 1876.

Dr. W. Duncan, a period physician, embarked on a quantitative analysis of deaths in Savannah between 1854 and 1869. His work, entitled, *Tabulated Mortuary Record of the City of Savannah, From January 1, 1854 to December 31, 1869*, was studied by Anne

---

<sup>110</sup> Woodhull, 30.

<sup>111</sup> Falligant, 6.

<sup>112</sup> Edward C. Anderson, *Report of Edward C. Anderson, Mayor of the City of Savannah, for the Year Ending December 31, 1875* (Savannah: Morning News Steam Printing, 1875), 30.

<sup>113</sup> (Anderson, *Report of Edward C. Anderson, Mayor of the City of Savannah, for the Year Ending December 31, 1875* 1875), p. 31.

and Everett Lee. Explaining the decrease in white deaths during this fifteen-year period, the authors quote Duncan who claimed,

There can be no doubt that a more thorough observance of Hygienic rules, as developed from time to time, affords some solution to the inquiry. Foremost amongst these may be mentioned a more effectual system of drainage, a scrupulous regard to the cleanliness and police of the city, and the removal of all offensive, decaying, and deleterious matter from within its limits.<sup>114</sup>

Published in 1870, Duncan's work quantitatively established the health benefits of improved drainage and sanitation before the 1876 timeframe. A damning report for a city that was reducing its drainage maintenance while the problem was growing.<sup>115</sup>

### **Chapter Conclusion**

Between the sheer topography of the city and the inattention to the sewerage and drainage systems, Savannah was a cesspool. The spring rains filled every possible cavity and these standing pools of water around the houses, and the drainage systems of the city, were breeding mosquitos. The extreme heat of summer would compel those mosquitoes to seek blood meals, and the result of these feeding orgies would spread yellow fever from one sick person to another.

As the sickly season of 1876 loomed upon the city, the physical conditions were ripe for disaster. Although it was certainly not cheap to maintain these systems, the city simply neglected to reduce the physical hazards that were well known to them.<sup>116</sup> In the aftermath of the epidemic, a letter from the Chatham County Grand Jury to the Georgia

---

<sup>114</sup> Anne S. Lee and Everett S. Lee, "The Health of Slaves and the Health of Freedmen: A Savannah Study," *Phylon* 38, no. 2 (2<sup>nd</sup> Quarter 1977): 178.

<sup>115</sup> Le Hardy, *The Yellow Fever Panic*, 7.

<sup>116</sup> Edward C. Anderson, *Report of Edward C. Anderson, Mayor of the City of Savannah, for the Year Ending December 31, 1874* (Savannah: Morning News Steam Printing House, 1874), 38. The mayor cites the cost of running the Scavenger Department, that had cleaned several catch basins, and other sanitation work, at \$29,938.18.

Medical Society indicates the tenor of the charges being levied against the city. The letter, dated December 15, 1876, states,

The Grand Jury having appointed a Committee to confer with your honorable body, relative to the causes producing the late epidemic, and to the existence of small pox in our midst; this Committee respectfully request that you will furnish them with such information, and such advice, as you may deem necessary, and that which the Grand Jury can act, and especially do we desire your opinion upon the condition of the city sewers, and the length of time each day that water should be turned into said sewers be means of the faucets in the cesspools.<sup>117</sup>

Undoubtedly, the Grand Jury received a great deal of information and opinion.

Although the physical conditions in the city were clearly the direct cause of the epidemic, other conditions existed that contributed to the city's liability. These political and social conditions would also reveal the city's culpability in the impending outbreak.

---

<sup>117</sup> Chatham County Grand Jury to Georgia Medical Society, December 15, 1876, Georgia Medical Society collection, MS 2012, Georgia Historical Society, Savannah, Georgia.

## CHAPTER FIVE: POLITICAL AND ECONOMIC CONDITIONS IN SAVANNAH

Political conditions contributed to the condition of drainage and sanitation in the city. These conditions included the poor economic health of the city, politics of yellow fever's cause and spread, suppression of yellow fever outbreaks, compliance with local, state, and Federal regulations, and conservative foreign policy. Each of these political factors clouded policy decisions as it related to city cleanliness. Although it is arguable whether or not any or all of these conditions were avoidable, it is not arguable that they contributed to the general poor health of the city and susceptibility to yellow fever.

### **Economic Conditions**

The economic conditions of the city in 1876 were an indicator of the political context. Simply stated, Savannah was broke, and decisions made in city hall reflected this fact. Perhaps this was inevitable. Faced with extensive debt and the resultant budget implications, difficult decisions had to be made. Defenses designed to resist an unseen virus were to be targeted for reductions.

The city was deep in debt. Like most Southern cities, it was seeking desperately to reinvent itself in the post-reconstruction period. The South as a whole had been stereotyped as a place of sickness and death. Northern sentiment surely reflected this fact. Describing some northern utopians' fear of settling in the Southern environment, Brundage states, "During the early nineteenth century, the South had been identified with deadly disease, hazardous miasmas, and paralyzing heat. In the northern eyes, the

southern landscape became inseparable from both physical and moral decay.”<sup>118</sup> For Savannah, improving its image meant improving the city’s aesthetic appeal in order to attract business visitors.

Paradoxically, cleanliness was partly to blame for the city’s filth. Mayor John Screven was the champion of city-sponsored sanitation initiatives. During his administration, from 1869 through 1873, significant money was spent to clean the city up. Sewer and drainage projects prospered. The dry culture system, an initiative to reduce the amount of wetlands around the city, was well funded and successful. But even this successful initiative had its cost. “City government paid planters forty dollars an acre to grow within a one-mile radius of Savannah only those crops that required dry-culture. The government financed this plan by floating a bond issue for two-thirds of the \$200,000 required to implement dry culture.”<sup>119</sup>

Pressure to build into the city’s transportation infrastructure also caused considerable expenditures. In 1866 the city purchased a dredge in order to maintain and even expand the river port. The initial outlay, of \$72,000, and the high costs of maintaining such machinery contributed to the city’s financial woes. The dredge did improve river commerce. Figures indicate that inbound tonnage increased from 168,748 tons in 1865 to over a million in 1869, however, the high cost of maintenance further intensified budget woes. By 1869, the cost of operating the dredge reached the \$125,000 mark.<sup>120</sup>

---

<sup>118</sup> W. Fitzhugh Brundage, *A Socialist Utopia in the New South: The Ruskin Colonies in Tennessee and Georgia 1894-1901* (Chicago: University of Illinois Press, 1996), 16.

<sup>119</sup> David R. Goldfield, “The Business of Health Planning: Disease Prevention in the Old South,” *The Journal of Southern History* 42, no. 4 (November 1976): 561.

<sup>120</sup> Denmark, 6.

Investments in both the Central Railroad and the Atlantic & Gulf Railroad, although a success on the surface, brought few returns. The push to connect Savannah with the larger market backfired. Savannah's relative significance diminished and "unfortunately, Savannah was no longer the stopping point of preference" for commerce.<sup>121</sup> To accomplish the purchase of these owning shares, the city floated additional bonds. The end result of these debts, and the financial challenges of the epidemic, would result in financial failure. On February 2, 1877, Dr. Waring, himself now a city alderman, presented a resolution that would declare the city bankrupt. The resolution did not pass, but the financial crisis continued. The Atlantic & Gulf Railroad went belly up, forcing the city to pay \$300,000 of bonds. Furthermore, the \$4,000,000 of debt the city owed represented a full one half of all the real estate value in the entire city.<sup>122</sup> This economic embarrassment would frame the rationale for neglecting the drainage problem in the city.

In Savannah, attempts to control the deficit meant cuts in expenditures including the Scavenger Department, the agency responsible for sanitation. Its budget was nearly halved between 1875 and 1876.<sup>123</sup> Trying to distract the citizenry from the known causes of the disease, and to blame the city's lack of action on a lack of understanding, Mayor Anderson said that, "The origin of the epidemic is involved in obscurity, and a great difference of opinion exists among the physicians."<sup>124</sup> Ultimately, budget cuts would

---

<sup>121</sup> Denmark, 3.

<sup>122</sup> Thomas Gamble, Jr., *A History of the City Government of Savannah, Georgia from 1790 to 1901* (Savannah: Savannah City Council, 1900), 293.

<sup>123</sup> Anderson, *Report of 1876*, 17.

<sup>124</sup> *Ibid.*, 20.

finance the dredge and railroad upgrades for Savannah and it was this debt that allowed city fathers to ignore public health precautions citing financial hardship.

### **Yellow Fever and Foreign Policy**

Yellow fever was as much an international problem as it was domestic. The Atlantic world provided a continuous flow of infected people, and the mosquitos to bite them, as they transported the commodities of the tropics. Once in port, some suspected, the infested seamen would disembark to carry with them to the taverns and brothels the disease that would plague the local inhabitants. As outbreaks of yellow fever were associated with shipping and foreign ports, great pressure was exerted on government to greatly impede this continuous flow. The problem, of course, was that any infringement in shipping cut into greatly needed revenue.

Savannah needed a scapegoat, and the importation theorists had a field day with Havana, Cuba, and Havana provided the perfect pariah. Nominally still in Spanish hands, Cuba was a well-known hotbed of tropical disease, as the Spanish would learn the hard way. A Spanish possession since 1492, it became a key component of the West Indies sugar trade. As such it drew a tremendous number of Northern Spaniards who, because of a lack of immunity, came to the climate at great risk to yellow fever. Between 1868 and 1894, more than a half a million Spaniards settled in Cuba. Likewise, a large military presence was required to continually quell slave and independence uprisings. The Spanish garrison paid a dear toll. During the Cuban War of Independence (1895-1898), the Spanish army lost 3,100 to combat and 41,000 to disease with yellow fever

accounting for a full 36 percent of all military fatalities.<sup>125</sup> This constant influx of fresh, non-acclimated humans meant that yellow fever was a constant and well publicized problem for Cuba, and with Cuban ships gracing Savannah's riverfront on a regular basis, it was easy to blame Cuban shipping for yellow fever entering the city.

The U.S. military blamed Cuba for yellow fever. A report published in 1868 by the Surgeon General of the United States, clearly stated this accusation. The report states that Havana, Cuba and Vera Cruz, Mexico were significant sources of disease. The military had every right to be nervous, as the report records that during the year 1867, twenty-one military surgeons fell ill to yellow fever—ten died. The evidence to support these accusations was lacking in this report. In fact, a specific case that was cited contradicted the report's own assumption. The report speaks of an officer who returned to Ft. Jefferson, Mississippi from Havana on July 3 or 4, 1877. On July 18, the report continues, the officer is "attacked" by yellow fever. Strangely, the report also states the Ft. Jefferson's first case of yellow fever didn't occur until August 18. Three problems emerge from this report. First, the fourteen-day timespan between arrival from Cuba, and the onset of the attack extends beyond all known incubation periods. Second, there is an obvious conflict regarding the officer's infection and the installation records. Finally, with Ft. Jefferson being located south of New Orleans, a known yellow fever area, it is difficult to determine with any certainty that he contracted the disease in Cuba.<sup>126</sup>

---

<sup>125</sup> J.R. McNeill, *Mosquito Empires: Ecology and War in the Greater Caribbean, 1620-1914* (New York: Cambridge University Press, 2010), 295-300.

<sup>126</sup> U.S. Surgeon General's Office, *Report on epidemic cholera and yellow fever in the Army of the United States, during the year 1867*, under "Digital Collections," *U.S. National Library of Medicine*, 1868, <http://collections.nlm.nih.gov/pageturner/viewer.html?PID=nim.nlmuid-0257543-bk> (accessed October, 31, 2011), 25.

After the U.S. took possession of Cuba in 1898, a massive campaign ensued to clean up the island and thus remove the yellow fever threat to the U.S. The plan did not work. Waring supported such a plan as early as 1876. Defending the local origin theory against the quarantine requirements of the importation theory, he asserts, “The rational method of relief from this quarter [yellow fever] is not quarantine, but a commercial treaty with Spain, which would enable commissioners to enforce and remodel the Spanish towns, and enforce, through an effective police, sanitary laws.”<sup>127</sup>

### **Local Reaction to State and Federal Initiatives**

Savannah, and the rest of the South, was still reeling from the outcomes of the Civil War. Intensely independent, Southern cities bristled at the interference being brought down on them from state and Federal authorities. Specifically, initiatives to establish public health boards and enforcement were met with indifference if not outright hostility. Also, as in modern times, urgency to solve the problem seemed only to exist when the emergency arose, followed rapidly by a return to indifference. Indeed, the successful cleansing of New Orleans by General Butler ultimately fell into obscurity. Author John Ellis quotes Dr. Stanford Chaillé, who in 1870, observed that New Orleans had “long since lapsed back into ‘filth, endless filth.’”<sup>128</sup> Thus, the ability to sustain public health measures in disease-free years became difficult against economic realities.

Early boards of health also lacked sufficient authority. At the state level, “the State boards of health had only advisory powers at the outset.”<sup>129</sup> Ultimately these powers would expand, but it was too little, too late. Francis R. Allen argues that difficulty in

---

<sup>127</sup> Waring, 46.

<sup>128</sup> Ellis, 36.

<sup>129</sup> Allen, 75.

forwarding important public health initiatives became difficult due to the lack of grassroots demand. He observed, “Characteristically, public health adherents are nonspectacular, nonshouting, and nonparading. The public health motif is rational rather than emotional.”<sup>130</sup> The business community likewise eschewed health initiatives. “Sanitarians worried,” states author Mariola Espinosa, “that business interests would always find ways to avoid costly health measures that infringed on profits.”<sup>131</sup> Since public health was not representing a particular ethnic or community interest group, it lacked a powerful voice in city politics and, instead, was relegated to outspoken physicians and vigilante tactics.

Medical societies were in favor of the creation of health agencies. In the case of Savannah, the Georgia Medical Society in Savannah was active in local affairs. With Dr. James J. Waring moving in its circles, the society was assured that it had a loud advocate for city cleanliness and yellow fever prevention. Thus, despite a lack of top down government regulation, local officials were aware of public health problems and the requirements needed to fix them in order to avert catastrophe.

Dr. Julius Caesar Le Hardy, local Savannah physician, perhaps best expressed the South’s distrust of government intervention in local administration. Decrying quarantine as a threat to commerce, this staunch Confederate stated,

Ruined by a long and bloody war – robbed of our slave property, with our rights and liberties trampled upon by unscrupulous carpet-bag politicians, who have fed on our carcass for many years – it is time that our best men be at the wheel and pilot our own ship into safe harbor.<sup>132</sup>

---

<sup>130</sup> Allen, 73.

<sup>131</sup> Mariola Espinosa, *Epidemic Invasions: Fever and the Limits of Cuban Independence, 1878-1930* (Chicago: University of Chicago Press, 2009), 16.

<sup>132</sup> Julius Caesar Le Hardy, MD., *Quarantine: its sanitary and political aspects in relation to the spread of epidemic disease* (Atlanta: J.P. Harris and Co., 1879), 4.

This indictment of Union meddling in Southern affairs typifies the feelings harbored by the white elites of the South, and impacted the ability for public health measures to be meaningfully implemented and enforced.

### **Medical Politics**

The medical debate over the cause and spread of yellow fever was complex. This complexity was magnified when one considers that the city's physicians also represented the city's elites who were influential outside the doctor's office. This debate, although a medical debate on the surface, had deeper political implications. Margaret Humphreys, in her work, *Yellow Fever and the South*, claims that, in the last quarter of the nineteenth century, "A few physicians still contended that yellow fever could arise spontaneously out of filth...but for the most part southern physicians were agreed that yellow fever developed from a specific transportable poison, not a concurrence of filth, heat, moisture, or other non-specific factors."<sup>133</sup> Despite Humphreys' claim, there is no evidence that Savannah's medical practitioners had come to any resolution on this point. Evidence shows that the opposite was true and that most of the physicians in Savannah tenuously held to the local origin theory. Regardless, the record clearly shows that the debate remained intense and was by no means concluded.

Perhaps the greatest political implication of the medical debate was that of culpability. Duffy writes that, "Since a diagnosis of yellow fever was certain to bring down upon the attending physician the wrath of both local newspaper editors and municipal officials, doctors seldom dared make this pronouncement without first

---

<sup>133</sup> Humphreys, 28.

consulting with their colleagues.”<sup>134</sup> Dr. Waring certainly led the charge on the side of the local origin theory, and many other local physicians agreed. Promoting the local origin theory implied that localities had some responsibility for the devastating effects. Waring was unyielding in his attacks on the mayor and city council for their lack of sanitation measures. These attacks were not well received, especially by Edward M. Anderson, Jr., Mayor Edward C. Anderson’s son. Edward, Jr., or E.M., was the scrappy former midshipman of the famed Confederate blockade-runner, and deadly raider, the *CSS Alabama*.<sup>135</sup> ‘Eddie,’ as his former shipmates knew him, defended his father’s honor in the local newspapers by publishing open letters against Dr. Waring’s attacks.<sup>136</sup> The argument was finally settled.<sup>137</sup> “Young Anderson withdrew his challenge a few days later but took pains to point out that Dr. Waring had forfeited the recognition due a gentleman.”<sup>138</sup>

Waring was not the only disciple of the local origin theory. Dr. Le Hardy also called for sanitation improvements. Apparently, by 1889, the city still lacked a cohesive sanitation policy. In a paper read before the Medical Association of Georgia titled *The Rational Method of Preventing Yellow Fever on the South Atlantic Coast*, Le Hardy still called for prevention. He asserted, “The physicians who have recorded the conditions attending yellow fever epidemics, have spent their time and labor in vain, if they have not proven that yellow fever is a preventable disease, and that the means for its prevention

---

<sup>134</sup> Duffy, “Yellow Fever in the Continental United States,” 690.

<sup>135</sup> Stephen Fox, *Wolf of the Deep: Raphael Semmes and the Notorious Confederate Raider CSS Alabama* (New York: Alfred A. Knopf, 2007), 67-68.

<sup>136</sup> Robert L. Usinger, “Yellow Fever from the Viewpoint of Savannah,” *The Georgia Historical Quarterly* 28, no. 3 (September 1944):148.

<sup>137</sup> *Savannah Morning News*, November 3, 1876.

<sup>138</sup> Usinger, 148.

are easily within our reach. *Drainage and cleanliness* have been recognized from far back in the study of medical science as the fundamental principle in the prevention of all diseases.”<sup>139</sup> The local origin theory provided no scapegoat. It held the local community responsible for the physical conditions that led to yellow fever. But a scapegoat is what the city fathers sought.

The importation theory provided that scapegoat: Cuba. With the importation theory, the enemy was outside our gates, foreign and evil. “The germs of yellow fever I believe always to be imported,” chimed Dr. Octavius Augustus White, Savannah physician, “The history of no epidemic of this character seems ever complete without the inevitable mention of a ship from an infected port.”<sup>140</sup> The quarantine system that would be put in place to fight this enemy would be difficult and expensive. Those opposing quarantine cited the damage to the shipping industry that it caused. The city was walking a tightrope on this debate. To protect its budget, the city had to reduce expenditures, including, they felt, sanitation measures. Unfortunately for James Cleary, and over a thousand others, the city chose to take a gamble and ignore its drainage system.

The *Savannah Morning News* would unwittingly publish, on September 21, 1876, a very damning story. It reported that due to the epidemic a committee had been formed to evaluate the city’s sanitation and drainage. It should be noted that the committee, made up exclusively of physicians, did not include Dr. Waring. It should also be noted that the committee was formed a full month after the onset of the first reported case. The paper published the committee’s report, which indirectly admitted the city’s sanitary condition leading up to the tragedy. Referring to measures taken after the onset, the report stated

---

<sup>139</sup> Le Hardy, *The Rational Method*, 22.

<sup>140</sup> White, 5.

that, “These sanitary measures inaugurated at the very beginning of the epidemic, and have been uninterruptedly persevered in up to the present time, and will be continued without abatement until the final cessation of the sickness.”<sup>141</sup> Two facts emerge from this statement. First, it indicates that sanitary measures were insufficient prior to the outbreak, and, second, that these measures would be discontinued once the threat was past. Thus the city was prepared to only react to an outbreak and not to prevent one.

### **Newspaper Politics**

Savannah’s newspapers would conspire to minimize the yellow fever threat as did many southeast newspapers that viciously sought readership and advertisement sales. Behind the newspapers were local businesses that did not want the populace to flee the city in fear. Ellis reveals this fear, stating, “the newspapers were aided and abetted by city officials in suppressing reports of disease, even in the midst of raging epidemics.”<sup>142</sup> He goes on to recount the story of a health officer who, in Memphis in 1873, publicly asserted that his job wasn’t to be concerned with business. He was fired.<sup>143</sup>

Savannah was no different. In fact, the *Savannah Morning News*’ handling of the outbreak borders on laughable. Even before the outbreak began, with James Cleary’s death, the papers were entering the sickly season hoping to minimalize the concern. It was actually Dr. Falligant who tried to quell unnecessary anxiety. He wrote in the *Savannah Morning News* on July 28, 1876 that many reported cases of yellow fever have been misdiagnosed and that compared to 1854, the city was much healthier “in the

---

<sup>141</sup> *Savannah Morning News*, September 21, 1876.

<sup>142</sup> Ellis, 33.

<sup>143</sup> Ibid.

condition of the lands surrounding the city and the drainage of the city... .”<sup>144</sup> He went on to say that, “Fear is a great cause of fatality in disease and many a patient’s life has been saved by keeping him in ignorance of his danger until the danger has passed.”<sup>145</sup> His sincerity is questionable for he wrote in 1878 that, “The summer of 1876 found the city of Savannah in a condition widely different from that of many previous years, both in a hygienic and thermometrical sense.”<sup>146</sup> He continued, “From the very first I denounced this conversion of these conductors of water [storm drainage] into conductors of filthy and human excretory matters as an unwise step... but it went unheeded.”<sup>147</sup> It would seem that the newspapers had a story to tell, and Falligant was willing to compromise his position to appease the paper’s agenda. Perhaps, however, Falligant was simply reflecting the public’s annual tendency to minimize the inevitable and sweep the threat under the rug.

The papers were silent for days. On August 31, Solomon Gleason recorded that; “The paper published a full statement of the fever this morning. It looks more hopeful.”<sup>148</sup> The *Savannah Morning News* published a story on September 1, reporting that Atlanta had sent them a telegraph begging Savannah to come clean with the epidemic’s existence.<sup>149</sup> The paper used this statement to retort that “the facts in the case were not printed earlier was no fault of ours. In the confusion of the panic it was utterly impossible to get anything reliable, and we preferred to wait until the excitement had somewhat subsided, rather than give color and currency to the exaggerations that were

---

<sup>144</sup> *Savannah Morning News*, July 28, 1876.

<sup>145</sup> *Ibid.*

<sup>146</sup> Falligant, 4.

<sup>147</sup> *Ibid.*

<sup>148</sup> Gleason Diary, August 31, 1876

<sup>149</sup> *Savannah Morning News*, September 1, 1876.

floating about the streets.”<sup>150</sup> Later in the same issue the paper scolded city officials stating that the paper needed to “call the attention of our authorities to the propriety of having these [death] reports properly made out, and to suggest that instead of withholding them an entire day, the report be handed in for publication the same day.”<sup>151</sup> One can only imagine that such a statement was made with a wink as the papers and the city partnered to sway public opinion in a deadly game of deception and misinformation.

September 2, 1876 dawned a new day of yellow fever in Savannah. For the *Morning News* it was a new day to deceive a panicked city. After reporting on page three that, “Compared with the four previous days, the city yesterday was quiet and free from excitement,” they noted that, “The general sanitary conditions of the city and suburbs is good. Yesterday Mayor Anderson, General Anderson, Chief of Police, and Dr. McFarland, the Health Officer, devoted the greater part of the day looking after this matter in person...”<sup>152</sup> Solomon Gleason wasn’t a believer; he sent his daughters away this day “at once”.<sup>153</sup>

On September 9, the paper published this unbelievable statement: “All excitement in regard to the fever has subsided, and the streets present a more cheerful appearance. It was reported that physicians had said that the fever was assuming a much milder form.”<sup>154</sup> Gleason wrote a glaring contradiction on that day, “More sickness than any day before, don’t know how many deaths.”<sup>155</sup> The paper conceded their gross error two days later. “The reports of the last two days, Saturday and Sunday, are not favorable,” it said

---

<sup>150</sup> *Savannah Morning News*, September 1, 1876.

<sup>151</sup> *Ibid.*

<sup>152</sup> *Savannah Morning News*, September 2, 1876.

<sup>153</sup> Gleason Diary, September 2, 1876.

<sup>154</sup> *Savannah Morning News*, September 9, 1876.

<sup>155</sup> Gleason Diary, September 9, 1876.

on page three, “showing that the fever is not abating and that the health of the city is very bad.” This overt distortion of the glaring evidence of the epidemic, and the consistent burying of these stories on page three of the newspaper, demonstrates a collusion of city officials and the newspapers to hide the truth of a deadly outbreak from the public in order to protect themselves from the accusations that might erupt.

### **Chapter Conclusion**

City politics and economics impacted the city’s ability, or willingness, to address known threats. Decision makers were influenced by a woeful economic state, a bitter medical debate, and a newspaper conspiracy that distracted them from the impending danger.

The city’s economic state was miserable as 1876 loomed. By investing heavily in the city’s transportation infrastructure, the city incurred a debt that could not be paid off. Public works projects, although hugely effective in thwarting yellow fever in the war years and beyond, could not be maintained. This neglect did not go unnoticed or unreported. Lisa Denmark writes that Dr. Waring “openly criticized the administration for allowing preventative measures decline for the sake of economy.”<sup>156</sup>

The medical debate spilled over into public life. This debate—whether or not yellow fever was a foreign disease brought to our shores on ships, or a local disease bred in the waste and brackish water of Savannah’s swamps and canals—carried great political importance. Cuba provided an adequate scapegoat, but only at the risk of other political challenges, namely the expense and commercial risk of quarantine. With several physicians holding public office, the debate would draw political lines and continue to

---

<sup>156</sup> Denmark, 17.

hinder sound public health practices. The hesitancy to abide by Federal or state public health initiatives impacted Savannah's willingness to adopt standards from without its borders.

The newspapers' deceitful reporting was an obvious violation of the public trust. Any actual collusion of the papers and city officials is conjectural, however attempts by the paper to minimize the emerging pandemic are self-evident. Politically, the papers sought to maintain the status quo. By glossing over the yellow fever outbreak, they gained the tacit support of the city's political elites and the advertising revenue of the city's business community. The victim of this alleged collaboration was the community, who were dying at a faster rate as the days progressed.

Politics did not cause yellow fever. The behavior of the city's elected and administrative officials, however, greatly altered the city's ability and willingness to take preventative measures. Had this been any average summer they may have won the gamble, but with conditions measurably ripe for disaster, prevention was clearly indicated; yet ignored.

## CHAPTER SIX: SOCIAL CONDITIONS IN SAVANNAH

Socially, Savannah was also at risk. As with most post-bellum Southern societies, the city was socially fragile. The ‘peculiar’ institution of slavery remained the framework of life and work as colored people integrated into white society. In a city that was trying desperately to emerge on top of Georgia’s economic ladder, however, care for the poor became no more a priority than drainage and sanitation.

In the pre-epidemic years, social fragility would emerge in the form of a struggle between classes. In the interest of developing a positive city image that would draw visitors and, more importantly, business, the city wanted to continually improve its aesthetics. White elites were very sensitive to unsavory environments. Crime and nuisance behavior was on the rise in 1870. Drunkenness, prostitution, street vending, and a host of other public nuisances associated with increasing population compelled the prosperous to call for change. One of those changes involved the enforcement of trade restrictions that forbade the trade between blacks and white on Sundays.<sup>157</sup> After replacing the decaying city jail, that incidentally increased the city’s well-established debt, Mayor Screven was faced with an incident whereby two cases of “black people who had died ‘upon the public thoroughfares’ provoked an outcry....”<sup>158</sup> Screven needed to remove public eyesores, whether human or otherwise, and thus he embarked on his public works plan. His plan of action would make his city further vulnerable to yellow fever’s death knell.

---

<sup>157</sup> Timothy James Lockley, *Lines in the Sand: Race and Class in Lowcountry Georgia, 1750-1860* (Athens: The University of Georgia Press, 2001), 94-95.

<sup>158</sup> Jones, 344.

## City Services and the Poor

City services often omitted the city's poorer classes. In the case of the Mayor's sewer project, it bypassed sections of the city that would soon fall victim to the yellow fever scourge. Although street paving and other surface improvement were made during Screven's administration, it was the sewer and drainage work that most directly influenced the risk of yellow fever.

Savannah's sewer and drainage system was inadequate, especially as it related to non-elites.<sup>159</sup> Author Werner Troesken, in *The Journal of Economic History*, writes that in the South sewer and water systems were constructed along class and ethnic lines. Using Savannah, Georgia as a case study, Troesken examines demographic patterns in the city and how sewer and water were provided to them. Although his study focuses on sewer improvement in Savannah starting in 1898, it can be safely inferred that improvements of the system followed previous paradigms, and, since the improvements clearly did not improve services to the African-American population in Savannah after 1898, it can be safely argued that the African-American population was not adequately served before 1898. The period following the upgrade, the author asserts, "there is strong evidence that once Savannah authorities did respond to the threat of epidemic disease they provided poorer service to black neighborhoods than to white neighborhoods."<sup>160</sup> Walter Frasier, Jr. echoes Troesken's claim. Speaking of sewer and water services following the 1854 outbreak, he says that, "in providing services first to well-to-do residents, it was much like other cities. Over three years after it first provided water to affluent neighborhoods and only after strong protests did the government lay water mains

---

<sup>159</sup> Woodhull, 22.

<sup>160</sup> Troesken, 743.

and begin pumping water into Oglethorpe Ward, which was densely populated with poor whites and blacks.”<sup>161</sup>

### **Medical Care and the Poor**

Medical care seldom reached the poorer classes. In the years before public welfare the poorer classes were treated at the whim of local physicians who would, or would not, provide free medical care. With no system or program in place, the poor were at particular risk at contracting disease and not being treated for it. The city’s budget could hardly pay for an extensive system of care, however, even when the city was made aware of the problem, not even basic measures were taken to solve the problem.

Medicine in Savannah was dominated by white elites. This group of physicians were all serving as owners of private practices and thus had their own list of patients to look after. There is no evidence that local physicians actually denied medical care to the poor. In fact, during the epidemic, there seems to be no overt racial or socio-economic undertone, however, no single agency or organization had taken responsibility for the holistic surveillance of the city’s healthcare. Many were left without even basic medical services.

On April 4, 1873, a petition was submitted to the Mayor and City Council that demonstrates the plight of the poor in relation to medical care. The petition, signed by eleven ministers of local black churches, “and others,” stated “how great the poverty of the said poorer classes, and how real is their inability to provide for themselves proper

---

<sup>161</sup> Fraser, 296.

medical treatment when such a must is necessary.”<sup>162</sup> The petition goes on to acknowledge the gratis labor of the local doctors under the umbrella of the Georgia Medical Society; however, the petitioners had one request: they wanted the city to hire a “resident city physician... on whom the pauper may confidently call in the hour of extreme illness.”<sup>163</sup> The ministers also draw a direct connection between this lack of care and survivability during disease outbreak. Referring to the fall and winter of 1872, during which an unspecified presumed disease outbreak occurred, they implore that “hundreds of the poor suffered indescribably, and many died... from want of the personal services of such an officer [physician].”<sup>164</sup> They continue, saying that the lack of proper advice and treatment from a dedicated doctor prompted “the afflicted to have recourse to treatment of a nature better calculated to destroy than to preserve life and health.”<sup>165</sup>

The petitioners received their answer. In an undated, unsigned scrawling on the original petition, the city replied:

The Health and Cemetery to whom was referred the application of certain colored members of the gospel for the appointing of a city physician to render pauper patients beg have to report that they have given the same due consideration of and that they deem such an appointment unexpedient.

First, the finances of the city do not support the creation of any new offices.

Second the poor are amply supplied medicines from the city dispensary and thousands are annually attended by the physicians of the city without fee or reward.<sup>166</sup>

---

<sup>162</sup> Petitioners to the Health and Cemetery Committee, April 4, 1873, City Council Meeting Papers, Committee on Public Health, Research Library and Municipal Archives, Savannah, Georgia.

<sup>163</sup> Ibid.

<sup>164</sup> Ibid.

<sup>165</sup> Ibid.

<sup>166</sup> Petitioners to the Health and Cemetery Committee, April 4, 1873.

It was not only benevolent organizations that recognized the plight of the poor, or who felt the callousness of the city's administration.

White physicians also acknowledged the lack of adequate healthcare for the city's poor. In a letter from the Georgia Medical Society to the Savannah City Council, Dr. T.J. Charlton requested city intervention, requesting that a physician be identified by the city for each of the city's two districts to care for the poor. The letter debunks the city's reply to the ministers' petition saying that, "while ample provision has been made for supplying the sick poor with medicines at the expense of the city, no provision whatever has been made for the supplying them with medical attendance."<sup>167</sup> The letter goes on to claim that, "this system has doubtless been the cause of much suffering, and in some instances death, which might have been prevented by the timely attendance of a physician, many persons feeling a delicacy in calling upon a professional man for gratuitous services and hence delay until the case becomes dangerous, and the result is death or a long painful illness."<sup>168</sup>

### **Chapter Conclusion**

Vulnerability of the poor to disease, from the standpoint of healthcare, was not solved by the time the 1876 sickly season rolled around. Instead, an overall unhealthy population of people, without medical care, would fall victim.

The poor, consisting mostly of freedmen, were a vulnerable population. Underserved by city services, they were geographically located where disease was believed most likely to strike: the city's wet and filthy wards. Denied adequate drainage and sanitation, these areas would be perfect breeding ground for the mosquito. It is no

---

<sup>167</sup> Dr. Charlton to the Mayor, February 10, 1875.

<sup>168</sup> Ibid.

surprise, then, that a young, probably malnourished child named James Cleary would first fall victim in a poor sector of the city.

It was not just sanitary conditions that would threaten the poor. Medical care was spotty, crisis oriented rather than preventative, and not centrally organized. The petition, and its reply, describes a city that was socially vulnerable to yellow fever. Both of these social conditions were preventable, either by the direct application of funds, or in the financial crisis it was in, by creative management of scarce resources. It is apparent, that despite its financial hardship, the city was able to clean things up during the crisis demonstrating that it would have been able to do so as the sickly season approached and before the outbreak began.

## CONCLUSION

The yellow fever epidemic of 1876 in Savannah, Georgia was preventable. Truly this is a regrettable argument given the tragic circumstances. On September 21, 1876, one month to the day after the epidemic broke, the *Savannah Morning News* declared, “the authorities, upon the first announcement of yellow fever, promptly, and without a day’s delay... cleaned out... the entire city.”<sup>169</sup> This sudden attention to cleanliness was too little, too late. The city was wrecked by yellow fever and faced a long recovery.

Yellow fever was not entirely the fault of Savannah’s municipal government or of the South. The yellow fever virus was unseen and not entirely understood. No amount of measures could have prevented yellow fever from arriving on Savannah’s shores. Let it be clear that the virus originated in Africa and spread to the New World through the abundance of slave and commodity trade that permeated the southwest trade routes. Yellow fever struck the South every year throughout the seventeenth, eighteenth and nineteenth centuries. Often, it broke out into epidemic proportions. What was preventable in Savannah was the spread of yellow fever through the management of the physical environment.

It is also unfair to accuse Savannah’s leadership of not recognizing the mosquito threat. Although there were suspicions of insect involvement as early as the late eighteenth century, there was insufficient acknowledgement of that suspicion and no scientific rationale to suspect it. Local leaders and public health officials should not have identified the connection between a mosquito and disease epidemic. It is perfectly

---

<sup>169</sup> *Savannah Morning News*, September 21, 1876.

rational, therefore for the two theories, local origin and importation, to flourish within the community for whatever political end the theories supported.

Savannah decision-makers, however, knew and understood significant information about their physical environment that should have alerted them to the threat. First, they knew their climactic state, the climate's relevance to yellow fever, and the weather conditions of August 1876.

It was well known and circulated that the southern United States was teeming with disease. Although yellow fever struck the northern cities in the eighteenth century, the end of that disease in the north was attributed to the end of slavery in the north and the hot and humid climate of the south. It was also known and understood, that the sickly season began in late summer, towards the end of July, and ended with the first harsh frosts of November. The general populace anticipated the sickly season. Disease visitation was observable and unmistakable. To that end, 1876 was uniquely vulnerable. Heavy rains in the spring followed by an unusually hot and humid summer was observed and documented by the newspapers and even the local citizen. All these factors would lead any citizen or official to recognize an unusual threat in 1876.

Second, Savannah decision-makers knew and understood the relationship between community cleanliness and disease propagation. Regardless of which yellow fever theory one subscribed to, the end result was the same; disease was directly related to sanitation and drainage.

The natural topography of the area was well known to be a drainage problem. This is evidenced in the dry culture program that essentially eradicated rice plantations and put certain low areas, such as the Springfield Plantation under city control. To the

public health and medical sectors, these low-lying marshy areas were the cause of rotting vegetation and animal remains. The resultant foul odor, or poisonous miasma, was believed to be a significant cause of yellow fever. The refusal of the city to manage the waters trapped in the Springfield Plantation was criminal. Concerned physicians were ignored despite the call to abide by city procedure and drain the planation.

Man-made water management structures were known to harbor filth and standing water. The Bilbo Canal was notorious for sanitation problems, yet, like the Springfield Plantation, it was left unmanaged and poorly maintained. Dr. James Waring's protests to this end are sufficient evidence of the city's awareness of this threat to health. Although many examples have been examined, Waring's opinions were played out before the City Council, the courts and in the newspapers. Again, the relationship between drainage and the mosquito was not known, but it didn't have to be. The community as a whole was fully aware of the suspected threat of poor drainage and sanitation as well as the fact that nothing was being done to address that threat. Le Hardy would claim that, "Experience has proven that these two measures by themselves will prevent yellow fever."<sup>170</sup>

But why, in light of a known threat to the safety of the community, were these physical factors ignored? What contributed to these fatal decisions? These questions were answered in light of the economic and political conditions in the city as well as certain social conditions.

Politically, the city was in the stranglehold of a bad economic situation as well as medical, foreign policy, and public health issues. Each of these conditions, in some way, led officials away from taking definitive preventative measure on the eve of the outbreak.

---

<sup>170</sup> Le Hardy, *The Rational Method*, 22.

The economic depression of 1873 deepened an already bad economic climate in the city. The significant debt that was amassed from various public works projects and an inordinate investment in railroads was exacerbated by this downturn. The city was operating on a shoestring, and taxpayers were weary of the debt burden being passed down to them in the form of taxes. In turn, budgets were cut, including monies targeted for sanitation, namely the Scavenger Department. This lack of funding was blamed by the city for its failure to maintain the sewer system and enforce sanitation violations.

The medical debate over the cause and spread of yellow fever also contributed political complexity and a lack of preventative measures. Several influential physicians, namely Dr. Waring, held close to the local origin theory whereby the city was held responsible for the conditions that were felt to cause the fever.

The importation theory, which held that yellow fever was brought to the city from an external source, was popular with city officials, the general public, and most notably the newspapers. Importation theorists called for quarantine measures to be invoked that would force ships arriving from foreign ports to be held while inspected for sick sailors. Although on the surface quarantine provided some political cover, it also exposed the already cash-poor city to significant costs. The medical controversy over the cause of yellow fever was being debated in the public square, but again, the argument is moot when you consider that both sides of the debate acknowledged the role of sanitation and drainage.

Social conditions in the city also indicated a unique threat to the city in 1876. Sewer systems that, if maintained, would have reduced the threat, by-passed underserved populations and medical care was not adequately being provided to the poorer classes.

Both of these social conditions were worsened with the steady increase in population and resultant crowded conditions. Mayor Screven recognized the value of making sewer and drainage improvements in the early 1870s in order to present a better picture of the city to investors. White elitism interfered with an equal distribution of these services. Sewers were targeted for the affluent that were the most vocal against filth and odor. This omission of sewer services to the poor placed them at risk. An equal distribution of sewer and water would have helped protect the city as a whole from tragedy.

Unequally applied medical services also interfered with yellow fever resistance. The poorer classes had no direct access to health care. Local physicians provided care for no fee, but there was no system to ensure even gratis services were rendered equally. Blacks were particularly vulnerable. As with any disease, poor health increased the mortality of yellow fever, and therefore the poor were at risk. City records only identify the dead by race, not by social standing. Of the 1,066 officially recognized deaths, only 257 were listed as colored.<sup>171</sup> This is surprisingly low, but it reflects the low mortality of yellow fever on the black population. What is not recorded is the actual number of cases. Although blacks got sick, they did not die at the same rate as whites.

It is easy for the researcher to examine the evidence, and draw the conclusion that Savannah's epidemic could have been prevented. The challenge is to craft a solution. What should they have done? And, perhaps more importantly, what could they have done given the conditions at the time?

Clearly, the city should have reduced the amount of standing water in the city. This would have helped eliminate the poisonous miasma that they feared was spreading

---

<sup>171</sup> Anderson, *Report of 1876*, 19.

yellow fever, while improving the city's overall appeal. In actuality, it would have greatly reduced the proliferation of mosquito larvae. To accomplish this reduction, the city had several actions at its disposal. First, it should have maintained the sewers and canals as prescribed by city procedure. This constant flushing with fresh seawater would have eliminated standing water, and horrible stench, in these waterways. Second, the city should have drained the Springfield Plantation in preparation for the sickly season. Dr. Waring's drastic move to take that matter into his own hands is indicative of the severity of the problem. Finally, in advance of the sickly season, the city should have funded the scavenger department in order to provide general cleanliness and sanitation to the city. These three actions would not only have both greatly reduced the yellow fever threat, but also would have improved city aesthetics that was a concern all along. Unfortunately for the citizens of Savannah, that dark summer, their lives were traded for the ugly side of politics, poor economic decisions, and corrupt social patterns.

## EPILOGUE

On November 14, 1876, the epidemic in Savannah was declared over. In its wake were crowded cemeteries and economic destruction. Solomon Gleason died of yellow fever on October 3, 1876. By the time of his death he was broke. “My Business is ruined,” he wrote on September 4, “and I find myself a poor man.”<sup>172</sup> In the 1877 annual report the city formally recognized the benefit of cleaning up the city. Spending \$7,973.68 in further dry culture improvements, the report admitted, “While this is a large outlay in the present condition of the city’s finances, it is believed it will be justified by improving the general health.”<sup>173</sup> But by 1879, the memory of 1876 had already faded. In a supplement to the mayor’s report in 1879 it was sadly reported that conditions had returned to an abysmal state.<sup>174</sup>

The widespread epidemic of 1878 devastated the country and was responsible for bringing considerable attention to the yellow fever threat. Two significant initiatives were results of this outbreak. First, the Quarantine Act of 1878 was passed. This law was a long time in coming. As has been discussed, this issue was hotly debated and congress was slow to take a side. The 1878 outbreak caused political pressure that could not be resisted. Second, legislation was pursued in Congress to form a Federal health board. This bill (S.R. 1462), sponsored by Senator Lucius Q.C. Lamar (D., Miss.), called for the formation of a bureau of public health at the Federal level. This legislation was hotly contested and battle lines were formed between Dr. Woodworth, an importation theorist

---

<sup>172</sup> Gleason Diary, September 4, 1876

<sup>173</sup> John F. Wheaton, *Report of John F. Wheaton, Mayor of the City of Savannah, for the Year Ending December 31, 1877* (Savannah: George N. Nichols, 1878), 13.

<sup>174</sup> Waring, 11-12.

and quarantine supporter, and a coalition of the American Public Health Association and the American Medical Association. The battle would cost Woodworth his life, likely by suicide. Ultimately, the bill failed, and the formation of a Federal level public health entity remained elusive.<sup>175</sup> It was twenty-two years later that it was discovered that *Aedes aegypti* was the culprit.

It was Dr. Jesse Lazear, bacteriologist and associate to the renowned military physician, Dr. Walter Reed, who would make the discovery. Reed, who doubted the mosquito theory, sent Lazear to Havana to conduct further studies on yellow fever. Through a series of experiments, that included the self-induced infection by a yellow fever carrying mosquito, the theory was confirmed. On September 18, 1900, Lazear fell ill with yellow fever. He died several days later. Subsequent meetings of the American Public Health Association and the American Medical Association in 1902 and 1903 respectively unanimously agreed that the mosquito was the carrier of yellow fever.<sup>176</sup> At last the code was broken.

After this discovery, however, yellow fever would still visit the South until the last serious outbreak in New Orleans in 1905. Yellow fever would cost the lives of 100,000 people in America as it ran its course.<sup>177</sup> Mosquito control through drainage management became the norm and the South was finally released from the grip of fear. In 1905, Shreveport was fumigated.<sup>178</sup> As late as 1943, the Savannah-Chatham County Health Department had formed an *Aedes aegypti* Control Unit to protect the war industry

---

<sup>175</sup> Ellis, 73-82

<sup>176</sup> Humphreys, 41.

<sup>177</sup> M. C. Crosby, 12.

<sup>178</sup> Association of Schools of Public Health, "Control of *Aedes aegypti* in Savannah," *Public Health Reports (1896-1970)* 20, no. 34 (August 1905): 1742.

and military presence in and around Savannah.<sup>179</sup> These efforts succeeded. Yellow fever was over.

Correctly executed, historical analysis of historical events, such as Savannah's outbreak, can be a useful tool for decision-makers and should be applied to modern policy and practice. This approach is long overdue in the domain of emergency management and response. The Savannah story serves as an exemplar of how this application could be made and what can be learned.

Savannah's yellow fever epidemic cannot be applied loosely to any and all epidemic disease outbreak. Care must be taken to avoid oversimplification and other pitfalls of applied history. Done correctly, however, there are clear lessons to be learned.

The biggest lesson to be learned is the need for broad community monitoring for indicators of disaster threat. Economic monitoring can identify certain high-risk groups that, given a poor economic condition, may be denied appropriate services. If budget cuts are made, who might be at risk? Targeted remedial actions may be able to be funded when a specific group can be identified. In Savannah's case, perhaps the city could not have afforded medical care for the poor year round, but perhaps in July and August a cost-effective arrangement could have been made. Imagine how such an economic surveillance could have positively impacted the results of hurricane Katrina on New Orleans.

Political indicators may be difficult to identify in real time, but political decisions can be monitored for vulnerability impacts. Politicians anxious to place blame on external vectors may distract officials from identifying other factors or the real culprit. The Cuban

---

<sup>179</sup> C.A. Henderson, "Control of *Aedes aegypti* in Savannah," *Public Health Reports (1896-1970)* 59, no. 41 (October 1944): 1350.

threat was a mere distraction to the public who should have been cleaning out their privies and eliminating standing water around their property. Certainly these cleanliness issues were raised to the public, but the attempt by the newspapers and public leaders to draw attention to a foreign threat, meant less time and attention to local conditions.

There is great potential for additional research. Additional events from the past must be given scholarly attention and a catalogue of events assembled that have high yield potential for contemporary and future problem-solving and policy making. This challenge requires a careful analysis of what the current problem space is and what events in the past have appropriate relevance. Much like the relationship between historian and military commander, the interaction of historian and emergency management operator will be a good and important interaction.

Academia will be a critical factor for the success of this endeavor. Higher education institutions must embrace the importance of such research and bring credibility to an academic discipline in disaster history. The model for such a relationship exists within the military and can be easily adapted to the civilian domain. Practitioners of emergency management are faced with near-term government requirements and the need to find funding. Seldom is the typical emergency manager acknowledging the past. Although using the military model as a beginning point, it will also be a challenge to create a unique discipline based on its own merits and needs. However, the use of the military model as a beginning point should not be marginalized.

There is also great potential for innovative and very useful tools to emerge from disaster-oriented applied history. Software development has evolved to the extent that various community factors, and their historic cousins, can be brought together in user-

friendly formats for real time historical analysis during emergencies. In the urgent emergency environment, rapid access is critical, and interesting commercialization opportunities exist.

This thesis creates an exemplar for future research. By engaging in this important, yet completely untouched domain, exciting opportunities exist to explore the historical record and redeem the death of James Cleary and his 1,065 fellow victims of the yellow fever epidemic of 1876 in Savannah, Georgia.

This epilogue fittingly ends with the diarist, Solomon Gleason. On September 22, 1876, he first wrote of “feeling badly.” On September 28, he wrote his last entry. “Came home around 5 P.M. with a head cold,” he wrote, his handwriting shaky, “got things ready for a powerful sweat, hope to throw it off.”<sup>180</sup> He didn’t.

---

<sup>180</sup> Gleason Diary, September 28, 1876.

## BIBLIOGRAPHY

### Archival Sources

Cornelius Rae Agnew letters, MS 926, Georgia Historical Society, Savannah Georgia.

City Council Meeting Papers, Committee on Public Health, Research Library and Municipal Archives, Savannah, Georgia.

Georgia Medical Society collection, MS 2012, Georgia Historical Society, Savannah, Georgia.

Gordon Family papers, Nelly Gordon papers, MS 318, Georgia Historical Society, Savannah, Georgia.

Solomon Wilson Gleason Diary and other materials, MS 1577, Georgia Historical Society, Savannah, Georgia.

U.S. Surgeon General's Office. "Digital Collections." *U.S. National Library of Medicine*. 1868. <http://collections.nlm.nih.gov/pageturner/viewer.html?PID.nlm:nimuid-0257543> (accessed July 11, 2011).

### Reports

Anderson, Edward C. *Report of Edward C. Anderson, Mayor of Savannah, for the Year Ending December 31, 1874*. Annual, Savannah: Morning News Steam Printing House, 1874.

Anderson, Edward C. *Report of Edward C. Anderson, Mayor of Savannah, for the Year Ending December 31, 1875*. Annual, Savannah: Morning News Steam Printing House, 1876.

Anderson, Edward C. *Report of Edward C. Anderson, Mayor of Savannah, for the Year Ending December 31, 1876*. Annual, Savannah: Geo. N. Nichols' Steam Printing House, 1877.

Association of Schools of Public Health. "Control of *Aedes aegypti* in Savannah." *Public Health Reports (1896-1970)* (Association of Schools of Public Health) 59, no. 41 (October 1944): 1350-1352.

Association of Schools of Public Health. "Yellow Fever in the United States." *Public Health Reports* (Association of Schools of Public Health) 20, no. 34 (August 1905): 1741-1752.

Wheaton, John F. *Report of John F. Wheaton, Mayor of the City of Savannah, for the Year Ending December 31, 1877*. Annual, Savannah: George N. Nichols, 1878.

World Health Organization. *Yellow Fever*. January 2011.  
<http://www.who.int/mediacentre/factsheets/fs100/en> (accessed August 30, 2011).

—. *Yellow Fever in Cote d'Ivoire*. January 25, 2011.  
[http://www.who.int/csr/don/2011\\_01\\_25/en](http://www.who.int/csr/don/2011_01_25/en) (accessed August 30, 2011).

### **Published Primary Sources**

Board of Health of the City of Savannah. *Revised Rules of the Board of Health, of the City of Savannah, for 1866, Together with the Report of the Poudrette Committee*. Savannah, GA: Chas. O'Sullivan, 1866.

Condie, Thomas, David Rittenhouse, and Richard Folwell. *History of the pestilence, comonly called yellow fever, which almost devastated Philadelphia, in the months of August, September & October, 1778*. Philadelphia: R. Folwell Press, 1799.

Falligant, Louis A. *A Monograph on the Yellow Fever of 1876 in Savannah, Georgia*. 1878. Reprint, Danvers, MA: General Books, 2009.

Le Hardy, Juilus Ceasar, MD. *Quarantine: its sanitary and politcal aspect in relation to the spread of epidemic disease*. Atlanta: J.P. Harrison & Co., 1879.

—. *The Rational Method of Preventing Yellow Fever on the South Atlantic Coast*. Augusta, GA: J.M. Richards, 1889.

—. *The Yellow Fever Panic*. Savannah, GA: Townsend, 1888.

Marine Hospital Service. *Yellow Fever: Its Nature, Diagnosis, Treatment, and Prophylaxis, and Quarantine Reguations Relating Thereto*. Washington, DC: Government Printing Office, 1898. In *Yellow Fever Studies*. New York: Arno Press, 1977.

Savannah Board of Health. *Revised Rules of the Board of Health of the City of Savannah, for 1866: together with the report of the Poudrette Committee, &c. &c.* Savannah: Chas. O'Sullivan Printers, 1866.

U.S. Surgeon General's Office. *Report on epidemic cholera and yellow fever in the Army of the United States, during the year 1867*. Under "Digital Collections." *U.S. National Library of Medicine*, 1868.  
<http://collections.nlm.nih.gov/pageturner/viewer.html?PID=nim:nlmuid-0257543-bk>  
(accessed October, 31, 2011).

Waring, James J. *The Epidemic at Savannah, 1876: Its Causes and Measures of Prevention, Adopted by the Municipality During the Administration of Hon. J.F. Wheaton, Mayor*. Savannah: Morning News Steam Printing House, 1879.

Webster, Noah. *Noah Webster: Letters on Yellow Fever Addressed to Dr. William Currie*. 1758-1843. Reprint, New York: Arno Press, 1979.

White, Octavius Augustus. *Report upon yellow fever as it appeared in Savannah, Georgia, in 1876*. New York: D. Appleton & Company, 1877.

Whittier, John Greenleaf. "The Farewell." under "John Greenleaf Whittier Poems" on *Famous Poets and Poems.com*, [http://www.famouspoetsandpoems.com/poets/john\\_greenleaf\\_whittier/poems/5337.html](http://www.famouspoetsandpoems.com/poets/john_greenleaf_whittier/poems/5337.html) (accessed October 31, 2011)

Woodhull, Alfred A., M.D. "On the Causes of the Epidemic of Yellow Fever at Savannah, Georgia in 1876." *The American Journal of the Medical Sciences* (n.p.), no. CXLVII (July 1877): 2-54.

Woodworth, John M., MD. "Review of the article, The Cholera Epidemic of 1873 in the United States of America." *Indian Annals of Medical Science*, January 1876: 1-10.

### **Journal and Chapter Sources**

Allen, Francis R. "Development of the Public Health Movement in the Southeast." *Social Forces* (University of North Carolina Press) 22, no. 1 (October 1943): 67-75.

Denmark, Lisa L. "'At the Midnight Hour': Economic Dilemmas and Harsh Realities in Post-Civil War Savannah." *Georgia Historical Quarterly* 90, no. 3 (Fall 2006): 350-390.

Duffy, John. "Yellow Fever in the Continental United States During the Nineteenth Century." *Bulletin of the New York Academy of Medicine* 44, no. 6 (June 1968): 687-701.

Foster, Farley. M. "The Mighty Monarch of the South: Yellow Fever in Charleston and Savannah." *Georgia Review* 27, no. 1 (1973): 56-70.

Goldfield, David R. "The Buisness of Health Planning: Disease Prevention in the Old South." *The Journal of Southern History* 42, no. 4 (November 1976): 557-570.

Hattendorf, John B. "The Uses of Maritime History In and for the Navy." *Naval War College Review* 56, no. 2 (Spring 2003): 13-35.

Kiple, Kenneth F., and Virginia H. Kiple. "Black Yellow Fever Immunities, Innate and Acquired, as Revealed in the American South." *Social Science History* (Duke University Press) 1, no. 4 (Summer 1977): 419-436.

Lee, Anne S. and Everett S. Lee. "The Health of Slaves and the Health of Freedmen: A Savannah Study." *Phylon* (Clark Atlanta University) 38, no. 2 (2nd Quarter 1977): 170-180.

Mitchell, Martha Carolyn. "Health and the Medical Profession in the Lower South." *The Journal of Southern History* (Southern Historical Association) 10, no. 4 (November 1944): 424-446.

Paterson, David K. "Yellow Fever Epidemics and Mortality in the United States." *Social Science and Medicine* (Pergamon Press) 34, no. 8 (April 1992): 855-865.

Perdiquero, E., J Bernabeu, R Huertas, and E. Rodriquez-Ocana. "History of Health, a Valuable Tool." *The Journal of Epidemiology and Community Health* 55, no. 9 (September 2001): 667-673.

Sumida, Jon Tetsuro, David Allen Rosenberg. "Machines, Men, Manufacturing, Management, and Money: The Study of Navies as Complex Organizations and the Transformation of Twentieth Century Naval History." In *Doing Naval History: Essays Toward Improvement*, edited by John B. Hattendorf, 25-39. (Newport, RI: Naval War College Press, 1995).

Teigen, Phillip M. "A Kindly, useful Mentor; Applying the History of Medicine to Public Policy." *Journal of the History of Medicine and Allied Sciences* 54, no. 9 (1999): 353-363.

The British Medical Journal. "The Morbid Anatomy of Yellow Fever." *The British Medical Journal* (BMJ Publishing Group) 1, no. 951 (March 1879): 434.

Troesken, Werner. "The Limits of Jim Crow: Race and the Provision of Water and Sewerage Systems in American Cities, 1880-1925." *The Journal of Economic History* (Cambridge University Press) 62, no. 3 (September 2002): 734-772.

Usinger, Robert L. "Yellow Fever from the Viewpoint of Savannah." *The Georgia Historical Quarterly* (Georgia Historical Society) 28 (September 1944): 148.

Young, Jeffery R. "Ideology and Death on a Savannah Rice Plantation, 1833-1867." *The Journal of Southern History* (Southern Historical Association) 59, no. 4 (November 1993): 673-706.

## **Secondary Sources**

Bell, Andrew McIlwaine. *Mosquito Soldiers: Malaria, Yellow Fever, and the Course of the Civil War*. Baton Rouge, LA: Louisiana State University Press, 2010.

Brundage, W. Fitzhugh. *A Socialist Utopia in the New South: The Ruskin Colonies in Tennessee and Georgia 1894-1901*. Chicago: University of Illinois Press, 1996.

Calloway, Colin G. *New Worlds for All: Indians, Europeans, and the Remaking of Early America*. Baltimore: The John Hopkins University Press, 1997.

- Clausewitz, General Carl Von. *On War*. Translated by Colonel J.J. Graham. 1832. Reprint, London: Routledge and Kegan Paul, 1966.
- Collingwood, R. G. *The Idea of History*. New York: Clarendon Press, 1993.
- Conway, Alan. *The Reconstruction of Georgia*. Minneapolis: University of Minnesota Press, 1966.
- Crosby, Alfred W. *Ecological Imperialism: The Biological Expansion of Europe, 900-1900*. New York: Cambridge University Press, 1986.
- Crosby, Molly Caldwell. *The American Plague: The Untold Story of Yellow Fever, the Epidemic that Shaped Our History*. New York: Berkley Books, 2006.
- Duffy, John. *Sword of Pestilence*. Baton Rouge, LA: Louisiana State University Press, 1966.
- Ellis, John H. *Yellow Fever and Public Health in the New South*. Lexington: University Press of Kentucky, 1992.
- Espinosa, Mariola. *Epidemic Invasions: Fever and the limits of Cuban Independence, 1878-1930*. Chicago: University of Chicago Press, 2009.
- Fox, Stephen. *Wolf of the Deep: Raphael Semmes and the Notorious Confederate Raider CSS Alabama*. New York: Alfred A. Knopf, 2007.
- Fraser, Walter J. *Savannah in the Old South*. Athen, GA: University of Georgia Press, 2003.
- Gamble, Thomas Jr. *A History of the City Government of Savannah, Georgia from 1790 to 1901*. Savannah, Georgia: Savannah City Council, 1900.
- Grob, Gerald N. *The Deadly Truth: A History of Disease in America*. Cambridge, MA: Harvard University Press, 2002.
- Hattendorf, John B. *Doing Naval History: Essays Toward Improvement*. Newport: Naval War College Press, 1995.
- Humphreys, Margaret. *Yellow Fever and the South*. New Brunswick, New Jersey: Rutgers University Press, 1955.
- Jones, Jacqueline. *Saving Savannah: The City and the Civil War*. New York: Alfred A. Knopf, 2008.
- Lockley, Timothy James. *Lines in the Sand: Race and Class in Lowcountry Georgia, 1750-1860*. Athens, GA: The University of Georgia Press, 2001.

McNeill, J.R. *Mosquito Empires: Ecology and War in the Greater Caribbean, 1620-1914*. New York: Cambridge University Press, 2010.

Murray, Wiliamson, and Richard Hart Sinnreich. *The Past as Prologue: The Importance of History to the Military Profession*. New York: Cambridge University Press, 2006.

Neustadt, Richard E., and Ernest R. May. *Thinking in Time: The Uses of History for Decision-Makers*. New York: The Free Press, 1986.

Price, Robin. *An Annotated Catalogue of Medical Americana in the Library of the Wellcome Institute for the History of Medicine*. London: The Wellcome Institute for the History of Medicine, 1983.

Spitz, Susan I., ed. *Webster's II: New College Dictionary Third Edition*. New York: Houghton Mifflin, 2005.

Sumida, Jon Tetsuro. *Decoding Clausewitz: A New Approach to On War*. Lawrence, Kansas: University Press of Kansas, 2008.

Thucydides. *Speeches from Thucydides*. Translated by Jowett. New York: Oxford University Press, 1919.

Tosh, John. *The Pursuit of History: Aims, Methods and New Directions in the Study of Modern History*. New York: Pearson Education Limited, 2010.